

MISINFORMATION AND TEENAGERS: THE ROLE OF SOCIAL AND EMOTIONAL
LEARNING IN MEDIA AND INFORMATION LITERACY

Yeonhee Cho

A dissertation
submitted in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy
University of Washington
2026

Reading Committee:

Jin Ha Lee, Chair
Jason C. Yip
Chris Coward

Program Authorized to Offer Degree:
Information School

©Copyright 2026

Yeonhee Cho

University of Washington

Abstract

MISINFORMATION AND TEENAGERS: THE ROLE OF SOCIAL AND EMOTIONAL
LEARNING IN MEDIA AND INFORMATION LITERACY

Yeonhee Cho

Chair of the Supervisory Committee:

Jin Ha Lee

Information School

Misinformation has become a pressing concern for teenagers navigating today's digital and AI-mediated information environments. Although young people are often described as vulnerable to misinformation, they are not only passive recipients of misleading content; they also actively consume, share, remix, and create digital information. In these contexts, misinformation is not only a problem of factual accuracy, but also a social and emotional phenomenon shaped by humor, peer influence, identity, trust, reputation, and responsibility. While Media and Information Literacy (MIL) remains a central educational approach for addressing misinformation through fact-checking, source evaluation, and critical analysis, these cognitive skills alone may not fully prepare teenagers to respond to misinformation in emotionally charged and socially situated digital environments.

This dissertation examines how Social and Emotional Learning (SEL), guided by the Collaborative for Academic, Social, and Emotional Learning (CASEL) framework, can be meaningfully integrated into misinformation education for teenagers. Grounded in the five CASEL competencies of self-awareness, self-management, social awareness, relationship skills, and responsible decision-making, the study explores how SEL can complement MIL by foregrounding emotional awareness, empathy,

perspective-taking, ethical judgment, and responsible digital participation.

Using a two-phase qualitative research design, this study brings together educator perspectives and teenagers' lived experiences. Phase I consists of interviews with educators experienced in SEL, MIL, and youth learning to examine how they understand the possibilities and challenges of integrating SEL into misinformation education. Phase II explores teenagers' experiences in an SEL-based misinformation learning module that combines a misinformation simulation game, structured debriefing, role-play, visual reflection, and a community message activity.

The findings suggest that SEL can broaden misinformation education by helping teenagers connect information practices to emotion, relationships, harm, and agency. Educators viewed SEL as a practical foundation for helping teenagers pause, reflect, consider others, and make more responsible choices in socially complex digital situations. Teenagers interpreted misinformation not only as false or misleading information, but also as something connected to embarrassment, trust, peer relationships, reputation, AI-generated content, and social responsibility. Among the CASEL competencies, self-awareness, social awareness, and responsible decision-making were especially visible in teenagers' reflections, while self-management and relationship skills appeared less directly and may require more explicit instructional support.

This dissertation contributes an empathy-centered approach to SEL–MIL integration. It argues that misinformation education should move beyond asking whether information is true or false and also ask who may be affected, why people participate, and how teenagers can respond with care. The study offers five instructional design recommendations for SEL–MIL learning experiences. Together, these findings suggest that SEL-based misinformation education can support teenagers in becoming not only critical evaluators of information, but also empathetic, reflective, and socially responsible participants in digital life.

Keywords: Misinformation; Social and Emotional Learning (SEL); Media and Information Literacy (MIL); Teenagers; CASEL Framework; Empathy; Social Responsibility; Agency; Digital Citizenship

MOTIVATION

This research began with a growing curiosity about artificial intelligence (AI) technology that has made many aspects of daily life more convenient, yet increasingly complex. As I explored AI more deeply, my curiosity turned into concern, particularly regarding teenagers and their relationship with misinformation. With AI tools now capable of manipulating images, videos, and even voices, distinguishing what is real from what is fabricated has become increasingly difficult.

Teenagers are especially vulnerable in this environment. They are frequently exposed to misinformation, and at times, they also become its creators. Some engage with AI-generated content out of curiosity, while others use these tools to play pranks or create humorous content for their peers. However, an important question remains: do teenagers fully understand the social consequences of these actions? Content shared as a joke does not remain confined to a small circle of friends; through social media, it can rapidly spread to hundreds or even thousands of people. These concerns formed the initial motivation for this study.

My concern deepened during a misinformation workshop I facilitated at a high school. I observed that many students were familiar with the technical skills associated with misinformation detection. They could describe fact-checking strategies and explain how to identify false information in theory. However, their emotional engagement with misinformation and their concern about its real-world impact were often limited. Several students expressed attitudes such as, “If it is funny, I share it with my friends,” without reflecting on how such content might affect others.

This experience led me to question how educators and researchers might help teenagers better understand the social and emotional implications of misinformation, beyond simply identifying it. This study aims to explore how Social and Emotional Learning (SEL), particularly through empathetic reflection, can support teenagers in not only recognizing misinformation but also understanding its consequences and acting more responsibly in digital spaces.

ACKNOWLEDGEMENTS

The journey toward a Ph.D. is filled with challenges, hope, and the sacrifices of many others. I am deeply grateful to my family, colleagues, and advisors for their unwavering support throughout this process.

Nothing in this world is accomplished alone. Every step I take and everything I create is made possible, both visibly and invisibly, through the care, sacrifices, and generosity of others. I am profoundly thankful to my family, who endured hardships alongside me; to my advisors and committee members, Dr. Lee, Dr. Yip, and Chris, who generously offered their time and invaluable academic guidance despite their many responsibilities; and to my friends and colleagues, especially Michele, Scott, and all the Gamer Group colleagues, for their thoughtful advice and encouragement. I could not have reached this point without you.

Giving up is easy, but I wanted to persist and to be a good example for my children, Robin and Anna. When they grow up, and when the time comes for them to search for and read my dissertation, I hope they understand that nothing meaningful is built in a single day. What matters is continuing forward, step by step, and never giving up.

I would also like to extend my heartfelt gratitude to the *Social Science Research Council's Data Fluencies program* for providing financial support that made this research possible.

Finally, I would like to share a message with teenagers:

Being an adult means taking responsibility for your own actions. No one tells you what to do, and no one forces you to act once you become an adult. However, freedom is not free; responsibility always follows your actions.

I hope teenagers understand the depth and importance of this truth.

TABLE OF CONTENTS

ABSTRACT	iii
MOTIVATION	v
ACKNOWLEDGEMENTS	vi
LIST OF FIGURES	x
LIST OF TABLES	xi
CHAPTER 1 : INTRODUCTION	1
1.1 The Need for Social and Emotional Learning in Misinformation Education	3
1.2 Defining Social and Emotional Learning in the Context of Misinformation	6
1.3 Purpose of the Study	7
1.4 Context of the Study	9
1.5 Definitions of Key Terms	10
1.6 Significance of the Study	12
CHAPTER 2 : LITERATURE REVIEW	14
2.1 Overview of the Chapter	14
2.2 Misinformation and Teenagers	15
2.3 Integrating Social and Emotional Learning into Misinformation Education	21
2.4 Empathic Reflection for Misinformation Education	29
2.5 Identified Gaps in the Literature	34
CHAPTER 3 : CONCEPTUAL FRAMEWORK	36
3.1 Overview of the Chapter	36
3.2 Social and Emotional Learning's CASEL Framework	36
3.3 Rationale for Adopting the CASEL Framework	39

3.4	Five Core Components of the CASEL Framework	42
CHAPTER 4 : METHODOLOGY		48
4.1	Overview of the Chapter	48
4.2	Research Design	48
4.3	Research Questions	50
4.4	The SEL-based Misinformation Learning Module	51
4.5	Phase I. Engaging Educator Perspectives	66
4.6	Phase II. Exploring Teenagers' Experiences	76
4.7	Ethical Considerations	92
CHAPTER 5 : RESULTS		94
5.1	Overview of the Chapter	94
5.2	Phase I. Findings from Educators' Perspectives	94
5.3	Phase II. Findings from Teenagers' Experiences	141
CHAPTER 6 : DISCUSSION		216
6.1	Returning to the Research Questions	216
6.2	Role of SEL in Misinformation Education	217
6.3	Teenagers' Meaning-Making of CASEL Competencies	228
6.4	Instructional Design Recommendations	245
6.5	Toward Responsible Digital Citizenship	260
CHAPTER 7 : CONCLUSION		273
7.1	Summary of the Study	273
7.2	Key Contributions	277
7.3	Critiques and Limitations	284
7.4	Future Research	289
7.5	Closing Reflection	291
BIBLIOGRAPHY		294

APPENDIX A : INCIDENTS OF MISINFORMATION AMONG TEENAGERS	326
APPENDIX B : SEARCHING MISINFORMATION GAMES	329
APPENDIX C : MISINFORMATION GAMEPLAY	332
APPENDIX D : PHASE I. EDUCATOR INTERVIEWS STUDY MATERIALS	340
APPENDIX E : PHASE II. TEENAGERS' EXPERIENCES STUDY MATERIALS	350
APPENDIX F : DEBRIEFING RESULTS	364
APPENDIX G : VISUAL REFLECTION RESULTS	384
APPENDIX H : TEENAGERS' INTERPRETATIONS OF CASEL	399
CURRICULUM VITAE	402

LIST OF FIGURES

FIGURE 1	<i>Social and Emotional Learning CASEL Framework</i>	37
FIGURE 2	<i>Misinformation Game Selection Process</i>	54
FIGURE 3	<i>SEL-Based Misinformation Learning Module</i>	57
FIGURE 4	<i>Narrative Video Screenshots</i>	58
FIGURE 5	<i>Sample Puzzles from Chronoshift</i>	60
FIGURE 6	<i>SEL-Based Debriefing Board</i>	62
FIGURE 7	<i>Role Cards for Debriefing</i>	64
FIGURE 8	<i>Emotion and Motivation Tokens</i>	64
FIGURE 9	<i>Example Outputs from the Message-Writing Activity</i>	64
FIGURE 10	<i>Certificate of Completion and Take-Home Materials</i>	65
FIGURE 11	<i>Website Featuring Teenagers' Collective Reflections on Misinformation</i>	66
FIGURE 12	<i>Research Procedure of Phase II</i>	79
FIGURE 13	<i>Phase II Data Collection</i>	82
FIGURE 14	<i>Data Triangulation in Phase II</i>	91
FIGURE 15	<i>Sharing or Reposting Content on Social Media</i>	143
FIGURE 16	<i>Perceived Seriousness of Misinformation</i>	143
FIGURE 17	<i>Baseline Survey Overview</i>	150
FIGURE 18	<i>Perceived Importance of SEL Competencies</i>	152
FIGURE 19	<i>Perceived Challenges in Applying SEL Competencies</i>	153
FIGURE 20	<i>Cyclical Spread of Misinformation</i>	159
FIGURE 21	<i>Visual Reflections on AI-Generated Misinformation</i>	163
FIGURE 22	<i>Visual Reflections on the Emotional Impact of Misinformation</i>	172
FIGURE 23	<i>Community Messages on Responsible Digital Action</i>	180
FIGURE 24	<i>Visual Reflection on Cascading Consequences of Misinformation</i>	187
FIGURE 25	<i>Escalation of Misinformation</i>	203
FIGURE 26	<i>Social Gameplay During the Learning Module</i>	249
FIGURE 27	<i>Role-Playing Activity During the Learning Module</i>	253
FIGURE 28	<i>Empowering Contribution Activity During the Learning Module</i>	257
FIGURE 29	<i>SEL-MIL Integration for Empathy-Centered Misinformation Education</i>	276
FIGURE 30	<i>Teenagers Reflecting on Responsible Digital Participation</i>	293

LIST OF TABLES

TABLE 1	<i>Alignment of Research Phases and Sub-Research Questions</i>	51
TABLE 2	<i>Demographic Characteristics of Participants (Phase I)</i>	70
TABLE 3	<i>Phase I Codebook for Educator Perspectives</i>	72
TABLE 4	<i>Demographic Characteristics of Study Participants (Phase II)</i>	78
TABLE 5	<i>Phase II Codebook for Teenagers' SEL–MIL Experiences</i>	89
TABLE 6	<i>Frequency of Social Media Platform Usage (Weekly)</i>	142
TABLE 7	<i>Baseline Survey Results for Media Literacy Confidence</i>	144
TABLE 8	<i>Baseline Survey Results for Emotional Reactivity</i>	145
TABLE 9	<i>Baseline Survey Results for Social Responsibility</i>	146
TABLE 10	<i>Baseline Survey Results for Empathy</i>	147
TABLE 11	<i>Baseline Survey Results for Agency</i>	149
TABLE 12	<i>Student Responses to Peer Misinformation</i>	151
TABLE 13	<i>Overview of Qualitative Data Sources</i>	155
TABLE 14	<i>CASEL Competencies in Misinformation Education</i>	243
TABLE 15	<i>Five Instructional Design Recommendations for SEL–MIL Learning</i>	259
TABLE 16	<i>Social and Emotional Learning Complements Media and Information Literacy</i>	274

CHAPTER 1

INTRODUCTION

Misinformation has become a pressing concern for teenagers navigating today’s digital landscape (Herrero-Diz et al., 2020; Howard et al., 2021; Zozaya-Durazo et al., 2024). Broadly understood as false, inaccurate, misleading, or manipulated information that circulates through social and digital environments, misinformation is often difficult to separate from disinformation in everyday practice (Wedlake et al., 2024). Although disinformation typically refers to false or misleading information created or circulated with deliberate intent to deceive, such intent is not always visible to those who encounter, repost, remix, or respond to content online (Altay et al., 2023; Wardle, 2023). For this reason, misinformation is often used as an umbrella term to include both intentional and unintentional forms of false, misleading, or manipulated content (Cho et al., 2023; Young et al., 2020).

This broad use of misinformation is especially relevant in the current digital environment, where false and misleading content can be rapidly created, modified, and circulated across platforms. Although rumors and hoaxes are not new phenomena, the rise of social media and artificial intelligence (AI) has significantly increased the speed, reach, and complexity of misinformation (Gottfried et al., 2023; Newman, 2019; Selnes, 2024). For young people, this means that misinformation is not encountered only as formal news or political content, but also through memes, videos, images, rumors, peer conversations, and AI-generated materials embedded in everyday online interaction. These conditions have raised substantial concerns among educators and scholars:

“In today’s digital age, the impact of fake news and misinformation on youth is a significant concern.” (Dhiman, 2023, p. 1)

“The proliferation of fake news is a serious issue that affects teens at both the individual level and at the broader societal level, impacting social, political, economic, and other local, national, and international developments.” (Spratt & Agosto, 2017, p. 1)

“Fake news is a serious problem for children and young people, threatening their well-being, [and] trust in journalism and democracy itself.” (Howard et al., 2021, p. 6)

While these warnings rightly underscore adolescents’ vulnerability to digital misinformation, they often frame youth primarily as passive recipients of misleading content (Detlor et al., 2012; Midgah, 2019; Moyer, 2022). This framing, however, overlooks a critical shift in the contemporary information environment: today’s teenagers are not only consumers of online content but also active creators and distributors of it (Harlan et al., 2014). Through platforms such as TikTok, Instagram, and YouTube, adolescents can rapidly reach large and diverse audiences (Herrero-Diz et al., 2020; Lenhart, 2015; Zozaya-Durazo et al., 2024). As Howard et al. (2021, p. 18) note, “Many youths may play a role in spreading misinformation.” This transition from passive consumption to active participation introduces new opportunities for creativity and self-expression, while simultaneously amplifying the risks of misinformation spreading without critical reflection or social responsibility.

Several behavioral and developmental factors further contribute to adolescents’ involvement in the circulation of misinformation. First, teenagers are often prone to emotional impulsivity and perceptual bias, engaging with content based on humor, novelty, or emotional arousal rather than credibility (Herrero-Diz et al., 2020; Talwar et al., 2019). Second, a sense of indifference toward the consequences of misinformation, frequently shaped by “third-person bias,” or the belief that misinformation affects others more than oneself, can weaken personal accountability (Corbu et al., 2022). Fragmented and multitasking media consumption habits further reduce the likelihood of careful verification and critical engagement (Papapicco et al., 2022). Third, despite being commonly described as “digital natives” (Prensky, 2001), many adolescents overestimate their ability to identify false information online and underestimate the potential harm their actions may cause, particularly when empathy and ethical reasoning are still developing (Nygren & Guath, 2019; Zozaya-Durazo et al., 2024).

These dynamics have tangible and often harmful real-world consequences. The misuse of AI-generated deepfakes, for instance, has already led to cases in which adolescents have weaponized fabricated images to harass or humiliate their peers. One widely reported incident involved a 14-

year-old girl whose classmates circulated a fake nude image of her, resulting in severe emotional distress (Singer, 2024; Watson, 2024). Similarly, misinformation-driven cyberbullying continues to escalate, producing psychological and emotional harms that extend far beyond digital platforms (Cassidy et al., 2013). In such cases, misinformation functions not merely as a distortion of truth, but as a mechanism for personal harm and social division.

Given this evolving digital landscape, misinformation education should extend beyond technical competencies such as fact-checking and source verification. It should also address the social, emotional, and ethical dimensions of how information is produced, shared, and interpreted. Although adolescents often perceive themselves as technologically proficient (Mallan et al., 2010), impulsive sharing behaviors can inadvertently undermine trust, damage relationships, and contribute to broader societal harm (Zozaya-Durazo et al., 2024). Herrero-Diz et al. (2020) emphasize the urgent need to support youth in recognizing how misinformation can damage reputations, disrupt peer relationships, and generate conflict within their communities.

In sum, reframing teenagers as active agents within the misinformation ecosystem, rather than solely as passive recipients, opens new possibilities for educational intervention. Such a reframing calls for an approach that integrates both cognitive skills (e.g., critical analysis and source evaluation) and affective capacities (e.g., empathy, social responsibility, and ethical reflection). By integrating these dimensions, educators can better support adolescents in becoming thoughtful and responsible participants in digital culture, not only by discerning what they share, but also by understanding why they share it and how it may affect others. In an era in which misinformation is increasingly accessible, emotionally manipulative, and socially consequential, helping teenagers navigate this landscape with care and awareness has become more important than ever.

1.1. The Need for Social and Emotional Learning in Misinformation Education

Although misinformation among teenagers is often framed as a problem of factual accuracy and verification, this perspective overlooks the deeper social and emotional forces that shape adolescents' digital behavior. As discussed earlier, three core challenges characterize how teenagers engage with misinformation: (1) sharing false or misleading content without verification, (2) demonstrating

indifference toward its consequences, and (3) lacking a sense of care and responsibility for their online actions. These tendencies suggest the limitations of a purely cognitive approach and point to the need for educational strategies that address the relational and emotional dimensions of misinformation.

A critical starting point is to understand misinformation as a social phenomenon. As Madden (2000) argues, information is never neutral; it carries emotional, persuasive, and sometimes deceptive intentions that can influence both individual attitudes and collective norms. This is particularly relevant for adolescents, whose digital behaviors are strongly shaped by peer relationships and a desire for social belonging. In online environments, fact-checking is often overshadowed by emotional appeal or social pressure. Emotion frequently takes precedence over accuracy, whether through humor, satire, outrage, or fear, allowing emotionally charged content to spread rapidly, especially among teenagers navigating identity formation, peer relationships, and social validation in digital spaces (Wardle & Derakhshan, 2017).

Adolescents' developmental characteristics further intensify these dynamics. Teenagers often display heightened emotional sensitivity and a strong reliance on peer approval, both of which influence how they interpret and share online content (Vosoughi et al., 2018). Research on adolescents' information practices suggests that teenagers' judgments are shaped by relational cues and social contexts (Hartwig et al., 2024). As a result, even when adolescents possess fact-checking skills and source evaluation strategies, which are core components of Media and Information Literacy (MIL) programs (Grizzle et al., 2021; Hobbs & Jensen, 2009), they may fail to apply them in emotionally charged or peer-influenced situations. Compounding this challenge, a recent systematic review suggests that adolescents' problematic social media use is associated with lower emotional intelligence and difficulties in emotion regulation, highlighting the need to address emotional awareness and regulation in digital learning contexts (Hollenstein & Faulkner, 2024; Piccerillo & Digennaro, 2025). In response, scholars have increasingly called for a shift in media literacy education away from an exclusive focus on cognitive skills and toward approaches that foster human connection, reflection, and mutual understanding (Mihailidis & Viotty, 2017).

Addressing these challenges requires supporting teenagers in reflecting on their roles within the misinformation ecosystem. When adolescents begin to recognize the social and ethical consequences of sharing false or misleading content, they can develop a stronger sense of accountability. Herrero-Diz et al. (2020) emphasize that young people should understand how their digital actions can have real and lasting impacts on others. Similarly, Middaugh (2019) observes that “young people were far less likely to employ credibility cues when deciding what media to share than when explicitly asked to evaluate information,” noting that adolescents’ interest in moral critique may create opportunities to discuss their responsibility in sharing media and potentially spreading misinformation (pp. 55–56). This insight underscores the need for misinformation education that extends beyond technical competencies to engage adolescents’ ethical reasoning and emotional awareness.

Social and Emotional Learning (SEL) offers a promising framework for addressing this gap. By emphasizing empathy, self-awareness, and social responsibility, SEL complements the critical thinking skills central to MIL by addressing how emotions, relational dynamics, and ethical considerations shape adolescents’ engagement with digital content (Brandau et al., 2022). Moore and Gregory (2024) argue that SEL supports students in recognizing how their emotions, biases, and social contexts influence what they believe and choose to share online.

The importance of SEL is also reflected in global educational priorities. UNESCO has identified social and emotional competencies as essential for 21st-century learning, particularly in helping young people navigate the challenges of a rapidly evolving digital world (Duraiappah, 2019). For example, UNESCO’s *Think Critically, Click Wisely* framework emphasizes integrating critical thinking with social and emotional skills, encouraging “responses that focus on critical thinking, social and emotional skills, and responsible engagement, through global citizenship and human rights education” (Grizzle et al., 2021, p. 149). In this sense, SEL is not designed merely to enhance cognitive or technical capacity, but to cultivate the socioemotional competencies required for ethical, reflective, and collaborative participation in digital life (Freeman & Hawkins, 2017). At its core, SEL seeks to empower young people to act not only intelligently, but also responsibly and empathetically within complex information environments.

1.2. Defining Social and Emotional Learning in the Context of Misinformation

Social and Emotional Learning (SEL) is referred to by a range of terms, including character education, 21st-century skills, soft skills, and noncognitive skills (S. M. Jones & Doolittle, 2017). Despite variations in terminology, these approaches share substantial overlap in their emphasis on developing interpersonal, intrapersonal, cognitive, and emotional competencies (Greenberg, 2023). S. M. Jones and Doolittle (2017) define SEL as children’s ability to learn about and manage their emotions and social interactions in ways that benefit both themselves and others, supporting success in schooling, the workplace, relationships, and civic life. Central to this definition are emotional regulation, empathy, and self-awareness that are increasingly relevant in digitally mediated environments.

In educational research and practice, SEL is widely understood as the process through which individuals acquire and apply the knowledge, skills, and attitudes necessary to understand and manage emotions, establish healthy relationships, and make responsible decisions (CASEL, 2015, 2021; Das & Ghosh, 2021). Among the many SEL frameworks, this study adopts the model developed by the Collaborative for Academic, Social, and Emotional Learning (CASEL), a well-established and empirically grounded framework that has been implemented across diverse educational contexts. Prior research has demonstrated strong associations between CASEL-based SEL interventions and positive outcomes such as improved academic achievement, emotional well-being, and prosocial behavior (Greenberg, 2023). These outcomes suggest the relevance of the CASEL framework for addressing the emotional, ethical, and social dimensions of misinformation in adolescents’ digital lives.

The CASEL framework is organized around five core competencies: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making (CASEL, 2015). Self-awareness and self-management enable adolescents to recognize, regulate, and reflect on their emotions, thoughts, and behaviors that are particularly important when encountering emotionally charged, misleading, or provocative content online (CASEL, 2015; Piha & Fasen, 2021). Social awareness and relationship skills foster empathy, respect, and perspective-taking, encouraging adolescents to consider how their online actions affect peers, communities, and broader social groups (CASEL, 2015; Piha & Fasen, 2021). Responsible decision-making supports adolescents in evaluating not only the fac-

tual accuracy of information, but also its ethical implications, potential social harm, and collective consequences (CASEL, 2015; Piha & Fasen, 2021).

Framed in this way, SEL is not merely a set of individual traits, but a foundational approach for navigating the emotional, relational, and moral complexities of digital information environments. In the context of misinformation, the CASEL framework provides a useful sensitizing lens for examining how adolescents recognize and regulate emotional reactions, consider others' perspectives, and make responsible decisions about whether to share, ignore, or challenge misleading content. This lens is especially relevant because misinformation education increasingly requires attention to social context, emotional and psychological dimensions, and individuals' roles within digital information environments (CASEL, 2020; Wedlake et al., 2024). Accordingly, this study applies the CASEL framework to conceptualize SEL competencies across three interconnected dimensions: intrapersonal, interpersonal, and action-oriented. Together, these dimensions extend beyond fact-checking and critical evaluation to encompass empathy, ethical reflection, and socially responsible engagement with digital media.

1.3. Purpose of the Study

Building on the understanding that misinformation is a deeply emotional and social phenomenon, this study explores how Social and Emotional Learning (SEL), as framed by the CASEL model, can be meaningfully integrated into misinformation education for adolescents. Although SEL has been widely implemented across diverse educational contexts (Durlak et al., 2010; Piha & Fasen, 2021), its application to misinformation education, particularly among teenagers, remains underexplored.

Given the central role of emotional triggers, peer dynamics, and ethical decision-making in how adolescents engage with online information, there is a need to examine how SEL competencies such as empathy, self-awareness, and responsible decision-making can foster more reflective and socially responsible digital behavior. Accordingly, this study seeks to investigate how adolescents perceive, interpret, and internalize SEL competencies when participating in a misinformation-focused learning experience. The central research question guiding this inquiry is:

How can Social and Emotional Learning (SEL), guided by the CASEL framework, be meaningfully integrated into misinformation education for teenagers?

To address this question, the study adopts an exploratory qualitative research design aimed at examining both the conceptual and practical dimensions of integrating SEL into misinformation education. Drawing on a multi-phase qualitative approach (Creswell & Creswell, 2018; Sharma et al., 2023), the research brings together insights from both educators and adolescents. Each phase contributes a distinct yet complementary perspective, enabling a layered understanding of the challenges and opportunities associated with embedding SEL within misinformation education.

Phase I. Engaging Educator Perspectives

Serving as a bridge between theory and practice, Phase 1 focuses on gathering insights from educators with experience in Social and Emotional Learning (SEL) and Media and Information Literacy (MIL) for adolescents. This phase captures educators' perspectives, instructional strategies, and concerns related to integrating SEL into misinformation education. Educators are invited to reflect on how SEL competencies may be applied in misinformation contexts and how they perceive the relevance and feasibility of SEL-based approaches (O'Leary, 2021). Insights from this phase directly inform the design and refinement of the learning module implemented in Phase 2.

Phase II. Exploring Adolescent Experience

Phase 2 examines adolescents' experiences with an SEL-based misinformation learning module that combines a simulation game with structured debriefing activities. To explore how teenagers perceive and respond to the integration of SEL and MIL, this phase employs focus group interviews alongside a visual reflection activity in which participants express their social-emotional responses to misinformation scenarios. Together, these methods provide rich insight into how adolescents interpret, apply, and embody SEL competencies when engaging with real-world misinformation.

This multi-phase design enables a deeper examination of how SEL can be operationalized within misinformation education while enhancing the practical relevance and ecological validity of the findings (Wald, 2014). By grounding the study in both educator expertise and adolescents' lived

experiences, this research aims to contribute a nuanced and actionable framework for supporting teenagers in navigating misinformation with empathy, critical reflection, and social responsibility.

1.4. Context of the Study

This study is situated within the framework of *empathetic reflection*, a reflective process that integrates individuals’ emotional experiences with consideration of others’ emotional perspectives (Marathe & Sen, 2021). Rather than evaluating the effectiveness of a specific instructional intervention, the study aims to explore how adolescents perceive, interpret, and apply Social and Emotional Learning (SEL) competencies, particularly those outlined by the CASEL framework, when navigating emotionally and socially complex misinformation scenarios. Within this context, reflection functions not only as a pedagogical strategy but also as a methodological lens for examining teenagers’ ethical reasoning, emotional responses, and social awareness in digital environments.

Empathetic reflection, as conceptualized by Marathe and Sen (2021), represents a “higher form of reflection” that integrates both cognitive empathy (perspective-taking) and affective empathy (empathic concern), enabling individuals to understand situations through others’ underlying motivations or “why” (p. 568). This reflective stance requires participants to actively consider the feelings, expectations, and experiences of others while simultaneously examining their own emotional states and motivations. Such a dual perspective aligns closely with the core aims of SEL, particularly the development of self-awareness, social awareness, and responsible decision-making (CASEL, 2015).

To support empathetic reflection, this study employs a misinformation game designed to simulate real-world digital situations in which teenagers can interpret, evaluate, and respond to questionable or misleading content. Given the complexity, subjectivity, and ethical sensitivity of online interactions, and the practical challenges of observing misinformation engagement in naturalistic settings, the game provides a shared and immersive experience that surfaces emotional, social, and ethical dilemmas for collective reflection (Cho et al., 2023; Wedlake et al., 2024).

Following gameplay, participants engage in guided debriefing sessions structured around SEL com-

petencies and designed as an integral extension of the game experience (Crookall, 2023). These debriefings are intended to facilitate empathetic reflection by encouraging adolescents to examine not only what decisions they made or how they felt, but also how their actions may have affected others and what emotional or social dynamics shaped their responses. Through prompts such as “Why did I share that?” or “How might this impact someone else?”, participants are invited to articulate their reasoning, consider alternative perspectives, and reflect on their evolving understanding of digital responsibility.

By positioning empathetic reflection at the core of the study context, this research investigates how SEL competencies are expressed, interpreted, and internalized by adolescents through emotionally grounded and socially situated dialogue. In doing so, it offers insight into how teenagers make sense of their roles within the misinformation ecosystem and how educational approaches might better support their development as ethically engaged, emotionally aware, and socially responsible digital citizens.

1.5. Definitions of Key Terms

For the purpose of this study, the following key terms are defined to clarify their meanings and usage within the research context.

Misinformation. Misinformation generally refers to false, inaccurate, misleading, or manipulated information that circulates through social and digital environments (Altay et al., 2023; Wardle, 2023). While misinformation is often distinguished from disinformation based on intent, with disinformation referring more specifically to false information created or shared with deliberate intent to deceive (Kapantai et al., 2021; Wardle & Derakhshan, 2017; Zannettou et al., 2019), this study uses misinformation as an umbrella term to include both intentional and unintentional forms of false, misleading, or manipulated content. This broader usage is appropriate because intent is often difficult to determine in everyday digital interactions (Cho et al., 2023; Wardle, 2023; Young et al., 2020).

Teenagers (Adolescents). Teenagers, also referred to as adolescents, are individuals aged 13 to

17. This age range is commonly examined in media literacy research (Popat & Tarrant, 2023) and represents a developmental period characterized by heightened emotional sensitivity, strong peer influence, and active identity formation (L. Steinberg & Morris, 2001).

Media and Information Literacy (MIL). Media and Information Literacy (MIL) is the ability to access, evaluate, and share information responsibly across a range of media platforms (UNESCO, 2011). In this study, MIL is conceptualized as a cognitive foundation that is expanded through Social and Emotional Learning (SEL) to address the emotional, social, and ethical dimensions of misinformation engagement.

Social and Emotional Learning (SEL). Social and Emotional Learning (SEL) is a framework for developing emotional intelligence, interpersonal competence, and ethical decision-making. Guided by the CASEL framework (CASEL, 2015), SEL encompasses five core competencies: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making.

Misinformation Games. Misinformation games are interactive learning tools designed to simulate real-world encounters with false or misleading information. These games immerse participants in misinformation scenarios to prompt emotional, ethical, and cognitive engagement (Cho et al., 2023; Wedlake et al., 2024).

Debriefing. Debriefing is used in this study as a structured post-activity reflection process that allows adolescents to analyze and interpret their experiences during the simulation game. It serves as a bridge between in-game behavior and real-world decision-making (Crookall, 2010, 2023), supporting participants in internalizing SEL competencies and critically reflecting on their digital habits.

Digital Citizenship. Digital citizenship refers to responsible, ethical, and informed participation in online spaces, including respectful communication, critical content evaluation, and awareness of the social impact of digital actions (M. S. Ribble et al., 2004). In this study, digital citizenship is considered a key outcome of integrating SEL into misinformation education.

1.6. Significance of the Study

As misinformation becomes increasingly embedded in adolescents’ digital lives, there is a growing need to reconsider how education prepares young people to navigate it, not only as critical consumers of information, but also as emotionally and ethically aware participants in digital spaces. This study contributes to that effort by offering theoretical, educational, and practical insights into misinformation education grounded in Social and Emotional Learning (SEL).

Theoretical Significance. Theoretically, this study contributes to ongoing efforts to bridge Social and Emotional Learning (SEL) and Media and Information Literacy (MIL). These two domains have largely developed along parallel but separate trajectories. While MIL has traditionally emphasized cognitive strategies such as source evaluation, critical thinking, and fact-checking (Koltay, 2011; Mihailidis & Viotty, 2017), SEL focuses on emotional regulation, empathy, and ethical reasoning (CASEL, 2015; Durlak et al., 2011). By integrating these perspectives, this research advances a more holistic conceptualization of misinformation as not only a cognitive challenge but also a social and emotional phenomenon. This integration is particularly important in adolescent digital environments, which are characterized by emotional reactivity, peer influence, and rapid information circulation (Vosoughi et al., 2018; Zozaya-Durazo et al., 2024).

Educational Significance. Educationally, the study responds to the need for learning approaches that align with the developmental realities of adolescence. Teenagers experience heightened emotional sensitivity, increased reliance on peer relationships, and active identity exploration during this stage of development (Piha & Fasen, 2021; Yeager, 2017). However, much misinformation education continues to emphasize neutral, fact-based skills, often overlooking the emotional and ethical dimensions that strongly influence adolescents’ online behaviors. By examining how teenagers perceive and apply SEL competencies, such as empathy, self-awareness, and responsible decision-making, within emotionally charged misinformation scenarios, this research offers insight into how misinformation education can be designed to better engage adolescents at both cognitive and affective levels (Yeager, 2017; Zins et al., 2007).

Practical Significance. Practically, this study introduces empathetic reflection as a method for deepening adolescent engagement in misinformation education. By combining game-based learning with structured debriefing, the study creates opportunities for teenagers to reflect not only on what actions they took, but also on the emotions, perspectives, and potential consequences experienced by others affected by misinformation. This approach aligns with research highlighting the role of reflection in transforming experience into meaningful learning (Boud et al., 2013; Crookall, 2023) and builds on emerging scholarship advocating for emotionally grounded, learner-centered approaches to digital literacy (Boltz et al., 2015; Roozenbeek & Van Der Linden, 2019). In doing so, the study offers a practical and adaptable model for educators seeking to foster forms of digital citizenship that are both ethically informed and emotionally intelligent.

CHAPTER 2

LITERATURE REVIEW

2.1. Overview of the Chapter

This literature review examines the theoretical and empirical foundations for integrating Social and Emotional Learning (SEL) into misinformation education for teenagers. The chapter builds a case for why cognitive approaches to Media and Information Literacy (MIL), while necessary, are not sufficient for addressing adolescents' engagement with misinformation. In particular, this review argues that misinformation education for teenagers should attend not only to information evaluation skills, but also to the emotional, social, relational, and ethical conditions that shape how teenagers encounter, interpret, share, and respond to misinformation in digital environments.

The chapter begins by reviewing research on teenagers' developmental characteristics, including emotional reactivity, identity formation, peer influence, social belonging, and emerging moral reasoning. These developmental factors matter because misinformation in adolescent contexts often circulates through peer relationships, social validation, humor, conflict, and identity performance. While traditional MIL approaches emphasize cognitive skills such as fact-checking, source evaluation, and lateral reading, they often address misinformation primarily as an information evaluation problem. This leaves less attention to the social-emotional conditions that influence whether teenagers pause before sharing, consider the consequences for others, respond to peer pressure, or recognize their own roles within misinformation circulation.

To address this limitation, the chapter synthesizes scholarship on SEL through the CASEL framework. It reviews how each of the five core competencies, self-awareness, self-management, social awareness, relationship skills, and responsible decision-making, can be understood in relation to misinformation education. Rather than treating SEL as a supplementary addition to MIL, this review positions SEL and MIL as complementary frameworks. MIL provides tools for evaluating information, while SEL provides a framework for understanding how emotions, relationships, social awareness, and responsibility shape the use of those tools in everyday digital life. The intersection

of these two frameworks is the conceptual territory this dissertation seeks to explore.

The chapter then reviews literature on game-based learning and structured debriefing as pedagogical tools for integrating SEL and MIL. Game-based misinformation learning environments can create emotional stakes, social interaction, peer negotiation, and decision-making situations that make misinformation feel concrete rather than abstract. However, games alone do not guarantee meaningful learning. Structured debriefing helps learners reflect on what happened during gameplay, examine their emotions and choices, consider others' perspectives, and connect the experience to broader questions of responsibility and agency. In this dissertation, game-based learning and debriefing are therefore understood as learning design strategies that can make CASEL competencies visible, discussable, and meaningful in misinformation education.

Together, these strands of literature, adolescent development, misinformation education, the CASEL SEL framework, and game-based learning with structured debriefing, provide the conceptual and empirical grounding for this study. The central purpose of the dissertation is to examine how SEL, guided by the CASEL framework, can be meaningfully integrated into misinformation education for teenagers, and how teenagers themselves interpret and make meaning of the five CASEL competencies through participation in an SEL-based misinformation learning module.

2.2. Misinformation and Teenagers

2.2.1. (Mis)information as a Social Problem

Misinformation and disinformation are often distinguished by the role of intent. Misinformation generally refers to false, inaccurate, misleading, or manipulated information that is shared without clear intent to deceive (Vijaykumar et al., 2021; Wardle & Derakhshan, 2017), whereas disinformation refers to false or misleading information that is deliberately created or circulated to deceive others (Kapantai et al., 2021; Wardle & Derakhshan, 2017; Zannettou et al., 2019). However, defining misinformation remains a subject of debate (Altay et al., 2023; Roozenbeek et al., 2023; Van Bavel et al., 2021; Wardle, 2023). Some scholars use misinformation as an umbrella term for false or misleading information regardless of intent, while others maintain a distinction between

misinformation and disinformation based on intentionality (Altay et al., 2023; Ang et al., 2020; Wardle, 2023). In everyday digital environments, however, this distinction can be difficult to apply because users often encounter information after it has already been reposted, remixed, edited, or circulated across multiple platforms, making the original creator’s intent difficult to determine. This challenge is especially relevant in adolescent contexts, where false or misleading content may be shared as a joke, rumor, meme, peer interaction, or AI-generated image without clear awareness of its possible consequences. Following prior misinformation education research, this dissertation uses misinformation as an umbrella term to include both intentional and unintentional forms of false, misleading, or manipulated content (Cho et al., 2023; Young et al., 2020).

While these distinctions are useful for clarifying types and intentions, they often underemphasize a critical dimension of misinformation: its social impact. Misinformation matters not only because it produces inaccurate beliefs, but because it can generate real-world consequences for individuals and communities, including public health risks, erosion of trust, social conflict, and harm to democratic decision-making (Adams et al., 2023). Regardless of accuracy or intent, once information is shared, it enters a social environment where it can influence perceptions, provoke emotional reactions, and shape behavior. As Lewandowsky et al. (2012) note, the consequences of misinformation are often independent of the communicator’s original intent, particularly in fast-paced digital contexts. Information functions not simply as content, but as a socially negotiated message between sender and receiver (Herrero-Diz et al., 2020), and its interpretation is shaped by personal experience, emotional state, and social context (Madden, 2000). From this perspective, misinformation is not only about truth or falsity, but also about relationships, interpretation, and consequence.

This social dynamic is illustrated by several viral online challenges, hoaxes, and AI-generated harms involving teenagers. One widely discussed example is the 2017 “Tide Pod Challenge.” What began as an online joke about Tide Pods resembling candy was largely intended as parody or humor, yet it quickly circulated across social media and prompted imitation among curious adolescents. Although the original content may not have been created with malicious intent, its circulation produced real-world harm, including multiple hospitalizations (Ducharme, 2018; Stern, 2018).

More recently, AI-generated deepfakes have introduced a new form of misinformation-related harm for teenagers. Reports have described incidents in which students created or circulated fabricated nude or sexually explicit images of classmates, including cases involving middle and high school students (Sui, 2024). These cases show that synthetic media can affect teenagers’ privacy, reputation, peer relationships, and emotional well-being even when the image itself is not real. In this context, the harm of misinformation lies not only in factual deception, but also in the social consequences that follow when fabricated content is believed, shared, or used to shame and target others.

Other examples, including the Trust Challenge and the TikTok Skull-Breaker Challenge, similarly show how online trends, hoaxes, and challenge-based content can create psychological distress, physical injury, and hospitalization among young people (BBC News, 2020; CBS New York, 2020; Daily Mail, 2016; The Washington Post, 2020). More details are provided in Appendix A.

As Howard et al. (2021, p. 10) observe, “Mis/disinformation is not always a black-and-white concept, but can be subject to individual interpretation. What is a funny hoax or prank to one person may be offensive or noxious to another.” These cases highlight the unpredictability of digital information flows and the ease with which seemingly playful, humorous, or ambiguous content can produce harmful outcomes. They also show why misinformation education for adolescents cannot focus only on whether information is true or false. It should also help young people understand how digital content circulates socially, how humor and imitation can intensify risk, and how online participation can have real consequences for individuals and communities.

Taken together, these examples underscore the importance of understanding misinformation as a social and emotional phenomenon rather than solely an informational problem. Once information is shared, whether as humor, opinion, or news, it has the potential to shape beliefs, reinforce biases, and affect others, especially within emotionally charged and peer-driven environments. Recognizing this broader scope calls for approaches that address not only the accuracy of information, but also the emotional triggers, social contexts, and interpersonal responsibilities involved in sharing it. This perspective provides a foundation for introducing Social and Emotional Learning (SEL) as a necessary framework for supporting adolescents in navigating misinformation with greater reflection,

empathy, and responsibility.

2.2.2. Teenagers as Active Participants in the Misinformation Context

Building on the understanding that misinformation is a socially situated phenomenon, it is essential to recognize the evolving role of adolescents within this ecosystem. Teenagers today are not merely passive recipients of online content; they are actively involved in its creation, circulation, and amplification. According to a recent report by Murthy (2023), up to 95% of youth aged 13–17 report using at least one social media platform, with more than one-third indicating that they use social media “almost constantly” (p. 3). Social media platforms such as TikTok, Instagram, and YouTube have increasingly blurred the boundary between audience and author, enabling adolescents to function simultaneously as consumers, sharers, and producers of information (Marwick & Boyd, 2014).

Research suggests that teenagers frequently encounter news and information through social media and are often more likely to trust influencers, celebrities, or peers than traditional news organizations (Howard et al., 2021). As a result, adolescents play a growing role in shaping which narratives gain visibility, credibility, and traction within online spaces. Their participation is therefore not incidental, but central to the contemporary misinformation ecosystem. This participatory culture, however, extends beyond technical engagement and is deeply connected to adolescents’ developmental and social-emotional needs. Acts such as sharing, remixing, or reposting content function as practices through which teenagers express identity, seek peer connection, and gain social validation (Mihailidis & Viotty, 2017). Drawing on Erikson’s psychosocial theory, adolescence is marked by identity exploration and role confusion, as young people struggle to define who they are and how they want to be seen by others (Erikson, 1968). Social media can intensify this role confusion by exposing adolescents to carefully curated images, ideologies, and peer norms that pressure them to compare themselves with others and conform to perceived standards (Jeyanthi, 2022). In this context, teenagers may share, repost, or joke about misinformation not only because they believe it, but also because these actions help them negotiate belonging, visibility, and peer approval.

The role of digital media further complicates adolescents’ developmental experiences. As K. Davis

(2023) argues in *Technology's Child*, young people increasingly negotiate questions of identity both offline and online. Social media environments encourage performative behaviors in which adolescents are not simply consuming content, but actively constructing and negotiating identity through participation in fast-paced, emotionally charged exchanges. Within such environments, emotional expression and social visibility often take precedence over careful evaluation or ethical consideration.

What makes adolescents' participation in misinformation contexts particularly complex is that many do not fully recognize their influence or responsibility within these dynamics. Some teenagers may share content without verifying its accuracy, while others may assume that responsibility lies primarily with content creators, platforms, or adults (Zozaya-Durazo et al., 2024). This gap between agency and accountability highlights why misinformation education cannot rely solely on critical thinking or fact-checking skills. As Herrero-Diz et al. (2020) observe, youth participation online is frequently driven by emotional expression and identity performance rather than by ethical reflection or critical evaluation. This disconnect underscores the need for educational approaches that address the emotional, social, and ethical dimensions of online engagement alongside cognitive skills.

Recognizing adolescents as active agents, rather than passive victims or uninformed bystanders, reframes the educational challenge. Adolescence represents a critical transitional period between childhood and adulthood, during which individuals begin to assume greater autonomy and responsibility (Dhingra & Parashar, 2022). As such, misinformation education should equip teenagers with not only analytical tools, but also emotional awareness, ethical sensitivity, and reflective capacities to navigate complex information environments with responsibility and care.

2.2.3. Teenagers' Perceptions of Misinformation

Adolescents' engagement with misinformation is shaped not only by the digital environments they inhabit, but also by their social and emotional development. While teenagers actively participate in the creation and circulation of online content, their perceptions of misinformation often reveal significant emotional, ethical, and cognitive gaps that conventional Media and Information Literacy (MIL) education has struggled to fully address.

A first pattern concerns adolescents’ tendency to share false or misleading information without verifying its accuracy. Research consistently shows that emotional appeal, rather than credibility, often drives teenagers’ decisions to share information online (Herrero-Diz et al., 2020; M. Miller, 2019; Talwar et al., 2019). Content that is humorous, novel, shocking, or emotionally provocative can spread rapidly among youth, frequently bypassing careful evaluation or fact-checking (Figueira & Oliveira, 2017; Herrero-Diz et al., 2020; Loos et al., 2018; Notley et al., 2017; Wineburg & McGrew, 2016). Teenagers may therefore share misinformation not because they fully believe it, but because it is funny, attention-grabbing, socially rewarding, or useful for peer interaction (Herrero-Diz et al., 2020; Perach et al., 2023; Sherman et al., 2016).

As INCIBE and OSI (2019, as cited in Herrero-Diz et al., 2020, p. 3) observe, “If a piece of content attracts their attention, they do not hesitate to share it, sometimes in masse, without pausing to assess whether the information is reliable. Often, they spread it even knowing that it is not.” This behavior can be partly explained through adolescent egocentrism, as described in Elkind’s theory, which suggests that teenagers are often more focused on their own perspectives and less attuned to how their actions affect others (Elkind, 1967). Consequently, emotional triggers such as curiosity, peer approval, or fear may outweigh considerations of accuracy when adolescents decide whether to share content online (Middaugh, 2019; Nygren & Guath, 2019; Zozaya-Durazo et al., 2024).

A second recurring perception is adolescents’ limited concern for the broader consequences of misinformation. Many teenagers view misinformation as trivial, humorous, or irrelevant, particularly when its harmful effects are not immediately visible (Howard et al., 2021). This attitude is reinforced by *third-person bias*, the belief that misinformation affects others more than oneself (Corbu et al., 2022; Selnes, 2024). As a result, adolescents may distance themselves from responsibility even when their actions contribute to the circulation of harmful or misleading content. Additionally, adolescents’ information engagement is often fragmented and distracted, shaped by multitasking behaviors and algorithmically curated feeds, which further discourage sustained reflection or source verification (Papapicco et al., 2022).

A third challenge lies in the disconnect between adolescents’ confidence in their digital skills and

their ethical awareness. Frequently described as “digital natives” (Prensky, 2001), many teenagers overestimate their ability to identify false information online (Nygren & Guath, 2019). This overconfidence can create a false sense of immunity to misinformation and reduce motivation for self-reflection or ethical consideration. Compounding this issue is a limited capacity for empathy in some misinformation contexts, where adolescents may not fully recognize or anticipate the emotional and psychological harm misinformation can inflict on others (Zozaya-Durazo et al., 2024).

Taken together, these patterns suggest that adolescents’ engagement with misinformation is not merely a matter of lacking skills or knowledge; rather, it is deeply intertwined with emotional development, ethical reasoning, and social awareness. This insight highlights the limitations of approaches that focus exclusively on cognitive competencies. It also underscores the relevance of Social and Emotional Learning (SEL) as a complementary framework that explicitly targets self-awareness, empathy, and responsibility. By addressing these dimensions, SEL offers a pathway for supporting adolescents in engaging with misinformation in more ethical, reflective, and socially responsible ways.

2.3. Integrating Social and Emotional Learning into Misinformation Education

2.3.1. Media and Information Literacy: Approaches and Limitations

Media and Information Literacy (MIL) has been widely adopted as a primary educational approach for helping adolescents recognize and resist misinformation (Manca et al., 2021; UNESCO, 2011). As articulated by UNESCO (2011), MIL serves as an umbrella framework that integrates goals traditionally associated with media education, such as understanding the roles and functions of media in democratic societies, with information literacy competencies, including the ability to access, evaluate, manage, and share information effectively. Within misinformation education, MIL programs typically emphasize cognitive and analytical skills such as source evaluation, bias detection, understanding media production processes, and fact-checking (Brodsky et al., 2021; Saunders, 2024).

To support these goals, many MIL initiatives employ structured heuristics or step-by-step tools,

such as the “SIFT” method or “How to Spot Fake News” checklists, that guide learners through systematic credibility assessment (Eva & Shea, 2018). These approaches offer clear advantages: they are easy to teach, scalable across educational contexts, and well aligned with formal curricula. As such, MIL provides an accessible and practical entry point for introducing adolescents to critical engagement with digital information.

This skill-centered orientation has historical roots. Media and information literacy developed in part from functional education designed to equip people, including workers and citizens, with the competencies needed to access, interpret, and evaluate media and information technologies (Haider & Sundin, 2022; Hobbs, 2010). This orientation made sense in earlier periods of media and technology adoption, when many learners needed explicit instruction to navigate unfamiliar tools, platforms, and information systems (Hobbs, 2010; Koltay, 2011; UNESCO, 2011). In that context, the central educational question was often whether people could access information, operate media technologies, and evaluate content effectively (Buckingham, 2003; Livingstone, 2004).

The contemporary digital environment has shifted this question. For many adolescents, digital participation is no longer unfamiliar or occasional; it is a routine part of how they form relationships, construct identities, participate in peer culture, and navigate everyday social life (Cortesi et al., 2020; Jenkins et al., 2006). As a result, the challenge is no longer only whether teenagers can use technology or evaluate information, but how they live socially and ethically within digital environments. Misinformation now circulates through group chats, memes, jokes, influencers, rumors, AI-generated images, and algorithmically amplified content (Selnes, 2024; Van Bavel et al., 2021; Vosoughi et al., 2018; Wardle & Derakhshan, 2017). These contexts mirror many of the emotional and relational dynamics of face-to-face social worlds, including trust, belonging, humor, conflict, reputation, and responsibility (Boyd, 2014; Cortesi et al., 2020; Jenkins et al., 2006). Yet, MIL frameworks rarely address how information-sharing behaviors are embedded within these social dynamics. Teenagers may not perceive themselves as responsible for the broader social consequences of what they share, particularly when misinformation is framed as humorous, trivial, or detached from visible harm (Howard et al., 2021).

This shift reveals a key limitation of MIL when it is applied primarily through cognitive and skills-based instruction. A growing body of research suggests that many MIL programs underemphasize the emotional, social, and ethical dimensions that significantly shape adolescents’ information-sharing behaviors (Zozaya-Durazo et al., 2024). For teenagers, decisions to share content are frequently driven less by informational deficits than by emotional responses, such as humor, curiosity, outrage, or fear, and by the desire for peer connection and social validation (Herrero-Diz et al., 2020; Notley et al., 2017). In fast-paced, peer-driven platforms, these emotional and relational factors can easily override rational judgment, making purely cognitive tools difficult to apply in everyday digital situations (Middaugh, 2019; Nygren & Guath, 2019).

A related limitation concerns instructional design. MIL is often delivered through one-time workshops or isolated lessons, commonly referred to as “one-shot” approaches, that frame misinformation as a technical or individual problem to be solved through personal skepticism or checklist-based reasoning (Encheva et al., 2020). Such approaches echo what Freire (as cited in Provenzo (2006)) critiques as the “banking model” of education, in which learners passively receive information rather than engage in reflective and dialogic learning. Without sustained opportunities for reflection and application in authentic contexts, students may struggle to internalize MIL skills or transfer them meaningfully to their everyday digital practices. As McDonald et al. (2019) argues, many MIL interventions focus on “giving the fish” rather than “teaching how to fish,” offering quick tools instead of cultivating deeper habits of inquiry, reflection, and responsibility.

These limitations help explain why Social and Emotional Learning (SEL) has become increasingly relevant to misinformation education. Misinformation does not spread only because teenagers lack technical skills or factual knowledge. It also spreads because digital environments activate emotional responses, peer pressures, identity concerns, and social motivations that shape what adolescents believe, share, ignore, or challenge (Van Bavel et al., 2021). Therefore, while MIL provides essential cognitive tools for misinformation education, it alone cannot fully address the emotional, social, and ethical dimensions of adolescents’ digital engagement. This limitation points to the need for complementary approaches, such as SEL, that foreground empathy, self-awareness, social responsibility,

and responsible decision-making as integral components of misinformation education.

2.3.2. Social and Emotional Learning as the Missing Layer

Social and Emotional Learning (SEL) refers to the process through which individuals develop the knowledge, attitudes, and skills necessary to understand and manage emotions, establish positive relationships, and make responsible decisions (Durlak et al., 2011). The Collaborative for Academic, Social, and Emotional Learning (CASEL) identifies five core SEL competencies: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making (CASEL, 2020). Although SEL has traditionally been applied to promote emotional well-being, prosocial behavior, and academic success, its relevance has expanded in response to the increasingly dynamic, emotionally charged, and socially mediated digital environments that adolescents navigate today (Livingstone & Third, 2017). Similarly, Payton et al. (2008) emphasize that SEL programs can support students' social and emotional competence, attitudes toward self and others, positive social behavior, and academic performance, highlighting SEL's relevance not only to individual emotional regulation but also to students' broader social development.

Within online spaces, content is often designed to elicit strong emotional reactions and is rapidly shared with limited opportunities for verification. Emotional triggers such as amusement, fear, outrage, or curiosity can override analytical reasoning and lead to impulsive sharing behaviors (Middaugh, 2019). Adolescents may underestimate how these emotional responses influence their perceptions of credibility and shape their online actions (Zozaya-Durazo et al., 2024). SEL directly addresses this challenge by foregrounding emotional regulation and reflective judgment. Competencies such as self-awareness and self-management help adolescents recognize and regulate their emotional reactions to digital content, while responsible decision-making encourages them to pause, reflect, and consider the potential consequences of engaging with or sharing questionable information (Nelson, 2021).

Beyond individual emotional regulation, SEL also cultivates social responsibility that often underdeveloped in traditional information literacy instruction. In fast-paced and fragmented digital environments, adolescents may struggle to recognize how misinformation can harm peers, damage

reputations, or erode trust within online communities (Herrero-Diz et al., 2020). SEL competencies such as social awareness and relationship skills foster empathy and perspective-taking, enabling adolescents to consider how their digital actions affect others (Thierry et al., 2022). As Gentry et al. (2016) note, empathy supports understanding others’ emotions and responding to their needs, while Wagaman (2011) emphasizes that SEL encourages adolescents to view themselves not merely as isolated users, but as moral agents embedded within interconnected digital ecosystems.

In this way, SEL expands the scope of misinformation education beyond determining whether information is true or false. It prompts adolescents to engage in deeper ethical reflection before interacting with content that may spread rapidly, encouraging questions such as, “Why should I believe this?” and “How might sharing this affect others?” (Larkin, 2017). By integrating SEL into misinformation education, educators can support the development of both critical literacy and moral discernment, equipping adolescents to navigate digital information environments with greater agency, empathy, and social responsibility.

2.3.3. Connecting Social and Emotional Learning to Digital Citizenship

As misinformation increasingly circulates within participatory digital environments, *digital citizenship* has emerged as a core component of 21st-century education. Digital citizenship refers to the ability to engage in online spaces in safe, ethical, and respectful ways, encompassing not only digital literacy skills but also responsible social participation and civic engagement (Ribble et al., 2004). While Media and Information Literacy (MIL) primarily emphasizes the cognitive evaluation of information, such as verifying sources and identifying bias, digital citizenship broadens this focus to include the social values, emotional awareness, and behavioral norms that guide ethical participation in digital communities.

Within this broader framework, Social and Emotional Learning (SEL) serves as a natural and necessary complement to digital citizenship education. SEL cultivates emotional and interpersonal competencies, such as empathy, self-regulation, and ethical decision-making, that are essential for navigating today’s fast-paced and emotionally charged digital ecosystems. For example, the SEL competency of social awareness supports adolescents in considering how misinformation may affect

different individuals or communities, particularly those who are marginalized or vulnerable. Relationship skills foster respectful online communication, collaboration, and conflict resolution, while responsible decision-making encourages adolescents to weigh the potential consequences of their digital actions, especially in situations shaped by peer pressure or algorithmic amplification.

Integrating SEL into digital citizenship education also addresses persistent limitations in current practice. Many digital citizenship programs adopt compliance-oriented approaches that emphasize rule-following and risk avoidance, focusing on issues such as cyberbullying, privacy violations, or plagiarism (Balinska-Ourdeva, 2015; Finkelhor et al., 2021). Although these concerns are important, such approaches often overlook the emotional and ethical drivers that underlie teenagers' online behaviors. Embedding SEL within digital citizenship curricula allows educators to shift from reactive or disciplinary models toward developmental and preventative approaches that support adolescents in taking ownership of their digital identities, relationships, and social responsibilities.

Importantly, SEL emphasizes the internalization of values rather than mere adherence to external rules. When adolescents learn to recognize emotional triggers, consider others' perspectives, and reflect on the real-world consequences of their online actions, they are more likely to engage responsibly, not because they are instructed to do so, but because they understand the ethical significance of their choices. This reflective orientation is especially relevant in the context of misinformation, which often thrives in environments characterized by emotional reactivity, low accountability, and limited empathy. Supporting this connection, Seitz et al. (2023) found that individuals with higher levels of emotional intelligence are significantly less likely to believe or spread fake news, underscoring the role of SEL competencies in strengthening digital resilience.

Taken together, integrating SEL with digital citizenship offers a more holistic and human-centered approach to misinformation education. This integration not only reinforces critical thinking but also cultivates the emotional and ethical capacities necessary for responsible participation in digital life. By embedding emotional intelligence, social responsibility, and civic values into everyday digital practices, this combined framework prepares adolescents to engage more reflectively, ethically, and empathetically in online environments. Building on this connection, the following section

reviews recent SEL program literature to identify instructional approaches and competencies that are particularly effective in adolescent contexts.

2.3.4. Key Insights from Social and Emotional Learning Programs

A growing body of empirical research has examined how Social and Emotional Learning (SEL) programs support adolescents' emotional development, ethical reasoning, and social awareness, particularly within complex and relational environments. While the CASEL framework offers a widely accepted structure for defining SEL competencies, self-awareness, self-management, social awareness, relationship skills, and responsible decision-making, the implementation of these competencies varies considerably across program goals, participant populations, and instructional contexts. Reviewing this literature provides valuable insight into which SEL approaches are most effective, which competencies are emphasized, and how these practices may inform educational interventions aimed at adolescents' digital behavior and misinformation engagement.

One consistent finding across SEL program literature is the importance of developmental alignment and contextual sensitivity. Effective programs are designed to reflect adolescents' social realities, emotional challenges, and lived experiences. For example, the *MindOut* program, which targets post-primary students in socioeconomically disadvantaged communities, emphasizes resilience and emotional regulation to help adolescents cope with stress and adversity (Dowling et al., 2019). In contrast, the *Activating Social Empathy* program focuses on cultivating prosocial behavior and emotional intelligence, enabling youth to develop deeper interpersonal awareness and engagement with issues of social justice (Silke et al., 2024). These programs demonstrate the flexibility of the CASEL framework, showing how different competencies can be foregrounded to meet diverse developmental and social needs.

Across programs, empathy consistently emerges as a central competency in both instructional design and outcomes (Dallacqua et al., 2022; Mahmoud, 2024; Markidou, 2019). Empathy functions not only as a learning objective, but also as a mechanism through which broader social-emotional outcomes, such as ethical decision-making, conflict resolution, and inclusive peer relationships, are achieved. Pedagogical strategies such as role-playing have proven especially effective in fostering

empathy, as they allow adolescents to engage with others' perspectives in emotionally meaningful ways (Dewi et al., 2019; Mahmoud, 2024). For instance, Dewi et al. (2019) found that role-based activities enhanced students' ability to understand peers' emotions and contributed to reductions in disruptive behavior. Similarly, programs such as *ZIPoPo Interactive Theatre* engage students in dramatized ethical dilemmas, promoting reflective emotional processing and strengthening social awareness (Mahmoud, 2024).

Equally important are the pedagogical strategies through which SEL programs are implemented. Effective initiatives tend to rely on experiential, participatory, and reflective learning approaches that actively involve adolescents in meaning-making processes (Markidou, 2019; Sawhney et al., 2018). Common strategies include interactive drama, reflective writing, collaborative discussion, and creative expression. For example, the *Best-Self Stories* initiative uses stop-motion video production to help students express emotions and develop emotional literacy through digital storytelling (Audiffred_Hinojosa et al., 2021). Likewise, community-based programs such as *MindOut* invite adolescents to identify their own social-emotional challenges and co-design solutions, fostering agency and ownership over the learning process (Dowling et al., 2019). These participatory approaches help translate SEL competencies into real-world contexts where emotions, relationships, and decision-making intersect.

Taken together, findings from SEL program literature highlight the importance of empathy, participatory learning, and reflective practice in supporting adolescents' social and emotional development. These insights directly inform the present study's emphasis on empathetic reflection, game-based engagement, and structured debriefing in misinformation education. By integrating empathy-focused and experiential SEL strategies into learning experiences that simulate real-world digital dilemmas, misinformation education can move beyond skill acquisition toward deeper ethical reflection and social responsibility. As the next section elaborates, such approaches hold promise for helping teenagers critically examine their digital behaviors and understand the broader social consequences of misinformation.

2.4. Empathic Reflection for Misinformation Education

2.4.1. The Role of Empathic Reflection in Social and Emotional Learning

Empathic reflection refers to a deeper form of reflection that considers both one’s own emotional experience and the emotional experiences of others involved in the same situation. Marathe and Sen (2021) define empathic reflection as “reflecting on the emotions of self and the emotions felt by others in the same event” (p. 568). This process connects cognitive empathy, such as perspective-taking, with affective empathy, such as concern for others. Prior studies suggest that perspective-taking strategies, including role-play and interactive drama, can foster emotional insight and ethical awareness (Dewi et al., 2019; Mahmoud, 2024). In doing so, empathic reflection helps learners move beyond asking what happened to considering how different people experienced the situation, who may have been affected, and what ethical responsibilities may emerge from those experiences.

Traditional reflection in educational contexts often emphasizes self-focused analysis, encouraging learners to ask questions such as “What did I do?” or “How did I feel?” While such reflection is valuable, it can limit opportunities for social learning and ethical consideration if it remains focused only on the individual. Empathic reflection expands this scope by foregrounding relational and socially situated questions: What might someone else have felt? Why might they have experienced the situation differently? How did my actions affect others? (Marathe & Sen, 2021). These questions are particularly salient in digital environments, where adolescents encounter misinformation not in isolation but within highly interactive, emotionally reactive, and peer-driven contexts. In this way, empathic reflection serves as a bridge between individual behavior and collective consequence, aligning closely with the aims of Social and Emotional Learning (CASEL, 2015).

Within misinformation education, empathic reflection enables adolescents to move beyond binary distinctions of truth versus falsity and instead examine the emotional and relational dynamics underlying their online behaviors. Reflective prompts may encourage adolescents to consider why emotionally provocative content felt compelling to share, how peer influence shaped their decisions, or how impulsivity led them to overlook credibility cues (Herrero-Diz et al., 2020; Middaugh, 2019).

Such reflection is important because teenagers may share misinformation not only because they believe it, but also because it is funny, attention-grabbing, socially rewarding, or useful for peer interaction (Herrero-Diz et al., 2020; Perach et al., 2023; Sherman et al., 2016). Empathic reflection therefore helps reframe misinformation sharing as a social-emotional practice, not only as a failure of knowledge or verification.

Empathic reflection also nurtures ethical sensitivity in ways that traditional media literacy approaches often fail to address. While fact-checking tools and verification strategies emphasize informational accuracy, they rarely prompt learners to reflect on why truth matters, who may be harmed by misinformation, or how individual sharing decisions contribute to the erosion of collective trust (Manca et al., 2021). Reflection grounded in empathy creates space for these considerations. It encourages adolescents to ask not only, “Is this information true?” but also, “Who could be harmed?” “Why did people participate?” and “What responsibility do I have in this situation?”

Ultimately, empathic reflection functions as a core mechanism through which SEL becomes meaningful in misinformation education. For adolescents navigating fast-paced, emotionally charged, and socially mediated digital spaces, reflective habits are essential. Empathic reflection equips them not only to be critical consumers of information, but also to become emotionally intelligent and ethically responsible participants in digital culture. Through this lens, misinformation education shifts from a narrow focus on facts to a broader concern with people: how individuals relate to one another, how actions impact others, and how everyday digital decisions collectively shape the social fabric of online life.

2.4.2. Misinformation Games as an Educational Tool

To make empathic reflection meaningful and developmentally appropriate for adolescents, educators and researchers have increasingly turned to game-based learning (Alotaibi, 2024; Squire, 2013). Simulation-based games can immerse learners in emotionally complex and socially relevant scenarios that mirror real-life digital dilemmas, such as encountering misleading headlines, deciding whether to share unverified content, or navigating peer pressure in online spaces (Cho et al., 2023; De Freitas, 2006). These interactive environments allow learners to experiment with decision-making,

experience consequences, and engage with ethical ambiguity. For teenagers, who are in a critical phase of identity formation and moral development (Yeager, 2017), such emotionally engaging and participatory experiences offer a powerful entry point into reflective learning (Garris et al., 2002; McGonigal, 2011).

One of the key strengths of game-based learning lies in its capacity to evoke emotional and ethical tension in ways that traditional instructional approaches often cannot. In misinformation-focused games such as *Bad News* or *Go Viral*, players are asked to assume the role of misinformation producers, strategically using fear, humor, or sensationalism to attract attention and influence others (Basol et al., 2021; Roozenbeek & Van Der Linden, 2019). These role-reversal experiences are designed not only to enhance media literacy, but also to elicit emotional responses, such as discomfort, guilt, or empathy that are central to meaningful Social and Emotional Learning (SEL). Through gameplay, adolescents can begin to recognize how easily misinformation spreads, how emotional manipulation operates, and how digital actions may affect others.

Despite these affordances, game-based learning also presents notable challenges, particularly when implemented with adolescent learners. Although games can simulate real-world dilemmas and elicit strong emotional responses, many teenagers may initially interpret them primarily as entertainment or competitive activities rather than as opportunities for ethical reflection (Admiraal et al., 2011). Educational objectives may be overshadowed by a desire to “win,” optimize strategies, or explore game mechanics, rather than to reflect on the social and emotional consequences of in-game decisions. As a result, even well-designed educational games risk remaining at the level of surface engagement unless learners are explicitly guided to reflect beyond gameplay.

A second challenge concerns the difficulty of capturing and assessing learners’ emotional and ethical learning during gameplay. Empathic reflection requires individuals to recognize, articulate, and critically examine their emotional responses and moral judgments (Gibbs, 1988; Marathe & Sen, 2021). However, gameplay alone rarely provides structured opportunities for learners to externalize these internal processes (Crookall, 2023). Without intentional scaffolding, it becomes difficult for educators and researchers to identify when, how, or whether adolescents experience moments of

emotional insight or ethical awareness during simulations (Baker et al., 2010). Consequently, the pedagogical potential of game-based learning may remain implicit or underutilized.

Taken together, these limitations suggest that while misinformation games are effective tools for initiating engagement and emotional activation, they are insufficient on their own for fostering sustained empathic reflection. To move beyond surface-level interaction and support deeper social and emotional learning, game-based experiences should be paired with structured opportunities for reflection (Boud et al., 2013). The following section introduces debriefing as a critical pedagogical scaffold that helps learners transition from action to insight, making empathic reflection explicit, observable, and meaningful within misinformation education.

2.4.3. Debriefing to Support Empathic Reflection

Debriefing refers to a structured reflective process that follows an experiential activity, providing learners with opportunities to process emotions, construct meaning, and connect experience to broader learning goals (Boud et al., 2013; Fanning & Gaba, 2007; Gibbs, 1988). In the context of game-based learning, particularly when addressing complex and socially sensitive topics such as misinformation, debriefing functions as a critical bridge between engagement and internalization (Crookall, 2014; Lederman, 1992). For adolescents, who may experience strong emotional activation during gameplay but are not always inclined to independently reflect on ethical or social consequences, debriefing scaffolds the cognitive and emotional processing necessary for empathic reflection.

Empathic reflection requires learners to move beyond recounting events toward examining why they made particular decisions and how others may have experienced those decisions (Marathe & Sen, 2021). This reflective stance integrates both cognitive empathy (perspective-taking) and affective empathy (emotional attunement), supporting deeper ethical awareness. However, perspective-taking can be particularly challenging for adolescents, who are still developing emotional regulation and higher-order reasoning skills (Gerace et al., 2013). As a result, debriefing in adolescent learning contexts should be intentional, guided, and developmentally appropriate in order to effectively support empathic reflection.

Effective debriefing is not simply an open-ended conversation after a game. Fanning and Gaba (2007) identify three core phases of debriefing: description, analysis, and application. In the description phase, participants reconstruct what happened during the experience. In the analysis phase, they examine why events unfolded as they did, including how feelings, assumptions, decisions, and group dynamics shaped the outcome. In the application phase, they consider what the experience means for future situations. This structure is useful for SEL–MIL integration because it helps learners move from remembering the game, to interpreting the social-emotional dynamics of misinformation, to considering how they might act differently in real digital contexts.

However, in many educational settings, debriefing is conducted through brief question-and-answer discussions. While such approaches may initiate reflection, they often lack emotional depth, especially for teenagers, who may disengage if reflective activities feel passive, abstract, or disconnected from their lived experiences (Moensted, 2022). Research suggests that more active and creative debriefing strategies can enhance engagement and emotional expression. These strategies include role-playing exercises (Gill, 2014), visual mapping tools such as emotion charts (Sweetman, 2021), and symbolic or creative activities such as reflection posters or visual storytelling (Audiffred_Hinojosa et al., 2021). By offering multiple modes of expression, these approaches help adolescents articulate complex emotions and ethical insights in ways that feel accessible and authentic.

In the present study, debriefing is intentionally structured to guide participants through both intrapersonal and interpersonal reflection. Facilitators prompt adolescents to consider questions such as: *What made you feel uncomfortable during the game?* *How might your actions affect others?* and *Would you behave differently in a real online situation?* These guided discussions encourage participants to revisit their emotional reactions, examine peer dynamics, and reflect on the ethical implications of their in-game choices. The debriefing process is scaffolded in alignment with SEL development, from self-awareness to social awareness to responsible decision-making, mirroring reflective models such as Moore and Gregory (2024) “think before you act” framework and the red–yellow–green “stop–think–proceed” sequence described by Slovák and Fitzpatrick (2015).

Ultimately, within misinformation education, empathic reflection is not a peripheral or optional

activity; it is the central learning objective. While simulation games provide emotionally resonant experiences, debriefing transforms those experiences into meaningful ethical insight. Together, gameplay and structured reflection create a space in which adolescents can connect emotions to decision-making and individual actions to social consequences, laying a foundation for SEL-informed digital citizenship (Brandau et al., 2022). In this way, debriefing ensures that the emotional impact of gameplay is not fleeting, but instead becomes a catalyst for deeper understanding, empathy, and personal growth.

2.5. Identified Gaps in the Literature

Despite increasing scholarly attention to Media and Information Literacy (MIL) and Social and Emotional Learning (SEL), substantial gaps remain at the intersection of these domains, particularly in relation to adolescents and misinformation.

First, there is a notable lack of research examining how adolescents perceive, interpret, and internalize SEL competencies in the specific context of misinformation. While SEL has been widely studied in relation to academic achievement, emotional well-being, and behavioral outcomes, relatively few studies investigate how adolescents apply core competencies, such as empathy, emotional regulation, and ethical decision-making, when navigating misinformation in real-world digital environments (L. M. Jones & Mitchell, 2016; Zozaya-Durazo et al., 2024). Williamson et al. (2015) further note that most SEL programs are designed for younger children, with comparatively fewer interventions targeting middle school students and even fewer rigorously developed for high school populations. This gap is particularly striking given that adolescents possess advanced cognitive and social capacities, such as abstract reasoning, moral judgment, and perspective-taking, that position them well to engage with the complex emotional and ethical dimensions of misinformation.

Second, the integration of SEL into misinformation education remains underdeveloped both conceptually and pedagogically. Although scholars increasingly recognize that emotional and ethical factors shape online behavior, most existing misinformation education initiatives continue to rely on skill-based, cognitively oriented MIL approaches (Mihailidis & Viotty, 2017). As a result, these approaches often fail to address the social and emotional drivers that influence adolescents' engagement

with misinformation, including peer norms, emotional triggers, identity performance, and moral disengagement. This disconnect limits the effectiveness of misinformation education by overlooking the conditions under which adolescents actually encounter and share misleading content.

Third, while reflection is frequently identified as a core practice within SEL, its application within misinformation education, particularly through experiential methods such as game-based learning and structured debriefing, remains insufficiently examined. Prior research highlights the potential of interactive simulations and reflective practices to foster empathy and deeper engagement (Crookall, 2023; Marathe & Sen, 2021; Roozenbeek & Van Der Linden, 2019). However, few studies investigate how adolescents experience and respond to reflection when it is embedded within emotionally engaging, participatory contexts. Questions remain regarding how reflective practices can be designed to resonate with adolescents, sustain engagement, and support the internalization of SEL competencies in relation to misinformation.

Addressing these gaps is essential for advancing more holistic, emotionally responsive, and socially grounded approaches to misinformation education. Responding to these limitations, the present study examines how adolescents engage with SEL-informed misinformation learning experiences, how they perceive their roles and responsibilities within the misinformation ecosystem, and how empathic reflection, supported through game-based learning and guided debriefing, can foster ethical awareness, social responsibility, and reflective digital participation. These gaps collectively motivate the conceptual framework presented in the following chapter.

CHAPTER 3

CONCEPTUAL FRAMEWORK

3.1. Overview of the Chapter

This chapter presents the conceptual framework guiding the study: the Collaborative for Academic, Social, and Emotional Learning (CASEL) model of Social and Emotional Learning (SEL). Building on the gaps identified in Chapter 2, particularly the emotional, ethical, and relational blind spots in adolescents' engagement with misinformation, this chapter argues that SEL provides a developmentally appropriate and socially grounded foundation for addressing these challenges. While existing misinformation education has largely emphasized cognitive skills such as fact-checking and source evaluation, this study positions SEL as a complementary lens that foregrounds emotional awareness, empathy, reflection, and responsibility in digital decision-making.

The chapter begins by briefly situating the CASEL framework within the broader landscape of SEL models and explaining why CASEL's five core competencies offer the most relevant and practical structure for this study. It then articulates how these competencies can be applied to misinformation contexts, illustrating how SEL supports not only critical thinking but also empathic reflection and socially responsible digital behavior. Together, this framework provides a conceptual foundation for examining how adolescents perceive, interpret, and internalize SEL competencies through game-based misinformation learning and structured debriefing.

3.2. Social and Emotional Learning's CASEL Framework

The concept of Social and Emotional Learning (SEL) emerged in 1994 when a group of educators, researchers, and child advocates convened at the Fetzer Institute to identify coordinated strategies for promoting students' social-emotional competence, academic performance, and overall well-being. This collaboration introduced the term *social and emotional learning* as a comprehensive framework emphasizing the integration of emotional, social, and academic development through school–family–community partnerships (Elias et al., 1997). Out of this initiative, the Collaborative for Academic, Social, and Emotional Learning (CASEL) was founded with the mission of making evidence-based

SEL a central component of preschool through high school education (Weissberg & Cascarino, 2013; Weissberg et al., 2015). Public awareness of SEL expanded further following Goleman’s *Emotional Intelligence* (1995), which argued, supported by the Fetzer Institute, that emotional competencies are as essential as cognitive skills and can be intentionally cultivated through education (Goleman, 2005).

Figure 1: *Social and Emotional Learning CASEL Framework*



Note. CASEL stands for the Collaborative for Academic, Social, and Emotional Learning. The CASEL framework shown in this figure is adapted from CASEL (2020).

Over the past two decades, SEL frameworks (see figure 1) have gained substantial traction in both research and practice, supported by strong empirical evidence linking SEL to improved academic outcomes, emotional regulation, prosocial behavior, and student well-being (Durlak et al., 2011; Mahoney et al., 2021; Weissberg et al., 2015). Among the various SEL models that have been proposed, CASEL’s framework remains one of the most widely recognized and internationally adopted.

CASEL defines SEL as “the process through which all young people and adults acquire and apply the knowledge, skills, and attitudes to develop healthy identities, manage emotions, achieve goals, show empathy, build relationships, and make responsible decisions” (Piha & Fasen, 2021, P. 7). Central to this framework are five core competencies: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making (CASEL, 2015). These competencies are designed to be developmentally appropriate and adaptable across diverse educational contexts.

A key strength of the CASEL framework lies in its conceptual rigor and practical flexibility. Beyond traditional academic settings, CASEL-based SEL has been increasingly applied to address broader social challenges, including educational equity in Transformative SEL (Jagers et al., 2019), trauma-informed pedagogy (Darling-Hammond et al., 2020), mental health and well-being (Green et al., 2021), and digital citizenship (Brandau et al., 2022; Nelson, 2021). Research suggests that CASEL-aligned SEL initiatives can support ethical and reflective engagement in digital environments, fostering responsible online behavior and strengthening digital citizenship practices (CASEL, 2015; Chen, 2021; Hromek & Roffey, 2009). Notably, studies indicate that several CASEL competencies, particularly self-management, social awareness, relationship skills, and responsible decision-making, are significantly associated with adolescents’ experiences of online harm, including cyberbullying and peer conflict (Chen, 2021).

These insights are particularly relevant to misinformation education, which increasingly involves emotional triggers, peer dynamics, and ethical ambiguity. In such contexts, SEL offers a critical complement to the predominantly cognitive orientation of Media and Information Literacy (MIL) approaches (Kahne & Bowyer, 2019; Livingstone & Third, 2017). CASEL’s emphasis on emotional regulation, empathy, and ethical judgment provides a structured lens for examining how adolescents navigate misinformation not only as information consumers, but as social actors embedded within digital communities.

Importantly, CASEL functions not only as a theoretical model but also as a practical framework supported by instructional tools, reflection resources, and activity-based strategies for fostering SEL across developmental stages (Taylor et al., 2017). This integration of theory and practice makes

CASEL particularly well suited for research examining adolescents' responses to complex social challenges. In the present study, which explores how young people engage with misinformation emotionally and ethically, the CASEL framework serves as both a conceptual foundation and an analytical guide. By applying CASEL competencies to game-based learning and guided debriefing, this framework supports an examination of how adolescents internalize emotional awareness, empathy, and responsible decision-making in the digital age.

3.3. Rationale for Adopting the CASEL Framework

This study adopts the Collaborative for Academic, Social, and Emotional Learning (CASEL) framework as its guiding conceptual model for examining adolescents' emotional, relational, and ethical engagement with misinformation. The rationale is not simply that CASEL is well established in educational research, though it is, having informed decades of SEL scholarship and been widely adopted across K–12 systems (CASEL, 2020; Durlak et al., 2011), but that its specific structure and scope make it particularly appropriate for the problem this study addresses. Four interconnected rationales support this choice.

A first rationale for adopting the CASEL framework is its developmental relevance to adolescence. Adolescence is a period in which young people actively develop identity, emotional regulation, peer belonging, social awareness, and moral judgment (Crone & Dahl, 2012; L. Steinberg & Morris, 2001; Yeager, 2017). These processes are closely related to how teenagers encounter misinformation in everyday digital life, where misinformation often circulates through friendship networks, group chats, humor, reputation, peer pressure, and emotional reactions (Herrero-Diz et al., 2020; Howard et al., 2021). CASEL provides a framework for examining the social and emotional capacities adolescents need in these contexts (CASEL, 2020; Denham, 2018). This developmental fit is supported by broader SEL research: a meta-analysis of 213 school-based SEL programs found positive effects on students' social-emotional skills, attitudes, behavior, and academic performance (Durlak et al., 2011), and a follow-up meta-analysis of 82 universal SEL interventions found lasting benefits for youth development, including prosocial behavior and emotional well-being (Taylor et al., 2017). These findings are especially relevant because adolescence is also marked by heightened sensitivity

to peer validation, social comparison, and challenges in self-management (Silke et al., 2018; West et al., 2020). CASEL therefore offers a useful lens for studying misinformation as an experience connected to emotion, identity, peer relationships, and social responsibility.

A second rationale is that CASEL can support the development of empathy and relational awareness in digital contexts, capacities that are directly relevant to how teenagers engage with misinformation. Existing misinformation education typically emphasizes source evaluation, credibility judgment, and verification, which are important but do not fully account for the emotional and social dimensions of how teenagers encounter false or harmful content (Middaugh, 2019). CASEL, by contrast, foregrounds empathy, perspective-taking, and emotional regulation as central to how young people navigate social situations. Adjacent research on cyberbullying provides a useful illustration of this potential: studies show that adolescents who engage in harmful peer behavior online tend to exhibit lower levels of empathy and weaker emotional regulation (Gini et al., 2007; Zych et al., 2019), and that SEL-based approaches addressing these capacities show promise in reducing online harm (Silke et al., 2018). This parallel is instructive for the present study because misinformation, like cyberbullying, can produce social and relational harm, which are damaged reputations, broken trust, exclusion, and peer conflict. CASEL’s emphasis on empathy, emotional awareness, and relationship skills therefore offers a conceptual foundation for examining how teenagers might move from identifying misinformation as inaccurate toward understanding how it affects real people and relationships.

A third rationale is that CASEL can support the ethical and relational goals that misinformation education needs but often lacks. Misinformation is not simply a problem of false content; it affects people, relationships, communities, and public trust. CASEL connects individual reflection with empathy, supportive relationships, and responsible decision-making (CASEL, 2020; Weissberg et al., 2015). Research on adolescent prosocial behavior supports this potential: adolescents’ empathy and social responsibility values meaningfully shape their civic and digital behaviors, and peer context plays a significant role in whether young people act on moral concern or defer to group norms (Silke et al., 2021; Vosoughi et al., 2018). In this study, CASEL provides a lens for analyzing how teenagers

understand the human consequences of misinformation and how they make sense of ethical choices in socially complex online situations that go beyond what cognitive frameworks alone can address.

Beyond the classroom, a further strength of CASEL is its scalability. Although CASEL is most widely associated with school-based outcomes, its framework explicitly extends to family and community partnerships as co-equal settings for social-emotional development (CASEL, 2020; Osher et al., 2016). This matters here because teenagers encounter misinformation not only at school but across family conversations, peer networks, and platform-driven social life. More recently, scholars working within Transformative SEL have extended CASEL’s framework further, arguing that social-emotional learning should also attend to equity, identity, agency, and collective action, not only individual competency development (Jagers et al., 2019, 2021). This transformative orientation reinforces the choice of CASEL for the present study: misinformation is not a neutral information problem but one shaped by power, identity, and social position, and a framework capable of holding both individual reflection and broader social responsibility is therefore well suited to this inquiry.

A fourth rationale is that CASEL can provide a practical foundation for designing SEL-informed learning activities. Its framework is translatable into concrete practices, guided reflection, perspective-taking, emotional identification, peer discussion, and responsible decision-making prompts, that give teenagers structured opportunities to slow down, name emotional reactions, consider the perspectives of those affected by misinformation, and reflect on what responsible action might look like in realistic social situations (CASEL, 2020; Marathe & Sen, 2021). Evidence indicates that SEL is most effective when embedded in learning environments through sequentially organized practices rather than isolated lessons (Durlak et al., 2011; Taylor et al., 2017). For this study, CASEL can guide both the design of SEL-informed misinformation activities and the analysis of how teenagers respond to those activities through reflection, empathy, and peer dialogue. Importantly, CASEL is used here as a sensitizing conceptual framework rather than a rigid outcome measurement model (Blumer, 1954; Bowen, 2006): the goal is not to measure competency attainment but to examine the social and emotional dimensions of teenagers’ misinformation engagement through a lens that is both theoretically grounded and pedagogically actionable.

Taken together, these four rationales establish CASEL as a particularly appropriate conceptual framework for this study. CASEL is developmentally suited to adolescence, can support the empathy and relational awareness that digital misinformation contexts demand, offers a foundation for examining the ethical dimensions of information engagement, and can provide practical tools for learning design and analysis. Its scalability, from school-based programming to family and community contexts, and further to transformative social equity work, ensures that the framework can hold the full complexity of how teenagers encounter and make meaning of misinformation across their social and emotional lives. By adopting CASEL as its conceptual foundation, this study contributes to a broader understanding of misinformation education: one that moves beyond fact-checking alone and considers how emotional, relational, and ethical reflection can support more socially responsible ways of engaging with information (CASEL, 2020; Durlak et al., 2011; Jagers et al., 2021).

3.4. Five Core Components of the CASEL Framework

Although a range of models has been proposed to conceptualize social and emotional competencies, there is substantial convergence across frameworks around key developmental domains, including intrapersonal competencies (self-awareness, self-management), interpersonal competencies (social awareness, relationship skills), and behavioral competencies (responsible decision-making) (CASEL, 2020; Osher et al., 2016). Greenberg (2023) notes that many SEL frameworks emphasize overlapping goals, particularly the development of self-related skills, social understanding, emotional regulation, and ethical reasoning. Among these models, the framework developed by the Collaborative for Academic, Social, and Emotional Learning (CASEL) remains one of the most influential and widely adopted. It organizes SEL into five interrelated competencies: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making (CASEL, 2015).

Rather than treating these competencies as isolated categories, the CASEL framework conceptualizes them as interconnected dimensions of development. Self-awareness and self-management primarily support intrapersonal processes by enabling individuals to recognize and regulate their internal emotional and cognitive states (Greenberg, 2023). Social awareness and relationship skills emphasize interpersonal processes, focusing on understanding others, navigating social interactions,

and maintaining relationships (Greenberg, 2023). Responsible decision-making integrates these domains, guiding individuals to apply both self-related and social understanding to make ethical and constructive choices (Greenberg, 2023).

Together, these competencies form a comprehensive framework for supporting adolescents' emotional, social, and ethical development. Prior research has shown that SEL competencies are associated with improved academic outcomes, social functioning, and overall well-being (DePaoli et al., 2017; Yang et al., 2021). These competencies are particularly salient during adolescence, a developmental period characterized by heightened emotional reactivity, increased sensitivity to peer influence, and ongoing identity formation.

The following subsections elaborate each competency in detail and examine how they are supported through instructional practices.

- **Self-awareness** refers to the ability to recognize one's own emotions, thoughts, values, and strengths, and to understand how these internal states influence behavior across contexts. It also involves identifying one's unique personal and cultural assets. For adolescents, this competency plays a foundational role in emotional development, supporting the recognition of feelings such as stress, anger, or embarrassment, as well as the development of emotional vocabulary and insight (CASEL, 2015; Piha & Fasen, 2021). As adolescents begin to form more stable identities, self-awareness fosters greater emotional clarity and supports reflective thinking about personal motivations and reactions.

Supporting the development of self-awareness requires intentional instructional and relational practices. Educators can foster this competency by explicitly teaching the vocabulary of emotions across developmental levels, helping students connect their emotional experiences to real-life situations, and providing safe and supportive opportunities for individuals to express their thoughts and feelings. Modeling emotional honesty and openness can further normalize emotional reflection, while encouraging a growth mindset helps reassure learners that emotional understanding and self-awareness can be developed over time through effort and

reflection (Weissberg et al., 2015).

- **Self-management** builds on self-awareness by extending emotional understanding into regulation and action. It encompasses a range of skills, including impulse control, stress management, goal setting, and perseverance. During adolescence, when emotional reactivity is heightened and executive functions are still developing, self-management plays a critical role in supporting self-discipline, resilience, and adaptive coping strategies (Durlak et al., 2011; Piha & Fasen, 2021). By enabling individuals to regulate their responses and persist through challenges, self-management helps translate emotional insight into constructive behavior.

Supporting the development of self-management requires structured and supportive learning environments. Educators can promote this competency by establishing calm and organized spaces that help regulate students' emotional states, and by teaching clear norms and routines that guide behavior. Instructional strategies such as modeling and practicing techniques like deep breathing and the “stop–think–act” approach can help students develop impulse control. Providing opportunities to engage in sustained, focused tasks, such as multi-step problems with multiple possible solutions, can foster perseverance and goal-directed behavior. In addition, creating spaces where students can express their perspectives in constructive ways reinforces a sense of agency and control over their actions. These practices collectively support students in developing the capacity to manage their emotions and behaviors effectively (Weissberg et al., 2015).

- **Social awareness** involves the ability to take the perspectives of others and to empathize with individuals from diverse backgrounds and contexts. This competency includes recognizing social cues, understanding social norms, and developing sensitivity to issues of fairness, inclusion, and justice (CASEL, 2015). At a micro level, social awareness encompasses the ability to recognize emotions and interpret nonverbal signals such as body language. At a macro level, it involves understanding how broader social, cultural, and institutional systems shape individuals' experiences and behaviors.

Supporting the development of social awareness requires intentional opportunities for perspective-taking and dialogue. Educators can foster this competency by engaging students in conversations about human differences and emphasizing respect and inclusion. Guiding questions such as “How might this person be feeling?”, “What might they do because of those feelings?”, and “How would you feel in that situation?” can help students reflect on others’ emotional experiences. These guiding questions were adapted from Probst (2017). Encouraging discussions that connect emotions to actions further deepens students’ understanding of social dynamics (Weissberg et al., 2015).

In essence, social awareness centers on recognizing shared humanity while appreciating differences. Students who develop the ability to understand others’ perspectives and emotions are better positioned to build meaningful and respectful relationships, particularly with individuals whose experiences differ from their own (Weissberg et al., 2015).

- **Relationship skills** refer to the ability to establish and maintain healthy and supportive relationships through effective communication, active listening, cooperation, and conflict resolution. For adolescents, whose behaviors are often strongly shaped by peer dynamics, these skills are particularly critical for navigating social pressure, collaborating effectively, and setting appropriate interpersonal boundaries (Carroll, 2019; Piha & Fasen, 2021).

Supporting the development of relationship skills requires structured opportunities for interaction and reflection. Educators can foster this competency by providing prompts that encourage respectful dialogue, such as “How do you agree?” and “How do you disagree?”. Educators can also teach students how to be productive group members by asking, “How do you take an active role in a group project?”. It can further strengthen collaborative skills. Additionally, creating regular opportunities for students to work in pairs, small groups, and larger teams allows them to practice communication, cooperation, and conflict resolution in authentic contexts (Weissberg et al., 2015).

Through these practices, students develop the ability to engage constructively with others,

manage interpersonal challenges, and build positive and supportive relationships.

- **Responsible decision-making** refers to the capacity to make ethical, constructive choices by evaluating potential consequences, considering social norms, and reflecting on both personal and collective well-being. As adolescents develop more advanced abstract reasoning abilities, this competency supports their capacity to weigh short-term desires against long-term outcomes and to align their actions with personal values and social responsibility (CASEL, 2015).

Supporting the development of responsible decision-making requires opportunities for guided reflection, modeling, and independent practice. Educators can foster this competency by teaching students how to identify and analyze different aspects of a problem, and by prompting them to consider potential consequences through questions such as “If I make this decision, what might happen?” and “How might others respond to this choice?” These practices encourage students to think beyond immediate reactions and consider broader social implications, drawing on social awareness and relationship skills.

Providing opportunities for students to make their own decisions in supportive environments is also critical. Encouraging reflection through questions such as “Why did you choose that?” and “What could you do next?” helps students articulate their reasoning and evaluate their actions. In situations involving harm or conflict, guiding students to reflect on questions such as “Why did I act this way?” and “What can I do to repair the impact?” supports accountability and reinforces learning through experience. Through iterative cycles of action and reflection, students are more likely to internalize responsible and ethical decision-making practices (Weissberg et al., 2015).

Taken together, these five competencies form a comprehensive and developmentally grounded framework for understanding adolescents’ emotional, social, and ethical growth. In this study, the CASEL framework serves as a conceptual lens for examining how teenagers interpret and respond to misinformation, not merely as a cognitive challenge, but as an emotionally and socially situated phe-

nomenon.

By foregrounding the interplay between internal emotional processes and social dynamics, this framework allows for a more holistic understanding of adolescents' engagement with misinformation. The following section 4.4 builds on this foundation by illustrating how each CASEL competency is activated within the study's learning context, particularly through game-based experiences and structured debriefing processes that support reflection, perspective-taking, and responsible action.

CHAPTER 4

METHODOLOGY

4.1. Overview of the Chapter

This chapter describes the methodology of this study, which examined how teenagers experience, interpret, and express social-emotional competencies when engaging with misinformation through a game-based learning intervention. The study focused on adolescent participants, investigating the social-emotional dimensions of their misinformation engagement through a structured learning experience that integrated gameplay, SEL-based debriefing, visual reflection, and focus group discussion. The chapter is organized as follows: the overall research design and its justification, the study procedure, participant characteristics and recruitment, data collection methods, data analysis procedures, and the strategies employed to ensure trustworthiness and ethical integrity.

4.2. Research Design

This study adopts a multi-phase qualitative research design to explore how Social and Emotional Learning (SEL), guided by the CASEL framework, can be meaningfully integrated into misinformation education for adolescents. A multi-phase qualitative approach is particularly appropriate for examining complex educational phenomena, as it enables the integration of multiple data sources and perspectives across sequential stages (Creswell & Clark, 2017; Sharma et al., 2023). This design supports iterative refinement, contextual grounding, and analytical triangulation, allowing for a nuanced understanding of the social and emotional dimensions of misinformation engagement.

The study consists of two interconnected phases:

4.2.1. Phase I. Engaging Educator Perspectives

The first phase draws on semi-structured interviews with SEL and Media and Information Literacy (MIL) educators to inform the design of the learning module. Rather than treating educators as subjects of investigation alone, this phase positions them as practice-based knowledge contributors, whose insights help ground theoretical concepts in real-world educational contexts.

Educators were invited to reflect on:

- adolescents' social and emotional challenges in misinformation contexts
- limitations of current misinformation education approaches
- design considerations for integrating SEL into instructional practice

In addition, participants were introduced to a prototype of the learning module (including the misinformation game and debriefing structure) and provided targeted feedback on its design.

This phase is informed by principles of expert elicitation and practitioner-informed design (Bertella et al., 2021), recognizing that effective educational interventions should be both theoretically grounded and practically viable.

Data from this phase, including interview transcripts and researcher notes, were used to iteratively refine the learning module, rather than being presented as standalone findings.

4.2.2. Phase II. Exploring Teenagers' Experiences

The second and central phase investigates how adolescents experience, interpret, and make meaning of misinformation through participation in the SEL-based learning module.

A focus group methodology was employed to capture the socially situated and interactional nature of adolescents' meaning-making processes (Morgan, 1997). Following participation in the learning module, including gameplay and structured debriefing, teenagers engaged in semi-structured group discussions centered on their emotional responses, decision-making processes, and reflections on misinformation.

To support deeper expression beyond verbal discussion, the study incorporates multi-modal data collection, including:

- individual written reflections
- visual artifacts (drawings and symbolic representations)

- community-oriented response activities

This approach is developmentally appropriate and enables participants to express complex emotional and social experiences that may not be easily articulated through language alone (Sanders & Stappers, 2008; Smeenk, 2019).

4.3. Research Questions

Guided by a focus group approach, this research is structured around one overarching and four sub-questions aimed at uncovering how SEL can be meaningfully integrated into misinformation education through literature, practitioner insight, and learner experience. This study is guided by one overarching question:

How can Social and Emotional Learning (SEL), guided by the CASEL framework, be meaningfully integrated into misinformation education for teenagers?

To address this central inquiry, the study is structured around the following sub-research questions:

- **Sub-RQ1:** How do SEL and Media and Information Literacy (MIL) educators perceive the integration of SEL into misinformation education, and what strategies or recommendations do they propose?

This question draws on practitioner insight to explore best practices, institutional barriers, and the real-world feasibility of applying SEL principles to misinformation instruction.

- **Sub-RQ2:** How and why do teenagers reflect on and express their understanding of SEL competencies after participating in a misinformation learning module?

This question centers on learners' experiences following a game-based misinformation activity and structured debriefing, with a focus on how and why adolescents internalize and apply SEL competencies.

- **Sub-RQ3:** What opportunities and challenges emerge for integrating SEL into misinformation education for teenagers?

Combining educator and student perspectives, this question investigates both enabling condi-

tions and constraints, ranging from pedagogical design to institutional and cultural factors.

Data collected across two phases, individual interviews with educators in SEL and MIL, and a learning module followed by focus groups with teenagers, map directly onto these sub-research questions. Phase I centers on Sub-RQ1 and partially informs Sub-RQ3, capturing educator perspectives on the viability of integrating SEL into curricula and uncovering practical considerations for implementation. Phase II primarily addresses Sub-RQ2 and contributes further to Sub-RQ3 through the firsthand experiences of teenagers who complete the misinformation learning module and share their reflections. By consolidating insights from all phases, the study endeavors to present a comprehensive picture of how SEL can be effectively leveraged to enhance media and information literacy for adolescents in the context of misinformation.

Table 1: *Alignment of Research Phases and Sub-Research Questions*

Phase	Focus	Method	Aligned Sub-RQs
Phase I: Engaging Educator Perspectives	Gathers perspectives from SEL and MIL educators; explores practical considerations for curricular integration	Interviews	Sub-RQ1 and Sub-RQ3
Phase II: Exploring Adolescent Experience	Implements a misinformation learning module (including game-based activities); investigates teenagers' reflections on SEL competencies in real-world contexts	Multi-modals (Debriefing, Visual reflection, Focus Groups)	Sub-RQ2 and Sub-RQ3

4.4. The SEL-based Misinformation Learning Module

4.4.1. Rationale for the Learning Module

Developing a learning module that combines a misinformation simulation game with structured debriefing allows for the integration of experiential engagement and reflective practice, two core elements of effective learning (Barab et al., 2010; Crookall, 2023; Kolb, 2014). While the game provides an interactive and emotionally engaging environment that fosters motivation, curiosity, and peer collaboration (Garris et al., 2002; McGonigal, 2011), it alone may not prompt adolescents to critically reflect on the emotional, ethical, and social implications of their digital actions. Structured debriefing plays a critical role in bridging this gap by creating a space for participants to

pause, articulate what they experienced, and analyze their behaviors and assumptions in a guided conversation (Crookall, 2023).

This approach aligns with Boud’s reflective learning model, which emphasizes the iterative process of experience, reflection, and the construction of new perspectives (Boud et al., 2013). Because adolescents’ prior experiences with misinformation vary, the shared gameplay scenario provides a common emotional and cognitive entry point. The debriefing phase then facilitates deeper engagement, prompting teenagers to examine their emotional triggers, decision-making processes, and the real-world consequences of spreading misinformation (Herrero-Diz et al., 2020). Through this reflective dialogue, learners begin to develop ethical awareness and empathy, which are central goals of Social and Emotional Learning (Das & Ghosh, 2021).

Importantly, the combination of gameplay and debriefing supports the development of CASEL’s five core competencies, particularly self-awareness, social awareness, and responsible decision-making. While the game activates these skills in practice, debriefing enables teenagers to make those competencies explicit and transferable. As research shows, adolescents often learn best through doing, followed by guided reflection that reinforces personal meaning and application (Durlak et al., 2010). According to Salas and Cannon-Bowers (2001), practice is a necessary condition for skill acquisition, and reflection transforms that practice into lasting insight.

From a research perspective, this simulation-based approach also addresses a practical challenge: the difficulty of directly observing adolescents’ interactions with misinformation in real-world contexts. By creating a controlled yet realistic learning environment, the game and debriefing structure enables teenagers to engage with emotionally charged misinformation scenarios in ways that are both meaningful and observable. This, in turn, allows the researcher to explore not only what adolescents do, but how they feel, interpret, and reflect on their digital behaviors, providing critical insights into the social-emotional dimensions of misinformation engagement.

4.4.2. Development of the Learning Module

(a) Selection Process of Misinformation Game

The process of selecting a misinformation game for this study was guided by the goal of aligning gameplay with Social and Emotional Learning (SEL) objectives and ensuring developmental appropriateness for teenage participants. The initial pool of candidate games was identified through two systematic reviews on misinformation games by Contreras-Espinosa and Eguia-Gomez (2023) and Kiili et al. (2024), supplemented by additional titles sourced through online searches. Two undergraduate research assistants and one graduate student collaboratively reviewed the full list to cross-check game details and enhance the validity of the selection process.

Games with broken links or unrelated themes, those not focusing on misinformation, disinformation, fake news, or media literacy, were excluded. This process yielded an initial pool of 41 relevant games (see Appendix B for details).

To refine the list, several criteria were applied sequentially:

1. Play Mode

Given the study's emphasis on collaborative learning and group-based reflection, games that emphasized individual or competitive play were excluded. This criterion removed 29 titles, leaving 12 games that supported group or cooperative play.

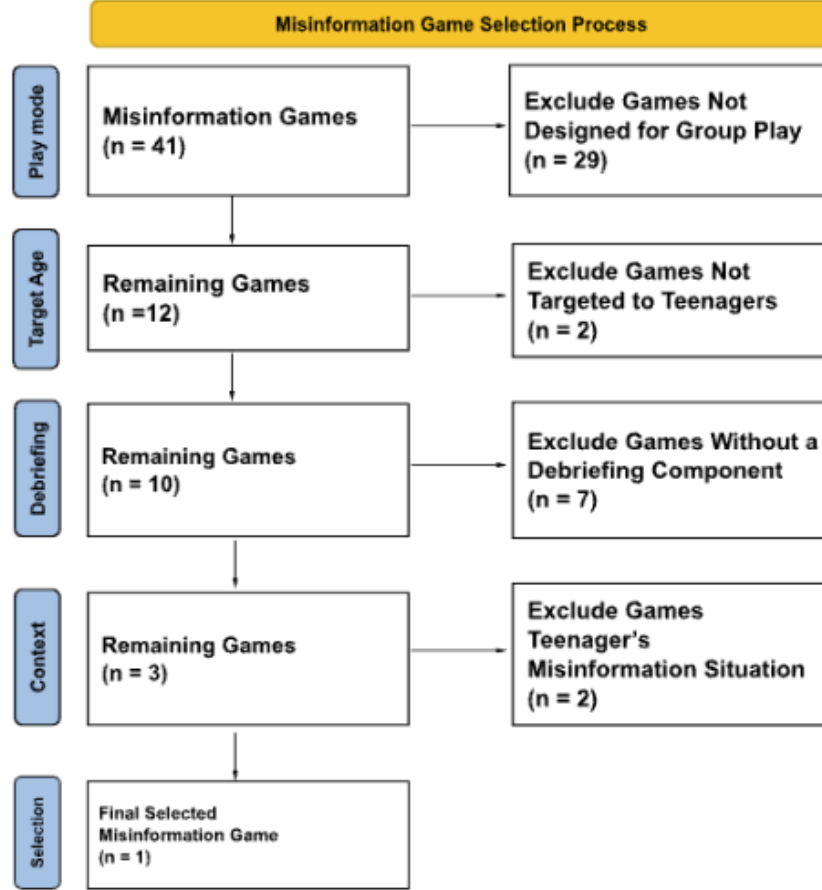
2. Target Age Group

Because the study focuses on adolescents, only games appropriate for teenage audiences were retained. Two additional games were excluded for not aligning with the target age group, narrowing the list to 10.

3. Debriefing Component

A key element of the study is structured reflection following gameplay. Therefore, games lacking a built-in or adaptable debriefing component were removed. Six games were excluded at this stage, resulting in four remaining candidates: *Misinformation Escape Room*, *The Galaxy*

Figure 2: *Misinformation Game Selection Process*



Escape Room: Mission, and *Chronoshift*.

4. Contextual Fit

The final criterion was narrative and thematic relevance. The selected game needed to reflect digital experiences and social scenarios familiar to teenagers. While *Misinformation Escape Room* uses a journalist-investigator narrative and *The Galaxy Escape Room: Mission* is set within a K-pop fan culture, *Chronoshift* emerged as the most appropriate choice. The game features teenage characters navigating an escape-room scenario in which misinformation is inadvertently shared among peers, leading to significant social consequences. This storyline closely reflects the study's focus on understanding how teenagers engage with and reflect on misinformation in emotionally and socially meaningful ways.

Based on this multi-stage evaluation process, *Chronoshift* was selected as the final game for the SEL-based misinformation learning module. A detailed description of the game is provided in the Introduction of the SEL-based Misinformation Learning Module section below.

(b) Development of Debriefing

A review of 41 misinformation games (Appendix B) revealed that only six (i.e., *Misinformation Escape Room*, *Galaxy*, *Starbound Secrets: Down the Rabbit Hole*, *Escape the Fake*, *Agent of Influence*, and *Chronoshift*) included a debriefing component (Contreras-Espinosa & Eguia-Gomez, 2023; Kiili et al., 2024). In most cases, debriefing was limited to facilitator-led question-and-answer sessions designed to help players recall gameplay events and summarize key takeaways. While this format aligns with the foundational premise that guided reflection enhances learning (Boud et al., 2013), it rarely addresses the emotional and ethical dimensions of misinformation engagement. As Boud and colleagues emphasize, meaningful reflection requires acknowledging and working through emotional responses, not simply recalling facts or outcomes.

This gap represents a critical limitation, particularly in misinformation education for adolescents. Without structured opportunities to process emotional responses, reflect on ethical dilemmas, and examine social dynamics, learning outcomes may remain superficial (Roozenbeek & van der Linden, 2019; van der Linden et al., 2020; Basol et al., 2021). To address this limitation, the present study proposes a purposefully designed debriefing framework that explicitly integrates Social and Emotional Learning (SEL) principles to foster emotional insight, ethical reasoning, and perspective-taking.

To inform the design of this framework, semi-structured interviews were conducted with SEL and Media and Information Literacy (MIL) educators. Participants emphasized that debriefing should be engaging, interactive, collaborative, and accessible. They highlighted the value of formats such as group discussion, role-play, and debate, while also underscoring the importance of facilitator restraint, which is favoring guidance over directive instruction. Additionally, participants suggested that optional incentives may help sustain motivation and engagement.

These insights were complemented by findings from the literature, which highlight the effectiveness of experiential SEL strategies, particularly role-play and narrative-based reflection, in fostering self-awareness and empathy (Fanning & Gaba, 2007; Yang et al., 2021). For example, Gill (2014) demonstrates that empathy can be significantly enhanced through immersive role-play experiences. Building on these insights, the present study incorporates several practical SEL tools into the debriefing process, including the *Story Emotion Map* (Audiffred-Hinojosa et al., 2021) and the *Feelings Button* (Fan et al., 2016). These tools support participants in visualizing and articulating emotional responses through accessible prompts (e.g., “Happy,” “Sad,” “Interesting,” “Afraid”), enabling the identification of emotional triggers, cognitive biases, and moments of ethical tension. To further explore underlying motivations, *Values Cards* (W. R. Miller et al., 2011) were incorporated as an additional reflective tool.

The debriefing framework is structured around three sequential reflection phases, each aligned with the CASEL competencies:

- **Intrapersonal Reflection (Self-Awareness & Self-Management):** Participants identify and articulate their emotional responses to misinformation, reflect on how they managed those emotions, and evaluate their personal reactions.
- **Interpersonal Reflection (Social Awareness & Relationship Skills):** Participants engage in perspective-taking and empathy by considering how misinformation affects others (e.g., peers, communities, or online audiences), while also practicing collaborative discussion.
- **Action Planning (Responsible Decision-Making):** Participants synthesize their insights and develop strategies for ethical digital behavior, such as pausing before sharing, verifying sources, and supporting peers in challenging misinformation.

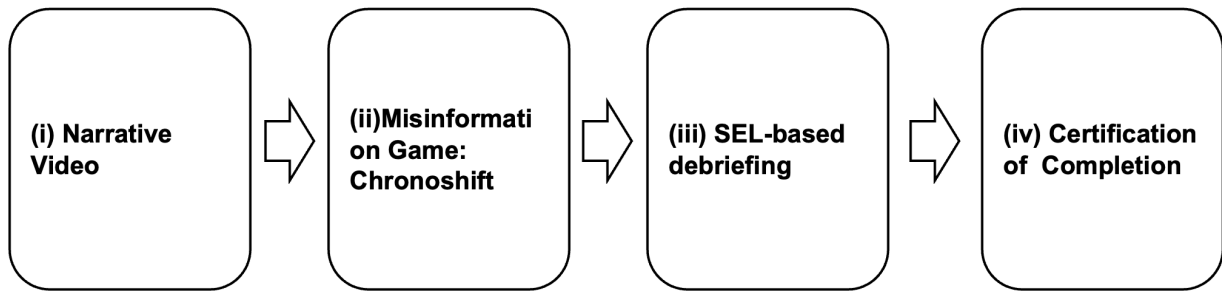
By incorporating these scaffolded reflection phases, the redesigned debriefing process moves beyond content recall toward deeper emotional and ethical integration. In doing so, it supports the development of socially responsible, empathetic, and self-aware digital citizens, adolescents who not only recognize misinformation, but are prepared to respond to it with insight, care, and accountability.

4.4.3. Introduction of the SEL-Based Misinformation Learning Module

Overview of the SEL-Based Misinformation Learning Module

This study employed a *SEL-based misinformation learning module* designed to help adolescents engage with misinformation as both an informational and a social-emotional phenomenon. Rather than focusing solely on fact-checking, the module aimed to support participants in recognizing the emotional, relational, and ethical dimensions of misinformation in everyday digital contexts.

Figure 3: *SEL-Based Misinformation Learning Module*



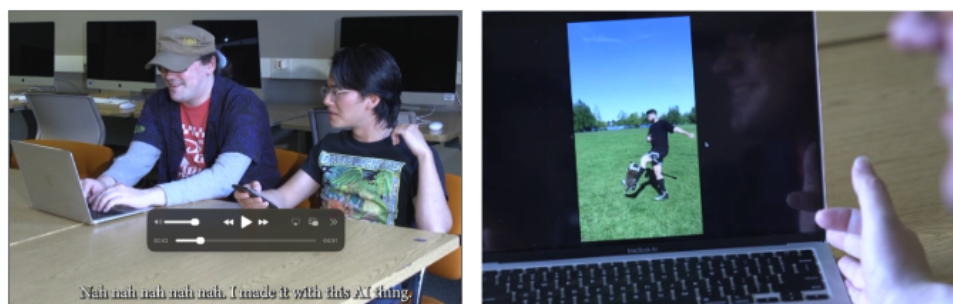
The module was structured as a sequenced learning experience consisting of four components: (i) a narrative misinformation scenario video, (ii) the collaborative misinformation game *Chronoshift*, developed by the University of Washington Center for an Informed Public (UW CIP), (iii) an SEL-based debriefing activity using the debriefing board designed for this study, and (iv) a certificate as a closing takeaway. Each component served a distinct pedagogical function: the video provided emotional and narrative grounding, the game offered experiential and collaborative engagement, the debriefing board facilitated reflective meaning-making, and the certificate reinforced closure and participation.

Together, these components created a holistic learning environment that integrated emotional engagement, social interaction, and reflective processing, aligning with the study's emphasis on understanding misinformation as a socially situated and emotionally experienced phenomenon.

(i) Narrative Video

The module began with a short narrative video designed to introduce participants to a realistic misinformation scenario situated in a familiar school context. The video served as an emotional and narrative primer, helping participants connect misinformation to peer relationships, social dynamics, and ethical consequences. A detailed version of the storyline is provided in Appendix C.1.

Figure 4: *Narrative Video Screenshots*



Summary of the Narrative. The video depicts a student council election in which Lucas, a candidate for president, becomes the target of a false AI-generated image showing him engaging in harmful behavior. Initially created as a joke by a peer, the image is shared within a private chat group without verification. As it spreads, other students repost and comment on the image, while an influencer figure further amplifies its visibility. Over time, the image is edited to appear more convincing, and the context is distorted. Despite uncertainty about its authenticity, students continue to circulate the content due to humor, peer pressure, and social attention. As a result, Lucas’s reputation is damaged, and he ultimately loses the election. The scenario highlights how misinformation can emerge unintentionally but escalate through collective participation.

The storyline followed a student council election in which Lucas, a candidate for president, becomes the target of a false AI-generated image. What begins as a playful act by another student is shared without verification, gradually spreads through peer networks, and becomes amplified through social media. As the image circulates, it is further manipulated and taken out of context, ultimately resulting in reputational harm and influencing the outcome of the election.

Rather than presenting misinformation as a purely informational problem, the video emphasized how misinformation emerges through everyday social interactions, including humor, peer pressure, and impulsive sharing. A key turning point in the narrative was introduced through a school librarian, who invited reflection on the consequences of these actions. The video concluded with a “time rewind,” encouraging participants to reconsider how different decisions might have led to alternative outcomes.

This narrative structure was intentionally designed to foster emotional engagement, perspective-taking, and ethical awareness prior to gameplay. By grounding the experience in a relatable social scenario, the video prepared participants to more deeply engage with the subsequent interactive activities. A detailed version of the storyline is provided in Appendix C.2.

(ii) Misinformation Game

Following the narrative video, participants engaged in *Chronoshift*, a team-based, in-person escape room-style misinformation game. The game provided an experiential learning environment in which adolescents could actively engage with misinformation-related challenges while drawing upon Social and Emotional Learning (SEL) competencies.

Each gameplay session involved teams of four participants working collaboratively to solve five interconnected puzzle challenges. This group-based structure encouraged communication, coordination, and shared problem solving, thereby supporting relationship skills and peer interaction.

The game began with a brief narrative introduction that positioned participants within the misinformation ecosystem. Players were assigned roles representing different forms of participation in misinformation spread, including the misinformation producer, misinformation sharer, misinformation influencer, disinformation producer, and misinformation victim. These roles encouraged participants to consider multiple perspectives and to recognize how misinformation is shaped by both individual actions and broader social dynamics.

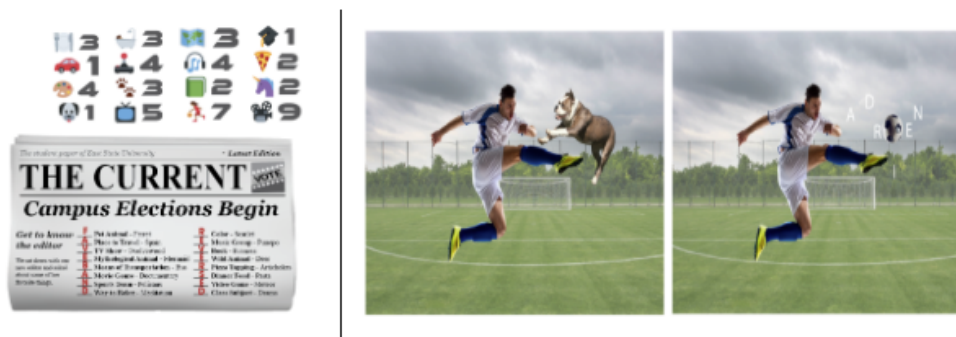
The central narrative mirrored the scenario introduced in the video, involving a manipulated image falsely depicting Lucas engaging in harmful behavior. As the scenario unfolded, participants encoun-

tered how misinformation can be unintentionally shared, strategically amplified, and progressively distorted, leading to real-world consequences.

Participants then worked through five puzzle challenges reflecting common misinformation contexts:

1. **Chat Group Scenario** — identifying misinformation within peer communication;
2. **Influencer Amplification** — examining how influencers accelerate the spread of misleading content;
3. **School Newspaper Report** — evaluating credibility and detecting misleading narratives;
4. **Manipulated Image Challenge** — identifying visual misinformation; and
5. **Final Algorithm Puzzle** — exploring how platform algorithms shape information exposure.

Figure 5: *Sample Puzzles from Chronoshift*



Throughout the game, participants engaged in time-sensitive decision-making, evidence evaluation, and collaborative discussion. These activities were designed to activate not only media literacy skills but also SEL competencies, including self-awareness, social awareness, and responsible decision-making.

In this way, *Chronoshift* functioned as both an interactive learning experience and a critical bridge between emotional engagement (established through the video) and reflective meaning-making (developed in the subsequent debriefing phase). A detailed version of the gameplay is provided in Appendix C.2.

(iii) SEL-Based Debriefing

Following the misinformation game, participants engaged in a structured debriefing session grounded in Social and Emotional Learning (SEL) principles. This debriefing was designed not only to consolidate participants' gameplay experiences, but also to support the development of emotional insight, social awareness, and ethical reasoning.

Drawing on Boud et al.'s (2013) reflective learning model, which emphasizes revisiting experience and constructing meaning through reflection and dialogue, the session invited adolescents to pause, process, and reinterpret their in-game decisions and emotional responses. In addition, prior research highlights that interactive dialogue, such as group discussion and role-based reflection, can foster critical literacy by encouraging deeper engagement with how and why misinformation spreads, as well as its emotional and social consequences (Goldberg, 2017).

Unlike traditional post-game debriefings that focus on task completion or factual recall, this session centered on attitudes, values, and emotional experiences. Participants were organized into small groups of four, mirroring the roles encountered in the *Chronoshift* game (e.g., misinformation producer, sharer, influencer, and victim). This role-based structure supported perspective-taking and empathy by encouraging participants to examine how misinformation affects different individuals and how various motivations contribute to its spread.

To facilitate this reflective process, the study introduced a hands-on *SEL-Based Debriefing Board* (see Figure 6). The board consisted of a magnetic whiteboard with role-specific scales, allowing participants to place markers representing emotional states, motivations, or behavioral responses. In addition, each participant received an individual puzzle piece to record a personal reflection or takeaway message. When assembled, these pieces formed a collective artifact, "Teens' Misinformation Action Plan", symbolizing shared responsibility and reinforcing community-oriented digital behavior.

The debriefing was organized into three sequential reflection phases, each aligned with CASEL competencies and supported by specific interactive materials designed to scaffold participants' reflection:

Figure 6: SEL-Based Debriefing Board

Debriefing for Misinformation Role-Play

Reflect • Empathy • Empower

Step 1
[Individual Reflection]
"What Was Your Experience?"

Instructions: Think about a time you encountered or were part of misinformation (Example, posting, sharing, being misled, or hurt).

Reflect: "How did you feel? How did you handle it?"

Step 2
[Group Role Reflection]
"Walk in Someone Else's Shoes"

[Emotion Token]

Happy

Excited

Calm

Regretful

Confused

Embarrassed

Overwhelmed

Helpless

Didn't care

Scared

Sad

Angry

[Value Token]

Protecting friends

Loyalty

Truth / Justice

Curiosity

Fun

Popularity

Wanting a like

Fear of missing out

Money

Jealousy

Harmful

Attack

Round 1: Forward Role-Play (Producer → Victim)

- Choose **one role**: Misinformation Producer, Sharer, Disinformation producer, Influencer, or Victim.
- Pick **two tokens**: one *Value* and one *Emotion* (from the provided set).
- Start with the Misinformation Producer and create a **hypothetical story**, moving the narrative forward **one role at a time**.
(Tips: Make it **personal and realistic** — add your own creative twist!)

Reflection: "I (action) because of (value). It was (emotion)."

	Misinformation Producer	Misinformation Sharer	Misinformation Influencer	Disinformation Producer	Misinformation Victim
Emotion Card					
Motivation Card					

Round 2: Reverse Role-Play (Victim → Producer)

• **Reflection:** "Knowing the consequences, what would you do differently?"

	Misinformation Victim	Disinformation Producer	Misinformation Influencer	Misinformation Sharer	Misinformation Producer

Step 3
[Community Action]
"One Piece of Advice"

Reflect:
What is one piece of advice you'd give to someone younger than you, so they don't make the same mistake with misinformation?

Younger Generation 📞 📺 ⋮

Active now

🗣️ Type your message here... 🗣️ 📷

Step 1. Individual Reflection (Intrapersonal Reflection) Participants began by reflecting on their own experiences with misinformation. Guided prompts such as “How did you feel during that moment?” and “How did you respond?” encouraged them to examine their emotional reactions and self-regulation strategies, supporting the development of self-awareness and self-management.

To support this process, *emotion tokens* were introduced, allowing participants to identify and externalize their emotional responses.

Step 2. Group Role Reflection (Interpersonal Reflection)

This phase emphasized perspective-taking and social dynamics. Participants explored how misinformation affects others, particularly the victim, and considered the roles individuals play in its spread.

This phase included two structured activities:

- *Role-Play Round*: Participants selected a role and corresponding emotion and motivation tokens, then constructed a narrative using the prompt: “I (action) because of (motivation). It made me feel (emotion).”
- *Reverse Role-Play Round*: Participants revisited the scenario in reverse sequence, beginning with the victim, to reflect on consequences and alternative decisions.

To facilitate this process, *role cards*, *emotion tokens*, and *motivation tokens* were used to support role-based reflection and understanding of behavioral drivers.

Role cards were used to support perspective-taking and role-based reflection during the debriefing activity. Each participant was assigned or selected a role (e.g., misinformation creator, sharer, or affected individual) to explore how different actors experience and contribute to the spread of misinformation.

These role-based prompts encouraged participants to consider diverse viewpoints, fostering social awareness and empathy in the context of misinformation.

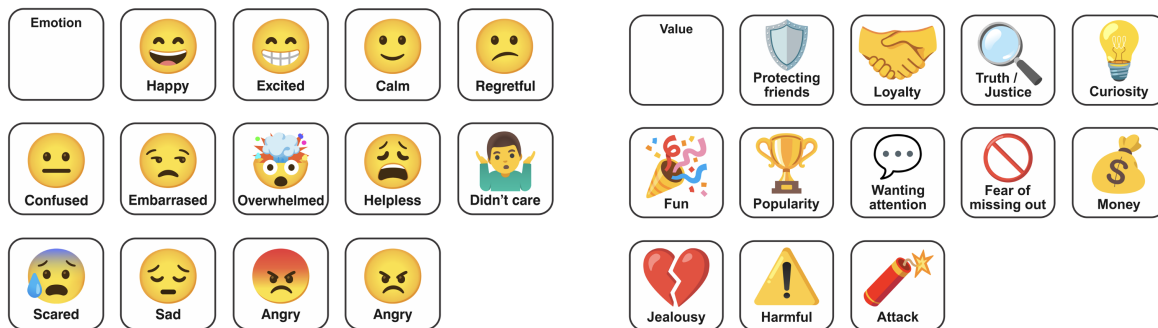
Figure 7: *Role Cards for Debriefing*



Emotion tokens were used to help participants identify and express emotional responses experienced during the gameplay.

Motivation tokens supported reflection on why individuals create or share misinformation.

Figure 8: *Emotion and Motivation Tokens*



Step 3. Community Action (Action Planning) In the final phase, participants generated advice for younger peers on how to respond to misinformation. This activity was supported by a *message creation task*, in which participants wrote short messages based on their reflections.

Figure 9: *Example Outputs from the Message-Writing Activity*



This step encouraged forward-looking thinking, personal responsibility, and the transfer of learning

beyond the immediate activity.

While puzzle validation was embedded within gameplay, this structured debriefing served as the primary site of meaning-making. By integrating interactive materials into each phase, the debriefing enabled participants to connect emotional experiences with social and ethical considerations, aligning with core CASEL competencies (Gimbert et al., 2023).

Ultimately, this process aimed to cultivate empathy, critical reflection, and a sense of digital responsibility, supporting adolescents in navigating misinformation more thoughtfully within their everyday social environments.

(iv) Certificate of Completion

At the conclusion of each session, participants received a certificate of completion along with a set of take-home materials summarizing key concepts from the module, including the Social and Emotional Learning (SEL) competencies introduced during the debriefing. These materials served both as formal recognition of participants' engagement and as tangible resources to support continued reflection beyond the session.

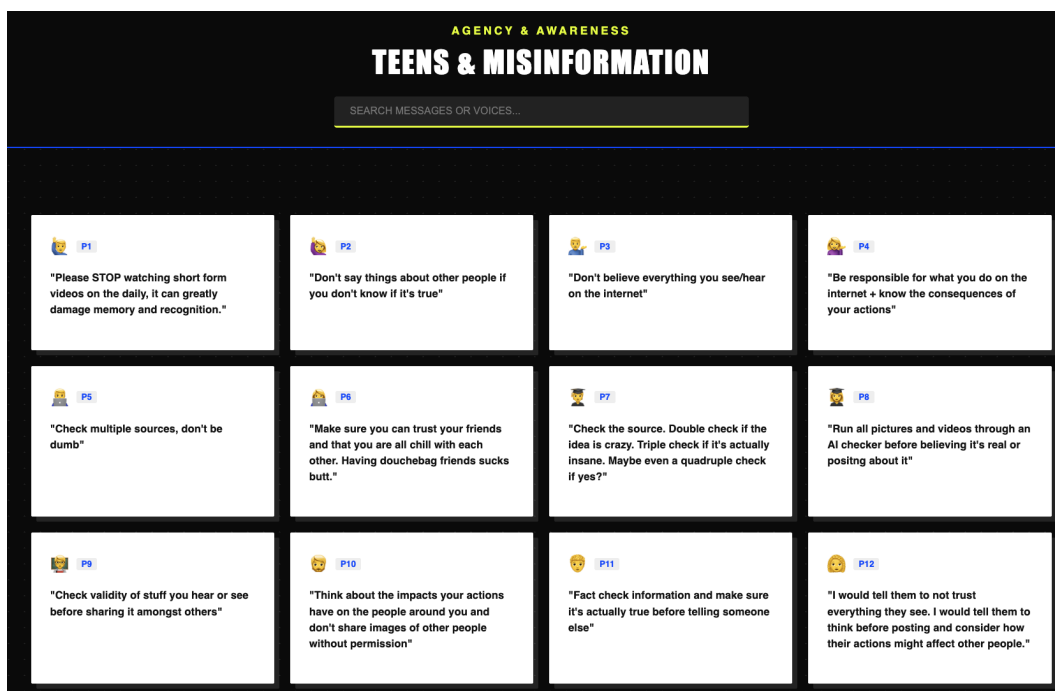
Figure 10: *Certificate of Completion and Take-Home Materials*



In addition, participants' message outputs from the debriefing activity were compiled into an online

platform to highlight teenagers' perspectives on misinformation and social responsibility. This website was designed to extend the impact of the learning experience by connecting participants' reflections across sessions and encouraging ongoing engagement with misinformation in their everyday digital lives. The messages from teenagers are available at: <https://tinyurl.com/teenmisinformation>.

Figure 11: *Website Featuring Teenagers' Collective Reflections on Misinformation*



Together, the certificate, take-home materials, and shared online platform functioned as the closing component of the learning module. Beyond providing a sense of completion, these elements were designed to support the transfer of learning, reinforcing reflection, empathy, and social responsibility in real-world digital contexts. A detailed version of the community message is provided in Appendix F.

4.5. Phase I. Engaging Educator Perspectives

Purpose

This phase of the study involved semi-structured interviews with educators who have expertise in Social and Emotional Learning (SEL) and Media and Information Literacy (MIL). The purpose of these interviews was twofold.

First, the study aimed to explore educators’ perceptions of integrating SEL into misinformation education, particularly in terms of its relevance, feasibility, and potential classroom impact. Second, the study sought to gather feedback and practical recommendations to refine the SEL-based misinformation learning module, ensuring alignment with pedagogical goals and adaptability across diverse educational contexts.

The interviews specifically focused on how SEL can address the emotional and social dimensions of misinformation, particularly within digital environments frequently encountered by adolescents, spaces shaped by peer influence, impulsive decision-making, and emotionally charged content (Herrero-Diz et al., 2020; Zozaya-Durazo et al., 2024). Through one-on-one dialogue, participants were invited to share best practices and propose strategies that are developmentally appropriate, culturally relevant, and practically implementable in educational settings.

This phase addressed the following sub-research questions:

- **Sub-RQ1:** How do SEL and MIL educators perceive the integration of SEL into misinformation education, and what strategies or recommendations do they propose?
- **Sub-RQ3:** What opportunities and challenges emerge for integrating SEL into misinformation education for teenagers?

Participants

Participants were recruited from a pool of educators with demonstrated expertise in Social and Emotional Learning (SEL) and/or Media and Information Literacy (MIL). A total of 20 participants were included in this phase. The sample was intentionally structured to ensure a balanced representation across domains: 8 participants with primary expertise in SEL, 8 with primary expertise in MIL, and 4 with integrated expertise spanning both SEL and MIL. This distribution reflects the study’s aim to examine both domain-specific and interdisciplinary perspectives on SEL–MIL integration.

The sample included a range of professional roles, such as K–12 teachers across subject areas (e.g.,

social studies, science, mathematics, and arts), school counselors, school librarians, district specialists, instructional designers, and leaders of community-based educational organizations. Participants with dual expertise often occupied hybrid roles, directly bridging SEL and MIL in practice.

This phase employed purposive sampling (Creswell, 2013) based on the following criteria:

1. A minimum of two years of experience working with teenagers aged 13–17;
2. Demonstrated experience or interest in SEL and/or MIL instruction; and
3. Willingness to participate in a 60-minute online interview, with openness to brief follow-up communication.

Participants were recruited through established professional networks. For SEL educators, recruitment channels included organizations such as CASEL, SEL Exchange, the Office of Superintendent of Public Instruction (OSPI), and Foundry10's SEL educator community. For MIL professionals, recruitment leveraged networks such as Common Sense Education, Media Literacy Now, school districts, libraries, and related media literacy organizations. Additional details regarding recruitment procedures are provided in Appendix D.2.

Several organizations and individual contacts expressed willingness to participate directly or assist in identifying eligible educators. To further broaden the sample and enhance diversity of perspectives, a snowball sampling strategy was also employed, whereby participants referred colleagues within their professional networks. This approach helped ensure representation across varied educational contexts, roles, and geographic locations.

Participants represented diverse organizational settings, including K–12 public schools, private and independent schools, alternative schools, higher education programs, public libraries, and nonprofit or community organizations. This variation allowed the study to capture perspectives from both formal and non-formal learning environments.

In terms of experience, participants ranged from early-career educators with 2–4 years of experience

to highly experienced professionals with over 15 years in the field, providing insight into both emerging and established practices.

Geographically, participants were primarily based in the United States, with representation from multiple states including Washington, California, North Carolina, Texas, Florida, Montana, and Pennsylvania, as well as one participant based in Canada. While there was a concentration of participants from Washington State due to recruitment context, the sample maintains broader geographic diversity. A detailed overview of participant characteristics is provided in Table 2.

To acknowledge participants' time and expertise, each participant received a \$25 Amazon gift card, in accordance with ethical research compensation practices.

Procedure

Educator interviews were conducted individually via video conferencing between August and December 2025. Each interview lasted approximately 60 minutes (slightly over to 80 minutes) and followed a semi-structured format.

Prior to the interviews, participants were provided with an overview of the study's purpose along with a brief description of the proposed SEL-based misinformation learning module. This ensured that participants had sufficient context to meaningfully reflect on the integration of Social and Emotional Learning (SEL) within misinformation education.

The interview protocol consisted of multiple segments designed to elicit both conceptual insights and practical recommendations. In the final segment of each interview (Part 4), participants were presented with a demonstration or detailed description of the *Chronoshift* misinformation game and the SEL-based debriefing activities. They were then invited to provide direct feedback on the design, including suggestions for improvement, potential classroom implementation strategies, and considerations for adapting the module across diverse educational settings. All interviews were audio-recorded with participant consent and later transcribed for analysis.

Table 2: *Demographic Characteristics of Participants (Phase I)*

ID	Expertise	Role / Position	Organizational Setting	Yrs	Location
E1	MIL	Teacher (History, Social Studies)	K–12 Public School	14	WA
E2	SEL	Teacher (Social Science, Health Science)	K–12 Private/Independent School	6	CA
E3	MIL & SEL	Teacher (General / SEL)	K–12 Private/Independent School	4	CA
E4	SEL	School Counselor	K–12 Public School	10	WA
E5	SEL & MIL	Teacher (Biology; SEL; MIL)	K–12 Public School	8	TX
E6	SEL	Teacher (Social Science)	K–12 Public School	5–9	WA
E7	SEL	Teacher (Social Studies, English, Arts)	K–12 Alternative School	2–4	FL
E8	SEL	Teacher (Mathematics)	Community Organization / Higher Education	4	NJ
E9	MIL	Documentary Film Director	Community Organization	6	MT
E10	MIL	School Librarian	K–12 Public School	15+	WA
E11	SEL	SEL Consulting Teacher	K–12 Public School District	7	WA
E12	SEL	Co-Founder (SEL Leadership Organization)	Community Organization	2–4	NC
E13	SEL	District Behavior Specialist	Community Organization	5–9	NC
E14	MIL	Media & Game Researcher	Community Organization	2–4	Canada
E15	MIL	Media Researcher / Instructional Designer	Community Organization	2–4	WA
E16	MIL	Media Researcher	Community Organization	2–4	WA
E17	MIL	Youth Program Coordinator / Former HS Teacher	Higher Education (UW iSchool)	5–9	WA
E18	SEL	Teacher (Spanish)	K–12 Public School	15+	NC
E19	SEL & MIL	Founder (SEL Education Organization)	Community Organization	15+	PA
E20	SEL & MIL	Librarian	Public Library	5–9	WA

Data Collection

Data were collected through semi-structured interviews guided by a protocol developed by the researcher. The protocol was organized into five thematic parts, allowing for both consistency across interviews and flexibility to explore participants' expertise and perspectives in depth.

Part 1: Background and Teaching Context. This section gathered information about participants' professional roles, teaching environments, and experience working with adolescents. It also explored their involvement with Social and Emotional Learning (SEL) and/or Media and Information Literacy (MIL).

Part 2: Perspectives on SEL and Misinformation. Participants were asked about the social and emotional challenges teenagers face when encountering misinformation. This section also included questions aligned with the five CASEL competencies, self-awareness, self-management, social awareness, relationship skills, and responsible decision-making, to understand how these competencies are perceived and addressed in practice.

Part 3: Pedagogical Practices and Integration. This section was tailored based on participants' expertise. SEL educators were asked about strategies for incorporating emotional and ethical reflection into digital behavior instruction, while MIL educators were asked about observed emotional responses and instructional approaches when students engage with misinformation. Participants also reflected on opportunities and challenges in integrating SEL and MIL.

Part 4: Module Design and Feedback. Participants were presented with the proposed SEL-based misinformation learning module and invited to provide feedback on its design, including its strengths, limitations, and potential effectiveness in fostering SEL competencies. Questions also explored the role of role-play and reflective discussion in supporting empathy and responsible decision-making.

Part 5: Final Reflections. The final section invited participants to share additional insights and provide recommendations for designing effective SEL-informed misinformation learning experiences

for teenagers.

All interviews were audio-recorded with participants' consent and subsequently transcribed. Transcripts were reviewed for accuracy against the original recordings, and all identifying information was removed or replaced with pseudonyms prior to analysis (Bailey, 2008).

Data Analysis

Phase I interview data were analyzed using thematic analysis following the approach outlined by (Braun & Clarke, 2006). Thematic analysis was selected as a flexible yet systematic qualitative method for identifying, analyzing, and interpreting patterns of meaning across the dataset. This approach was appropriate for examining educators' perspectives, experiences, and design recommendations regarding the integration of Social and Emotional Learning (SEL) into misinformation education.

Table 3: *Phase I Codebook for Educator Perspectives*

Code	Short Description
Theme 1. Misinformation as a Social-Emotional Problem for Teenagers	
1.1. Emotional Vulnerability to Misinformation	Teenagers' fear, anger, excitement, curiosity, or urgency before careful evaluation of misinformation.
1.2. Peer Pressure and Social Validation	Connections between misinformation, identity, values, peer belonging, trust, and social validation.
1.3. Impulsivity and Reactive Digital Behavior	Quick sharing, reposting, or reacting to misinformation to fit in, gain attention, show loyalty, or maintain social status.
1.4. Trust in AI and Digital Technologies	Teenagers' overtrust in AI-generated or technology-mediated content that appears realistic, novel, or authoritative.
Theme 2. Instructional Gaps in Current Misinformation Education	
2.1. Limits of Cognitive MIL Approaches	Limits of fact-checking and source evaluation when emotional and social drivers of misinformation are overlooked.

2.2. Misalignment with Teenagers' Digital Lives	Disconnection between misinformation education and teenagers' everyday digital experiences, such as memes, rumors, group chats, influencers, and AI-generated content.
2.3. Structural Barriers to SEL–MIL Integration	Time, curriculum demands, limited resources, and lack of educator preparation for SEL–MIL integration.
2.4. Digital Dehumanization and Reduced Empathy	Difficulty recognizing real people, relationships, and harms behind online misinformation.
Theme 3. Educators' SEL-Based Rationale for Misinformation Education	
3.1. Definitions of SEL and MIL in Practice	How educators defined SEL and MIL in relation to emotions, relationships, information evaluation, and responsible digital participation.
3.2. Instructional Approaches to SEL and MIL	Suggested teaching approaches for connecting SEL and MIL, including reflection, discussion, real-world examples, role-play, and student-centered activities.
3.3. The Role of SEL Competencies in Misinformation Engagement	How SEL competencies help teenagers pause, reflect, manage emotions, consider others, and make responsible choices when encountering misinformation.
3.4. Prioritization of SEL Competencies	Educators' views on which SEL competencies are most important for misinformation education and how they work together in practice.
Theme 4. Educators' Suggestions for SEL–MIL Learning Design	
4.1. Opportunities for Implementing SEL–MIL Learning	Future opportunities for SEL–MIL integration in digital citizenship, responsible participation, and youth learning contexts.
4.2. Pedagogical Strategies for SEL–MIL Learning	Experiential, emotional, and discussion-based strategies that make misinformation concrete, social, and personally meaningful.
4.3. Design Suggestions for SEL–MIL Learning Activities	Design features such as real-world relevance, safe discussion, role-play, guided reflection, visual debriefing, and facilitation that builds trust.

4.5.1. Trustworthiness of Educator Interview Data

To enhance the trustworthiness of the educator interview analysis, this study employed both peer debriefing and an inter-coder agreement process. These strategies are widely recognized approaches for strengthening credibility, dependability, and transparency in qualitative research (Creswell & Poth, 2018).

Peer debriefing was conducted through iterative discussions with a colleague familiar with qualitative research and the domains of Social and Emotional Learning (SEL) and Media and Information Literacy (MIL). These sessions took place at multiple stages of analysis, including initial coding and theme development. During these discussions, preliminary codes and thematic structures were critically examined, with particular attention to the clarity of code definitions, consistency of coding decisions, and alignment between data excerpts and analytic interpretations. The peer challenged assumptions, questioned interpretations, and prompted consideration of alternative perspectives, thereby supporting reflexivity and reducing potential researcher bias.

In addition, an inter-coder agreement process was conducted to enhance the reliability of the coding scheme. A subset of the interview data was independently reviewed, and coding decisions were compared to identify areas of agreement and disagreement. Discrepancies were discussed in detail, and consensus was reached through iterative dialogue. This process contributed to refining code definitions, resolving ambiguities, and improving consistency in how codes were applied across the dataset.

Together, these strategies strengthened the credibility of the findings by ensuring that themes were grounded in a rigorously examined analytic process rather than relying solely on the researcher's interpretation. They also enhanced the dependability and transparency of the analysis by promoting systematic coding practices and clearly articulated analytic decisions (Nowell et al., 2017). As a result, the final thematic structure reflects a robust and trustworthy interpretation of educators' perspectives on integrating SEL into misinformation education.

4.5.2. Role of Phase I in Informing Module Design

The findings generated through Phase I analysis were used directly to refine and strengthen the SEL-based misinformation learning module. Rather than serving as an independent empirical outcome, Phase I functioned as a design-informing stage, translating practitioner insights into concrete pedagogical and interaction design decisions.

Specifically, educator perspectives shaped three key aspects of the module. First, practitioners consistently observed that teenagers often experience misinformation as emotionally charged but lack structured opportunities to identify and process those emotions. This insight informed the development of the individual reflection phase within the debriefing, which explicitly invites participants to articulate their emotional responses and supports the development of self-awareness.

Second, educators emphasized the central role of peer dynamics in adolescents' engagement with misinformation. These insights influenced the design of role-based activities, which were structured to make visible the social pressures, peer influence, and relational consequences embedded in misinformation practices. By foregrounding these dynamics, the module encourages participants to examine how social contexts shape their decisions.

Third, several educators expressed skepticism toward fact-checking as a sufficient response to misinformation. They noted that adolescents often recognize that content may be misleading yet continue to share it due to humor, peer validation, or social belonging. This observation reinforced the module's emphasis on social-emotional scaffolding, such as empathy-building and responsibility-oriented reflection, rather than relying solely on cognitive correction strategies.

It is important to clarify that Phase I data are not presented as standalone findings in this study. The educator interviews were conducted to inform the design and refinement of the learning module, rather than to produce a separate empirical account of educator perspectives. Accordingly, these insights are integrated into the design rationale presented in section 4.4.3 (Introduction of the SEL-based misinformation learning module).

4.6. Phase II. Exploring Teenagers' Experiences

Purpose

Phase II of the study focuses on engaging teenagers in a series of focus groups conducted after their participation in the Social and Emotional Learning (SEL)-based misinformation learning module. This phase is designed to capture the perspectives of the target audience directly (Morgan, 1997), providing insight into how adolescents perceive SEL competencies and how these competencies shape their understanding of misinformation. As Selnes (2024) emphasizes, examining teenagers' media practices and beliefs is essential for understanding how they interpret and engage with misinformation in real-world digital environments.

The primary objective of this phase is to explore how teenagers reflect on and articulate their understanding of SEL, particularly empathy, social responsibility, and critical thinking, following their participation in the module (CASEL, 2015). In addition, the focus groups examine the perceived relevance and resonance of the module's content, structure, and activities in relation to adolescents' everyday experiences on social media. Through this exploration, the study seeks to assess the extent to which SEL competencies are transferable to authentic online behavior and decision-making.

Recognizing that social and emotional experiences are not always fully captured through verbal expression, this study incorporates participatory visual methods in the form of social-emotional posters. Visual approaches allow participants additional time and flexibility to reflect on their experiences and express complex or nuanced ideas (Gauntlett, 2005). They can also surface implicit or unarticulated perspectives that may not emerge through language-based methods alone. By allowing participants to determine the content and representation of their visual artifacts, this method captures both expressed meanings and notable absences, revealing subtle interpretations of SEL in the context of misinformation (Literat, 2013).

This phase also evaluates the learning module from a student-centered perspective. Teenagers' feedback is used to identify strengths, as well as practical challenges or misalignments, such as levels of engagement, clarity of instructions, perceived realism of activities, and the visibility of

SEL concepts throughout the experience. These insights inform further refinement of the module to ensure that it remains developmentally appropriate, engaging, and adaptable across diverse educational contexts.

Taken together, Phase II provides a deeper understanding of how teenagers experience, interpret, and internalize SEL within misinformation contexts. By capturing participants' emotional responses, reflections, and recommendations, this phase validates the module's impact from a youth-centered perspective and informs future implementation strategies. Ultimately, it ensures that SEL-based misinformation education remains both evidence-informed and responsive to the evolving realities of adolescents' digital lives.

This phase is guided by the following sub-research questions:

- **Sub-RQ2:** How and why do teenagers reflect on and express their understanding of SEL competencies after participating in a misinformation learning module?
- **Sub-RQ3:** What opportunities and challenges emerge for integrating SEL into misinformation education for teenagers?

Participants

Eligibility and Recruitment Participants were recruited through youth-serving organizations, community programs, and local school networks in the Seattle metropolitan area. Eligibility criteria required participants to be between the ages of 13 and 17, to be active users of social media platforms (e.g., TikTok, Instagram, YouTube, or Discord), and to be willing to reflect on their digital experiences.

Participants were encouraged to register as pre-existing peer groups. This recruitment strategy was intentionally adopted to support authentic interaction during focus group discussions, as prior research suggests that adolescents are more likely to engage in open and emotionally meaningful reflection when interacting with familiar peers. Such environments can reduce performance anxiety and social evaluation concerns that may otherwise constrain disclosure in groups of strangers

(Livingstone & Third, 2017; Morgan, 1997).

Prior to participation, all individuals completed a pre-screening registration form to provide demographic information and preliminary insights into their social media use and experiences with misinformation.

Sample A total of 59 teenagers participated across 13 focus group sessions. Groups consisted of four participants (6 groups, $n = 24$) or five participants (7 groups, $n = 35$). Table 4 presents the demographic composition of the sample.

Table 4: *Demographic Characteristics of Study Participants (Phase II)*

Category	Breakdown	<i>N</i> (%)
Total Participants	13 groups	59 (100%)
Group Size	4 participants — 6 groups	24 (40.7%)
	5 participants — 7 groups	35 (59.3%)
Age	13	5 (8.5%)
	14	6 (10.2%)
	15	17 (28.8%)
	16	28 (47.5%)
	17	3 (5.1%)
Grade	7th	2 (3.4%)
	8th	5 (8.5%)
	9th	11 (18.6%)
	10th	33 (55.9%)
	11th	8 (13.6%)
Gender	Female	36 (61.0%)
	Male	19 (32.2%)
	Non-binary	3 (5.1%)
	Prefer not to say / Unsure	1 (1.7%)

Participants ranged in age from 13 to 17, with the majority (76.3%) aged 15 or 16. This distribution reflects the study’s focus on mid-to-late adolescence, a developmental stage in which social media engagement and peer influence are particularly salient in shaping responses to misinformation. Consistent with this age distribution, most participants were in 10th grade (55.9%), followed by 9th grade (18.6%) and 11th grade (13.6%), with smaller representations from 8th (8.5%) and 7th grade

(3.4%). This grade distribution further situates the sample within a critical period of secondary education where social and digital behaviors are actively developing.

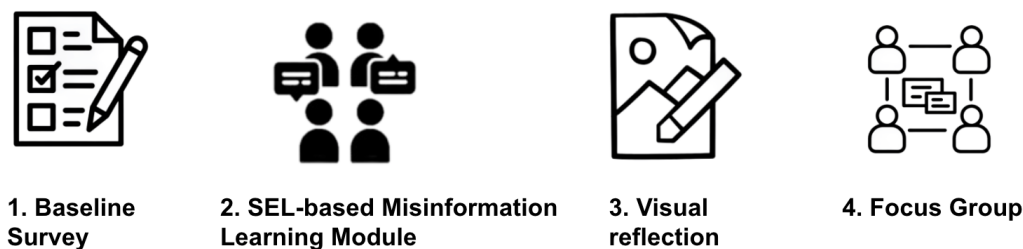
The sample was predominantly female (61.0%), with male (32.2%) and non-binary (5.1%) participants also represented, as well as one participant who indicated uncertainty regarding their gender identity. This distribution provides a diverse range of perspectives while reflecting the recruitment contexts of the study.

Research Procedure

This study adopts an exploratory qualitative research design grounded in the interpretive tradition of educational inquiry. This approach is appropriate given the study's focus on how adolescents experience misinformation, how social-emotional processes emerge during a game-based learning intervention, and how these processes shape behavioral intentions. Rather than measuring pre-defined outcomes, the study seeks to generate rich, contextualized accounts of participants' lived experiences and meaning-making processes (Creswell, 2013; Patton, 2002).

The research is designed as an experience-centered inquiry, emphasizing how adolescents engage with, reflect on, and interpret misinformation within a structured learning environment that integrates gameplay and SEL-based debriefing. To capture the complexity of these processes, data were collected using a multi-modal approach, including baseline surveys, gameplay observation, structured debriefing activities, visual reflection, and focus group discussions. This triangulation is particularly important when studying adolescents, whose social-emotional experiences may not be fully captured through verbal self-report alone (Livingstone & Third, 2017).

Figure 12: *Research Procedure of Phase II*



Each session was conducted in person, lasted approximately two hours, and involved groups of four to five participants. A total of 59 teenagers participated across 13 sessions. Participants received a \$30 incentive. All sessions followed the same structured sequence, described below.

1. Baseline Survey At the beginning of each session, participants completed a brief individual baseline survey (approximately 10 minutes). The survey gathered contextual information about social media usage, prior encounters with misinformation, and baseline perceptions of digital responsibility. Consistent with the qualitative, experience-centered design of this study, the survey was not used as a pre-test for outcome comparison. Instead, it served as contextual data to support interpretation of participants' subsequent reflections and to capture the diversity of experiences participants brought into the session (Braun et al., 2021).

2. SEL-Based Misinformation Learning Module Following the survey, participants engaged in the *Chronoshift* misinformation simulation game for approximately 30–40 minutes. *Chronoshift* is an in-person, escape room-style collaborative game in which teams solve five puzzles involving manipulated or misleading digital content. The game presents socially and emotionally engaging scenarios that require participants to discuss, deliberate, and make collective decisions under conditions that resemble real-world online information sharing. Such game-based approaches support situated and inquiry-driven learning by embedding decision-making within meaningful contexts (Gee, 2005; Hobbs & Jensen, 2009; Squire, 2013).

During gameplay, the researcher and research assistants collected structured field notes documenting observable behaviors, including communication patterns, emotional reactions, decision-making processes, and peer influence dynamics. These observations provided insight into social-emotional processes as they occurred in real time, complementing retrospective accounts from participants.

Immediately following gameplay, participants engaged in a structured SEL-based debriefing. Debriefing is widely recognized as a critical mechanism for transforming experience into learning, enabling movement from action to reflection and conceptual understanding (Boud et al., 2013; Crookall, 2010; Kolb, 2014).

The debriefing consisted of three phases aligned with CASEL competencies: individual reflection, role-play, and community message.

In the *individual reflection phase*, participants wrote brief accounts of personal experiences with misinformation, focusing on their roles (e.g., witness, sharer, or target) and associated emotions. This phase supported self-awareness and self-management by encouraging participants to identify and articulate their emotional responses.

In the *role-play phase*, participants adopted roles from the game (e.g., misinformation producer, sharer, or victim) and used emotion and motivation tokens to construct short narratives explaining actions, intentions, and feelings. The activity was then reversed to examine the causal chain of misinformation from consequences back to origins. This phase was designed to foster perspective-taking, empathy, and social awareness (Crookall, 2010; Morales, 2007).

In the *community message phase*, participants created short advisory messages for younger audiences about navigating misinformation. This step encouraged responsible decision-making by prompting participants to translate reflection into forward-looking, prosocial guidance (CASEL, 2020).

The debriefing was facilitated by the researcher using a light-touch approach that emphasized participant-driven discussion while minimizing direct instruction. This structure allowed the debriefing to function both as an intervention and as an analytical site for observing how SEL competencies were enacted and negotiated (Boud et al., 2013; Vygotsky, 1978).

3. Visual Reflection Activity Following the debriefing, participants engaged in a collaborative visual reflection activity (approximately 20 minutes). Each group created a poster using drawings, symbols, colors, and brief text to represent their understanding of the social and emotional dimensions of misinformation.

Visual methods were incorporated to capture forms of expression that may not emerge through verbal discussion alone. Such approaches are particularly effective with adolescents, as they allow participants to externalize affective and intuitive understandings that may be difficult to articulate

in words (Gauntlett, 2005; Literat, 2013).

After completing their posters, groups provided brief oral explanations of their designs. These explanations were audio-recorded and transcribed, serving as a bridge between visual artifacts and participants' interpretations.

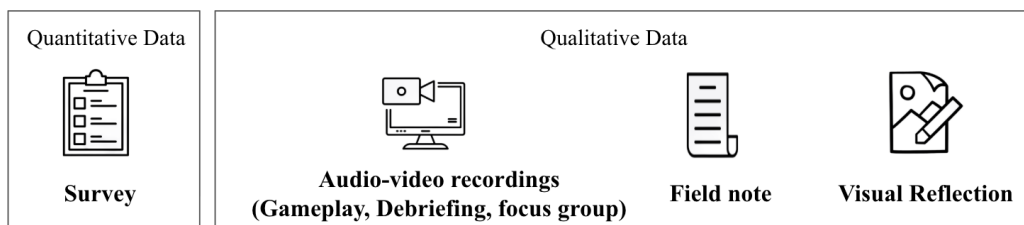
4. Focus Group Discussion Each session concluded with a semi-structured focus group discussion lasting approximately 40 minutes. Focus groups enable the exploration of shared and divergent perspectives within a social context, allowing the researcher to observe how participants collectively construct meaning (Krueger, 2014; Morgan, 1997).

Participants were invited to reflect on their experiences during the session, their emotional responses to misinformation, and the relevance of the module to their everyday digital lives. The discussion guide progressed from general reflections to more specific probes related to SEL competencies, behavioral intentions, and evaluations of the module's design. The detailed discussion questions are provided in Appendix E.7

4.6.1. Data Collection

Data were collected from multiple sources to capture the multi-modal ways in which social-emotional engagement was expressed throughout the intervention. These sources included verbal, observational, written, and visual data, enabling a comprehensive understanding of participants' experiences and supporting methodological triangulation.

Figure 13: *Phase II Data Collection*



Baseline Survey

A baseline survey was administered prior to the learning module to capture participants' initial dispositions toward misinformation and related social-emotional competencies. The purpose of this

survey was not to assess performance, but to establish a contextual foundation for understanding how teenagers think, feel, and act when engaging with online information. These baseline measures were later used to inform the interpretation of participants' experiences across gameplay, debriefing, and reflection activities.

The survey included items on demographics and media use characteristics, along with five key constructs: media literacy confidence, emotional reactivity, social responsibility, empathy, and agency. Each construct consisted of three items adapted from established instruments. Overall, the survey items were informed by the CASEL (2023) SEL reflection framework and supplemented with measures adapted from relevant peer-reviewed studies to ensure alignment with each construct. All items were measured using a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree).

Media literacy confidence items were adapted from McNelly and Harvey (2021), assessing participants' perceived ability to evaluate and question online information. Example items include: "I feel confident evaluating whether online information is trustworthy" and "I feel comfortable challenging information shared by my friends online."

Emotional reactivity was measured using adapted items from the Emotional Reactivity Scale (ERS) (Nock et al., 2008), capturing the extent to which emotional responses influence online behavior. Sample items include: "My emotions influence what I choose to believe online" and "When a post makes me feel strong emotions (e.g., anger, fear, excitement), I am more likely to react quickly."

Social responsibility items were adapted from prior research on ethical online behavior (Lima et al., 2022), focusing on participants' sense of accountability for the consequences of sharing information. Example items include: "I feel responsible for the impact of the content I share online" and "Before sharing something online, I think about how it might affect others."

Empathy was measured using items adapted from the State Empathy During Message Processing Scale (Shen, 2010). These items assessed participants' concern for others affected by misinformation. Example items include: "When I see someone being hurt or embarrassed online, I feel concerned for them" and "I try to understand how others might feel when they are affected by misinformation."

Finally, agency was assessed using items adapted from the Sense of Agency Scale (Tapal et al., 2017), examining participants’ perceived ability to take action in response to misinformation. Sample items include: “I feel that my actions can make a difference in reducing misinformation online” and “I feel capable of taking action when I see misinformation.”

These constructs were intentionally selected to capture both cognitive (media literacy) and social-emotional (SEL) dimensions of misinformation engagement. This aligns with the study’s premise that misinformation is not solely an issue of information evaluation, but also a social and emotional phenomenon shaped by peer dynamics, emotional responses, and perceived responsibility. The baseline survey therefore serves as a foundation for triangulating participants’ reported dispositions with their observed behaviors and reflections throughout the learning module. Detailed survey instruments are provided in Appendix E.5.

Focus Group Transcripts

The primary dataset consisted of verbatim transcripts from 13 focus group discussions. Transcripts were generated from audio recordings collected with prior consent from participants and their guardians. These transcripts captured participants’ reflections on their emotional experiences, group dynamics, encounters with misinformation, and perceptions of the relevance of SEL competencies in their digital lives.

To enrich interpretation, non-verbal behaviors observed during discussions, such as laughter, hesitation, or visible discomfort, were documented in field notes and cross-referenced with the transcripts. Focus group transcripts served as the central dataset for reflexive thematic analysis (Braun & Clarke, 2006; Nowell et al., 2017).

Field Notes and Observation

Structured field notes were recorded throughout each session by the researcher and, where applicable, a research assistant. These notes documented observable behaviors during the *Chronoshift* gameplay and subsequent debriefing activities, including patterns of peer interaction, emotional responses, communication dynamics, and in-situ demonstrations of SEL-related competencies such as empathy,

self-regulation, conflict negotiation, and ethical reasoning (Emerson et al., 2011).

Field notes were maintained as contemporaneous records and later used to contextualize and triangulate interpretations derived from verbal data (Creswell, 2012).

Individual Reflection and Community Message Artifacts

Written artifacts produced during the debriefing, specifically individual reflection notes and community message cards, were collected and documented at the end of each session. These materials captured participants' individually authored reflections prior to group discussion, offering insight into personal experiences with misinformation that were less shaped by peer influence (Creswell, 2013; Morgan, 1997).

Community message cards, in particular, provided evidence of how participants translated their reflections into forward-looking, prosocial guidance, reflecting elements of responsible decision-making and social responsibility (CASEL, 2020; Wentzel & Ramani, 2016).

Visual Artifacts and Verbal Explanations

Each group's collaboratively created poster was photographed and retained as a visual artifact. Following the activity, groups provided brief oral explanations of their posters, which were audio-recorded and transcribed.

These visual and verbal components were treated as a paired dataset: the posters externalized participants' affective and conceptual understandings in symbolic form, while the accompanying explanations provided interpretive context. Visual artifacts were therefore analyzed in conjunction with participants' explanations to ensure that interpretations remained grounded in participant meaning-making (Literat, 2013; Sanders & Stappers, 2008).

4.6.2. Data Analysis

Quantitative Data Analysis

Quantitative data from the baseline survey were analyzed using descriptive statistics in SPSS. Frequencies, means, and standard deviations were calculated to summarize participants' demographic

characteristics, media use patterns, and responses across all survey constructs.

To assess internal consistency, reliability analyses were conducted using Cronbach's alpha for each construct. Prior to reliability testing, one negatively worded item ("When my friends share information online, it is hard for me to question it") was reverse-coded to align directionally with the other items in the media literacy confidence scale. The item was recoded to reflect a positive orientation ("I feel confident challenging information shared by my friends online") to ensure consistency in scale interpretation. Reliability coefficients were then calculated for each construct to evaluate the internal coherence of the adapted measures.

Qualitative Data Analysis

Qualitative data were analyzed using Thematic Analysis (TA) as outlined by Braun and Clarke (2006). TA was selected for its theoretical flexibility and its suitability for examining participants' subjective experiences and social-emotional meaning-making processes.

Consistent with a constructivist epistemological stance, themes were understood as actively generated through the researcher's interpretive engagement with the data, rather than as pre-existing entities to be discovered (Braun & Clarke, 2006). This approach aligns with the study's focus on how adolescents construct meaning from complex, socially and emotionally situated experiences of misinformation (Creswell, 2013).

The CASEL framework functioned as a sensitizing framework during analysis. Its five competency domains, self-awareness, self-management, social awareness, relationship skills, and responsible decision-making, guided the researcher's analytic attention to social-emotional processes without serving as a predefined coding structure (CASEL, 2020). Themes were developed inductively from participants' language and experiences, with CASEL later supporting interpretation and conceptual framing.

Analysis followed the six phases of TA. First, during familiarization, all transcripts, field notes, and visual artifact explanations were read repeatedly, with initial observations recorded as reflexive memos (Birks et al., 2008). Second, in the initial coding phase, an inductive coding approach was

applied to identify meaningful patterns related to emotional responses, peer dynamics, misinformation behaviors, and ethical reasoning (Saldaña, 2013).

Third, in the theme development phase, codes were organized into candidate themes representing patterned meanings across participants. Themes were iteratively refined and compared against the full dataset to assess coherence, distinctiveness, and explanatory value (Braun & Clarke, 2006). Cross-modal comparison was incorporated at this stage to examine how patterns appeared across verbal discussions, written reflections, and visual artifacts (Moran-Ellis et al., 2006).

Fourth, during review and refinement, themes were evaluated in relation to the entire dataset. Fifth, divergent or contradictory cases were retained and examined as analytically meaningful, helping to clarify the boundaries and conditions of each theme (Patton, 2002). Sixth, themes were defined, named, and developed into analytic narratives supported by representative excerpts.

Multi-Modal Integration

Given the multi-modal nature of the dataset, including verbal discussions, written reflections, and visual artifacts, analysis explicitly examined both convergence and divergence across data types. Convergent patterns, where similar meanings appeared across modalities, strengthened the credibility of findings. Divergent patterns, where ideas emerged in drawings or private reflections but not in group discussions, were treated as analytically significant, potentially reflecting social desirability or peer dynamics influencing verbal expression.

This approach is particularly appropriate in adolescent research, where participants may selectively express or withhold perspectives in peer settings (Yates, 2004).

Codebook Development

Following the initial phases of coding and theme construction, a structured codebook was developed to systematically define and organize the emerging analytical framework. The purpose of the codebook was not to constrain interpretation, but to enhance clarity, consistency, and transparency in how themes and subthemes were applied across the dataset.

The codebook was developed through an iterative and inductive process. Initial codes generated during open coding were first grouped into broader conceptual categories based on patterns of shared meaning. These categories were then refined into higher-level themes that captured distinct dimensions of participants' social-emotional engagement with misinformation. Throughout this process, constant comparison was used to ensure that codes were internally coherent while remaining meaningfully distinct from one another.

Each code in the codebook includes (1) a concise definition, (2) inclusion criteria specifying what qualifies as an instance of the code, and (3) representative examples drawn from the dataset. Codes were refined through multiple rounds of review, during which overlapping codes were merged, ambiguous boundaries were clarified, and definitions were sharpened to better reflect participants' language and experiences.

Importantly, the structure of the codebook reflects a process-oriented understanding of participants' experiences in the SEL-based misinformation learning module. Themes were organized into five overarching categories: (1) teenagers' understanding of misinformation and its harms, (2) SEL activation in misinformation contexts, (3) teenagers' meaning-making of SEL competencies, (4) learning opportunities that supported SEL-based misinformation learning, and (5) tensions and constraints in SEL-based misinformation learning. This structure captures how participants first made sense of misinformation and its consequences, how social-emotional responses were activated through the module, how they interpreted CASEL competencies in relation to misinformation, and what opportunities and challenges emerged for integrating SEL and MIL in this learning context.

While the CASEL framework informed the interpretation of social-emotional competencies, it was not used as a predefined coding scheme. Instead, the codebook emerged inductively from the data, with CASEL competencies applied during later stages of analysis to support interpretation and conceptual alignment. This approach preserves the integrity of thematic analysis by ensuring that themes are grounded in participants' experiences rather than imposed a priori.

The finalized codebook was then applied across all qualitative data sources, including focus group

transcripts, written reflections, and visual artifact explanations. Coding was conducted iteratively, with ongoing refinement as needed to maintain consistency and responsiveness to the data. The full codebook is presented in Table 5.

Table 5: *Phase II Codebook for Teenagers' SEL-MIL Experiences*

Code	Short Description
Theme 1. Teenagers' Understanding of Misinformation and Its Harms	
1.1. Defining Misinformation in Everyday Terms	Teenagers' everyday definitions of misinformation as false, harmful, unverified, contextual, or relational.
1.2. Perceived Dynamics of Spread	Teenagers' descriptions of how misinformation spreads quickly, widely, cyclically, or unpredictably.
1.3. AI as Misinformation Amplifier	Teenagers' concerns about AI making misinformation more realistic, difficult to detect, and easy to produce.
1.4. Detection Strategies and Practices	Teenagers' strategies for pausing, verifying, comparing sources, avoiding sharing, or correcting misinformation.
Theme 2. SEL Activation in Misinformation Contexts	
2.1. Emotional Awareness and Affective Triggers	How misinformation activated emotions such as betrayal, helplessness, hurt, confusion, fear, anger, unfairness, and concern.
2.2. Empathy as Relational Understanding	How teenagers recognized people behind online content and connected misinformation to real emotional and social consequences.
2.3. Perspective-Taking and Emerging Social Responsibility	How teenagers considered different roles in misinformation and began to recognize responsibility for creating, sharing, correcting, or repairing harm.
2.4. Developing Agency Through Community-Oriented Action	How teenagers began to see themselves as capable of pausing, warning others, advising younger peers, and contributing to healthier digital communities.
Theme 3. Teenagers' Meaning-Making of SEL Competencies	

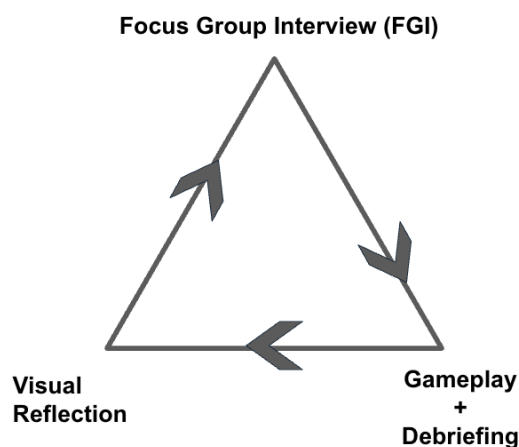
3.1. Self-Awareness	Noticing one's feelings, reactions, uncertainty, and possible involvement in misinformation.
3.2. Self-Management	Pausing, calming down, or thinking before posting, sharing, reacting to, or believing misinformation.
3.3. Social Awareness	Recognizing victims, imagining others' feelings, and understanding misinformation's human consequences.
3.4. Relationship Skills	Managing misinformation through trust, peer correction, accountability, and group dynamics.
3.5. Responsible Decision-Making	Choosing how to respond to misinformation by considering consequences, responsibility, and digital agency.
Theme 4. Learning Opportunities Supporting SEL-Based Misinformation Learning	
4.1. Experiential Engagement through Gameplay	Gameplay as an interactive space for exploring misinformation dynamics, choices, and consequences.
4.2. Role-Play as a Perspective-Taking Mechanism	Role-play as a way to inhabit different roles and understand misinformation's effects from multiple positions.
4.3. Playful Learning as a Catalyst for Mindful Reflection	Playful engagement that supported reflection when connected to debriefing, discomfort, and consequences.
4.4. Real-World Anchoring and Relevance	Connections between the module and teenagers' school, peer, family, and online experiences.
4.5. Reflective Externalization of Experience	Learning made visible through drawings, comparisons, definitions, messages, and feedback.
Theme 5. Tensions and Constraints in SEL-Based Misinformation Learning	
5.1. Entertainment Over Learning	Moments when playful simulation increased engagement but weakened the perceived seriousness of misinformation.
5.2. Relational Distance	Reduced care or willingness to intervene when misinformation affected strangers rather than friends.

5.3. Influence of Home Education Contexts	Family guidance, monitoring, and intergenerational literacy shaping responses to misinformation.
5.4. Fragility of Empathy in Misinformation Contexts	Empathy weakening through humor, dislike, attention-seeking, repetition, or social distance.

Trustworthiness and Rigor

Trustworthiness and rigor were addressed through strategies related to credibility, transferability, and confirmability. These strategies were necessary because the study drew on multiple qualitative data sources and involved an intervention designed and facilitated by the researcher.

Figure 14: *Data Triangulation in Phase II*



Credibility. Credibility was established through methodological triangulation across multiple data sources collected in both phases of the study (Creswell & Poth, 2018). In Phase I, educator interview transcripts provided practitioner perspectives that informed the design of the SEL-based misinformation learning module. In Phase II, data were triangulated across focus group interviews, debriefing activities, field notes, individual written reflections, community messages, and visual reflection artifacts. By examining social-emotional phenomena across verbal, observational, written, and visual forms of data, the analysis identified patterns that were supported across multiple sources rather than depending on a single form of evidence.

Credibility was further strengthened through sustained engagement with the dataset across iterative analytic cycles, as well as the inclusion of negative and deviant cases to challenge emerging interpretations (Lincoln & Guba, 1985). Direct participant quotations are presented throughout the findings to ground interpretations in participants' own language and to make the analytic claims transparent to readers (Braun & Clarke, 2006).

Transferability. Transferability was supported through thick description of the study context, including participant characteristics, recruitment strategies, session structure, learning module design, and facilitation approach across both phases. By providing detailed accounts of the SEL-based misinformation learning module and the educational settings in which it was implemented, the study enables readers to assess the applicability of the findings to comparable learning contexts (Geertz, 1973; Lincoln & Guba, 1985).

Confirmability. Confirmability was addressed through ongoing reflexivity. Because the researcher served as both the designer of the *Chronoshift* learning module and the primary researcher, this dual role introduced the possibility of interpretive bias toward affirming the module's effectiveness (Braun & Clarke, 2019). This positionality was explicitly acknowledged and critically examined throughout the study through continuous reflexive memo writing (Birks et al., 2008).

Particular attention was given to identifying and reporting cases where participant responses did not fully support, qualified, or contradicted expectations about the module's impact. These cases were incorporated into the analysis to ensure that the findings reflected the complexity and variability of participant experiences rather than a singular positive account of the intervention.

4.7. Ethical Considerations

This study received full approval from the University of Washington Institutional Review Board (IRB) prior to data collection (see Appendix D.1 and E.1). Ethical procedures were applied consistently across both Phase I (engaging educator perspectives) and Phase II (exploring adolescent experiences), with additional safeguards implemented for minor participants.

For Phase I, all educator participants provided informed consent prior to participation. For Phase

II, which involved minors, both parental consent and participant assent were obtained in accordance with established ethical guidelines for research with children and adolescents (Creswell, 2013; Israel & Hay, 2009; Morrow, 2012). Participation in all phases was voluntary, and participants were informed of their right to withdraw from any activity or from the study at any time without penalty.

To protect participant confidentiality, all data were anonymized at the point of transcription, and pseudonyms are used throughout this study. Audio and visual recordings were stored on encrypted, password-protected devices accessible only to the research team. All identifiable data will be securely destroyed upon completion of this study, in accordance with IRB protocol.

Given the emotionally reflective nature of the study, particularly during the SEL-based debriefing, additional care was taken in facilitating Phase II sessions. Participants were invited to reflect on personal experiences with misinformation, which could involve sensitive topics such as interpersonal conflict or social harm. To mitigate potential discomfort, sessions were conducted in a supportive, non-pressuring environment. Participants were not required to disclose personal experiences and were explicitly reminded that they could choose to pass at any point during the activities.

Although the focus group format involves peer interaction, facilitation was carefully managed to minimize social pressure and ensure that participants did not feel evaluated or judged. This approach aligns with trauma-informed and youth-centered research practices (Graham et al., 2015; Morrow, 2012). Phase I educator participants received a \$25 incentive, and Phase II participants received a \$30 incentive for their time and participation.

CHAPTER 5

RESULTS

5.1. Overview of the Chapter

This chapter presents the findings from both phases of the study, offering a detailed analysis of how Social and Emotional Learning (SEL) can be integrated into misinformation education.

Phase I draws on educator interview data to establish the professional and pedagogical context that informed the design of the SEL–MIL intervention. It highlights how practitioners understand teenagers’ engagement with misinformation, identifies limitations in existing instructional approaches, and outlines what an integrated SEL–MIL approach should address.

Phase II presents findings from teenager focus groups, examining how the SEL-based Misinformation Learning Module functioned in practice. It traces the emergence of social-emotional competencies, shifts in awareness, and early indications of behavioral intention as participants engaged with the module.

Taken together, these two phases address a shared inquiry from complementary perspectives: Phase I defines the problem space and pedagogical needs, while Phase II reveals how teenagers experience, interpret, and respond to an SEL-informed approach to misinformation education.

5.2. Phase I. Findings from Educators’ Perspectives

5.2.1. Overview of Educator Interview Data

The Phase I analysis drew on semi-structured interviews with approximately 20 educators spanning social-emotional learning (SEL), media and information literacy (MIL), adolescent development, and classroom practice. Thematic analysis produced four themes organized around two research questions: RQ1, examining how educators perceive SEL–MIL integration and what strategies they propose; and RQ3, examining the opportunities and challenges that emerge for such integration. What follows is an integrative narrative analysis that moves across all four themes, weaving partici-

pant voices into a sustained argument about why SEL integration is not merely additive to existing misinformation education but constitutive of it.

5.2.2. Theme 1. Misinformation as a Social-Emotional Problem for Teenagers

The most analytically significant finding from the Phase I educator interviews was not simply that teenagers need more misinformation literacy skills. Rather, educators reframed the misinformation problem itself. They did not describe teenagers primarily as deficient fact-checkers who lack the cognitive tools to evaluate sources. Instead, they described teenagers as emotionally reactive, shaped by identity and social validation, vulnerable to peer pressure, prone to impulsive digital behavior, and increasingly trusting of AI-generated or technology-mediated content. This reframing shifts misinformation from a problem of evaluation alone to a social-emotional challenge embedded in teenagers' everyday relationships, emotions, digital habits, and developmental needs. As a result, this theme provides the foundational rationale for integrating SEL into misinformation education and establishes the interpretive lens for the remaining Phase I findings. It also represents a key finding for RQ1: educators' perceptions of the misinformation problem were inseparable from their perceptions of what meaningful educational responses should address.

1.1 Emotional Vulnerability to Misinformation

Educators repeatedly emphasized that teenagers' engagement with misinformation often begins with emotion before it becomes a question of factual accuracy. This finding is important for the overall argument of this study because it shows why misinformation education cannot rely only on teaching students how to fact-check. Verification skills are still necessary, but educators suggested that these skills may not be activated if teenagers do not first recognize how emotions shape what they believe, share, or react to online.

E1 made this point by arguing that information literacy should begin with self-understanding, not only with external evaluation of sources:

“When we get to the information literacy fact-checking, there’s even more important questions like, who are you? What do you believe in? What are your buttons, right?

What gets you fired up? And so when you know that, when you identify that, it helps you cue into when you're being manipulated, right?" (E1)

This quote is central to the discussion because it reframes fact-checking as more than a technical skill. For E1, students need to understand their own emotional triggers, values, and vulnerabilities in order to recognize when misinformation is trying to manipulate them. In other words, the problem is not only whether teenagers know how to check information. The problem is whether they can notice the emotional conditions under which they are most likely to believe or share misinformation. This directly supports the need for SEL integration, especially emotional self-awareness, because students need to first recognize what "gets them fired up" before they can pause and evaluate information more carefully.

E3 similarly connected misinformation vulnerability to adolescence as an emotional and digital stage of life:

"It's most effective to teach teenagers at this age range, because they are filled with emotions, and they are the ones that are exposed to social media, so it's best to catch them now and know how they feel about what they see online." (E3)

This observation connects the educator findings to the population focus of this study. Educators did not describe teenagers simply as lacking knowledge. Rather, they described adolescence as a period when emotional intensity, social media exposure, and identity development come together. This makes teenagers vulnerable to misinformation, but it also makes this period an important opportunity for intervention. If teenagers are already encountering misinformation through emotionally charged digital environments, then misinformation education needs to help them reflect on how they feel, why they feel that way, and how those feelings influence their decisions.

E5 expanded this point by showing that misinformation can create emotional harm in many different situations, from public health misinformation to interpersonal rumors:

"COVID is out there again, or something. That, like, it's misinformation, and that, like,

triggers fear. And just from that alone, or someone comes and tells you, I saw your friend talking bad about you, and that's actually a lie. From there, you still just start getting feelings of betrayal. Misinformation generally just triggers emotions, especially when it's very harmful ones...when you find out that this is a lie, you get hurt, you get sad. So misinformation just triggers a lot of emotions. It's not just saying the wrong thing, or spreading lies, or saying the right thing at the wrong time. It has some emotional impact also." (E5)

E5's explanation is analytically useful because it shows that misinformation is not only harmful when it produces incorrect belief. It also produces emotional consequences. A false claim about COVID may trigger fear; a false rumor about a friend may trigger betrayal; even positive misinformation may produce happiness first and hurt later when the deception is discovered. Across these examples, misinformation operates through an emotional pathway. Teenagers may feel fear, excitement, sadness, anger, or betrayal before they fully evaluate whether the information is true. This supports the broader claim of the study that misinformation should be understood as a social-emotional problem, not only as an informational one.

E16 further explained how emotion shapes teenagers' interpretation of information itself:

"They have a huge filter in how they process information that is tied not to some objective reality that they think they believe, but to their emotions, their self-awareness, their reactivity, their biases. I think it's very important that teenagers understand that. I think it's more important that they understand their own fallibility, their own biases, and that emotion is attached to whether information, disinformation, gets shared or reacted to." (E16)

This quote deepens the analysis by showing that emotion does not simply come after misinformation exposure. Instead, emotion shapes the way information is processed from the beginning. E16 describes emotion as a kind of filter through which teenagers interpret what they see online. This challenges the assumption that students first receive information neutrally and then decide whether

to verify it. Instead, educators suggested that teenagers often approach information through existing emotions, biases, identities, and reactions. This is why SEL is necessary: students need support not only in checking information, but also in recognizing the emotional and personal filters that shape their judgment.

Importantly, educators did not frame emotion only as a weakness. E17 described emotion as a useful signal for more careful action:

“Your emotions are a super helpful signal for when you need to be more thoughtful about the information that you’re spreading.” (E17)

This statement emphasized for the design direction of SEL-based misinformation education. The goal is not to teach teenagers to ignore or suppress emotion. Rather, the goal is to help them use emotional reactions as cues for reflection. When a post makes them angry, excited, afraid, or eager to share, that emotional response can become a signal to pause, ask questions, and consider possible consequences. In this way, emotional awareness does not compete with media literacy. It helps activate media literacy at the moment when it is most needed.

Overall, these educator perspectives show that emotional reactions are central to how teenagers encounter misinformation. Misinformation often works because it connects with what teenagers care about, fear, value, or desire socially. Therefore, misinformation education needs to move beyond teaching students only how to identify false information. It also needs to help them understand their own emotional triggers, recognize manipulation, and make more reflective decisions before sharing or reacting. This finding provides a strong foundation for integrating SEL into misinformation education, especially through self-awareness, self-management, and responsible decision-making.

1.2 Peer Pressure and Social Validation

Alongside emotional reactivity, educators repeatedly described peer pressure and social validation as central conditions shaping teenagers’ vulnerability to misinformation. In their descriptions, teenagers do not encounter misinformation as isolated individuals making purely independent judgments. They encounter it within peer groups, social media feeds, group chats, friendships, and

status-based environments where belonging matters. This matters because the decision to believe, share, ignore, or challenge misinformation is often shaped not only by whether something seems true, but also by how responding to it may affect one's social position.

E1 connected this vulnerability to adolescence as a developmental period in which social belonging becomes especially important:

“...Because of where they're at in their system of development, students' social life is really, for many kids, the most important. Their acceptance, how they are seen, how they are perceived is super important. They want to fit in but also stand out at the same time. The need to be cool as a teenager, it can spill into other aspects into your life. That just comes with the territory.” (E1)

This quote helps explain why misinformation education should consider more than individual knowledge or technical evaluation skills. For many teenagers, online behavior is tied to identity, reputation, and belonging. Sharing a post, reacting to a rumor, forwarding a screenshot, or agreeing with a peer may function as a social act. In this context, misinformation is not only something teenagers evaluate; it is something they may use to participate in a group, gain attention, avoid exclusion, or align with others. E1's point that teenagers want to “fit in but also stand out” captures this tension well. Teenagers may want to be accepted by peers while also wanting to appear funny, informed, brave, or cool. These social desires can make emotionally charged or attention-grabbing misinformation especially powerful.

E4 similarly described adolescence as a stage in which identity, independence, media connection, and social influence are deeply intertwined:

“They are really exploring their identity and independence. And they want to have their own voice and make their own choices, but at the same time, they are still developing their emotional skills to handle challenges like peer pressure, stress, self-image. So what I find interesting is that they are very connected to media, social media especially, and that shapes a lot of how they see themselves and others.” (E4)

This account adds an important layer to the discussion. Teenagers' digital lives are not separate from their social and emotional development. Social media becomes one of the spaces where they test identity, seek recognition, compare themselves with others, and learn what kinds of voices are rewarded. This creates a learning challenge for misinformation education: teenagers may not simply need to know that they should check sources; they may also need support in managing the social and emotional pressures that make source-checking difficult in the moment.

E4 extended this concern by noting that teenagers may be especially persuaded by content that appears socially attractive or comes from people they admire:

“If something looks flashy or comes from an influencer they trust, they tend to believe it without questioning the source. So that can lead to spreading rumors, falling for false health advice, or even shaping your opinion.” (E4)

This observation shows how social validation can substitute for evidence. When information comes from a trusted influencer, popular peer, or visually persuasive post, credibility may be felt socially rather than evaluated critically. Teenagers may read popularity, confidence, or style as signs of trustworthiness. This again suggests that misinformation education should address the social signals through which information becomes believable. A source may not be credible in an informational sense, but it may feel credible because it is socially visible, liked, repeated, or attached to someone teenagers admire.

E7 made this peer dimension even more explicit:

“...They (Teenagers) want to be in the same clique, they want peer approval in general. Most of them do things because this is what their friends are doing. Their mates are doing this online, so it is okay for them to also do it online.” (E7)

This quote reveals that it shifts the problem from individual weakness to social context. Teenagers may participate in misinformation not because they are careless or unintelligent, but because peer norms make certain behaviors feel acceptable. If friends are sharing, joking, reposting, or reacting,

then the behavior becomes normalized. The question becomes less, “Do I know this is true?” and more, “Is this what people like me are doing?” This is where peer pressure and misinformation become connected: the social environment can make misinformation feel safe, funny, normal, or expected.

E10 added that this peer reliance is especially strong during middle school and adolescence, when young people are moving from parent-centered relationships toward peer-centered relationships. In this transition, peer approval can become more immediate and emotionally powerful than adult guidance. This helps explain why teenagers may sometimes make decisions online that adults interpret as careless or irrational. Their choices may be guided by a different social logic: maintaining connection, avoiding embarrassment, and staying aligned with the group.

This peer-centered logic also appeared in educators’ concerns about online relationships. E10 noted that teenagers often view online relationships as meaningful and legitimate, not secondary to face-to-face relationships:

“They consider their social connections online just as valid and as meaningful as face-to-face interaction.” (E10)

This matters for misinformation education because online actions can carry real relational consequences. A repost, comment, rumor, or reaction may affect friendship, trust, reputation, and belonging. If teenagers experience online spaces as socially real, then misinformation in those spaces should also be treated as socially consequential. Teaching misinformation only as a problem of inaccurate content misses the relational stakes that teenagers actually experience.

At the same time, educators also noted that peer influence can shape not only what teenagers share, but also what they are willing to believe or dismiss. E17 explained that teenagers may reject information that does not fit their existing worldview, and that those worldviews are often shaped by peers and relationships:

“They may just dismiss things that do not match what they know of the world. Their

biases come from their peers, friends, their relationships.” (E17)

This point connects peer pressure to social bias. Teenagers’ judgments about misinformation are not formed in a vacuum. What feels believable or unbelievable may depend on the norms, assumptions, and shared beliefs of their social circles. This means that misinformation education should help students reflect not only on external sources, but also on the social environments that shape their assumptions.

In sum, these educator accounts show that teenagers’ vulnerability to misinformation is deeply relational. Peer pressure, social validation, influencer trust, online belonging, and group norms all shape how teenagers encounter and respond to misinformation. This strengthens this study’s broader argument that misinformation education needs SEL because the challenge is not only to teach teenagers what is true or false. It is also to help them understand how social pressure influences their judgment, how belonging can shape sharing behavior, and how responsible decision-making sometimes requires resisting what the group appears to reward. In this sense, SEL competencies such as social awareness, relationship skills, self-management, and responsible decision-making are not additions to media literacy; they are necessary conditions for practicing media literacy in teenagers’ real social worlds.

1.3 Impulsivity and Reactive Digital Behavior

A third pattern educators identified was teenagers’ tendency toward impulsive and reactive digital behavior. This point builds directly on the previous discussion of emotion and peer pressure. If misinformation often reaches teenagers through emotional triggers and social validation, then the next problem is speed: teenagers may react before they have time to reflect. In digital spaces, this reaction can take the form of laughing, commenting, reposting, liking, forwarding, or joining a group response. Educators suggested that misinformation becomes especially powerful when emotional intensity, social pressure, and platform speed come together.

E7 described this reaction-first pattern clearly:

“First thing is your reaction to it. Most times, people use emojis, laughing or stuff, but

that misinformation targets the emotions first. You know, fake news, anything that's whether it's hilarious or makes people nauseous, everybody just wants to react to it. First emotions. So, it makes people feel shocked, angry, fearful. Now, without SEL, students may react and share impulsively." (E7)

This quote shows that misinformation does not always spread through careful belief. It can spread through immediate reaction. A teenager may laugh, feel shocked, become angry, or feel afraid before asking whether the information is accurate. In this sense, misinformation can move through small digital actions that feel casual in the moment but still contribute to circulation. Reacting with an emoji, sharing with a friend, or joining a joke may not feel like a serious decision, but these actions can still amplify false or harmful content. This is why educators connected misinformation education to SEL: students need support in noticing the emotional impulse before it becomes a digital action.

E2 similarly described teenagers as more emotionally reactive and argued that SEL can help them slow down and understand their feelings:

"That's also the age group where they tend to be more hot-headed, so you need to be a bit more calm and integrate SEL to teach them (teenagers) how to manage their emotions better, to know the reason why they are feeling this way, or to even determine if the reason why they are actually feeling this way is valid." (E2)

E2's observation does not frame teenagers as incapable or irresponsible. Rather, it points to a developmental need for emotional regulation. Teenagers may experience strong reactions, but those reactions can become learning opportunities if students are taught to pause and ask why they feel that way. This connects directly to self-management in the CASEL framework. In the context of misinformation, self-management means more than controlling anger or stress in general. It means learning to slow down before reacting to content that is designed to provoke, entertain, frighten, or pressure them.

At the same time, educators were careful not to describe teenage impulsivity only as a deficit.

Several educators connected reactive behavior to teenagers' desire for independence, curiosity, and boundary-testing. E7 explained that what adults often call rebellion may also reflect young people's search for autonomy:

“What we call rebellious right now is what they call, in their own terms, independence. They have a very strong desire for independence. They want to make their own choices.”
(E7)

This distinction matters for the argument of this study. Teenagers' resistance, questioning, and quick reactions should not be understood only as problems to be corrected. They are also part of adolescents' effort to develop their own values, identities, and judgments. In misinformation education, this means that educators should not simply tell teenagers what to believe or what not to share. A purely corrective approach may feel controlling and may fail to respect teenagers' desire for independence. Instead, SEL-based misinformation education can support students in using their independence more reflectively: making their own choices, but doing so with awareness of emotion, evidence, consequences, and social responsibility.

E7 later clarified this point by explaining that teenage rebellion can be understood as value formation rather than disrespect:

“When I describe teenagers as sometimes rebellious, I don't mean it in a purely negative way. Teenagers might actually challenge teachers' instructions. It's not a lot of disrespect, but because they're still figuring out their own values and boundaries.” (E7)

This interpretation helps complicate the idea of impulsivity. Teenagers may react quickly online, but they are also actively making sense of who they are and what they believe. Their questions, challenges, and resistance may be part of learning. Therefore, misinformation education should not only aim to reduce impulsive sharing; it should also create space for teenagers to question, test ideas, and reflect on why certain content attracts their attention or provokes their response.

Similarly, E15, a game-based learning researcher, described meme-sharing as one example of this

impulsive digital behavior:

“Being funny, or like meming — misinformation in a meme way. I’m gonna share this because it’s stupid. Not because... Like, fun is more like, oh, this is funny, but doing it for the sake of meming is not quite the exact same feel. It’s fun, but it’s not quite the same.” (E15)

E15’s comment suggests that teenagers may engage with misinformation through humor, irony, and social play rather than intentional deception. A meme may feel unserious because it is framed as entertainment, exaggeration, or a joke. However, memes can still carry misleading claims, reinforce harmful assumptions, or create false impressions. Their entertainment value may allow misinformation to spread before teenagers evaluate what the content means, whether it is accurate, or who it might affect.

E14 added another important nuance by noting that teenagers are not unaware of media harms. Many can identify examples of outrageous, satirical, or manipulated content and can discuss issues such as body image and harmful media representations. However, their understanding of the larger systems behind these harms is often still developing:

“They’re also not unintelligent to some of the media harms, where they will talk about body image, and they will talk about manipulated content, but their understanding of how the larger, complex systems behind that works is lacking.” (E14)

This quote prevents the analysis from reducing teenagers to impulsive or naïve users. Educators recognized that teenagers often have meaningful media knowledge. They may know that online content can be manipulated, harmful, exaggerated, or socially damaging. The problem is that this awareness does not always translate into reflective action, especially when misinformation appears in fast-moving, emotionally charged, and socially meaningful contexts. This is why the issue is not simply a lack of knowledge. It is a gap between awareness and action.

E19’s observation that technology has become widely accessible further intensifies this challenge.

When students can access many of the same tools, platforms, and information environments as adults, they also gain the ability to create, remix, spread, and respond to content quickly. This democratization of technology creates opportunities for creativity and voice, but it also increases the consequences of impulsive digital behavior. Teenagers are not only consumers of misinformation; they can also become participants in its circulation through quick reactions and everyday sharing practices.

Taken together, educators' perspectives suggest that impulsivity in misinformation contexts should be understood as a combination of emotional intensity, platform speed, peer influence, curiosity, and emerging independence. Teenagers may react quickly not because they lack intelligence, but because digital environments encourage immediate response and adolescence is a period of strong emotion, social sensitivity, and identity exploration. For this reason, SEL-based misinformation education should focus on helping teenagers pause before reacting, recognize why content provokes them, evaluate whether their response is justified, and consider the consequences of sharing or amplifying information. In this way, self-management and responsible decision-making become central to misinformation education, not separate from it.

1.4 Trust in AI and Digital Technology

A fourth dimension of teenagers' misinformation vulnerability concerned their relationship with artificial intelligence and digital technology. Educators described AI not only as a tool that makes misinformation easier to produce through deepfakes, synthetic images, and generated text, but also as changing how teenagers relate to information itself. Rather than searching across multiple sources, comparing evidence, or evaluating who produced a claim, teenagers may increasingly turn to AI systems for immediate, confident, and personalized answers. This creates a new layer of misinformation vulnerability that conventional fact-checking approaches may not fully address.

E10, a middle school educator, offered a vivid metaphor for how teenagers may understand AI:

“I think the problem — the bigger problem — is that they look at AI as a genie in a bottle. I rub the bottle, the genie comes out, and it gives me a wish. I go to ChatGPT,

I put in what I want to find out, and I get a great answer with some analysis. It's not just an accuracy thing — they overly expect what it can do.” (E10)

E10's “genie in a bottle” metaphor captures both the appeal and the risk of uncritical AI trust. When teenagers approach AI as a tool that simply produces answers, the process of evaluation can become invisible. They may not ask who produced the information, what sources were used, what may have been omitted, or whether the response reflects bias or error. In this context, misinformation is not only harder to detect; it may not be questioned at all because the answer appears fluent, complete, and authoritative.

E10 extended this concern by describing AI dependency as a possible threat to critical thinking:

“They're not learning how to critically evaluate information. They're not. They think they are, but they're not learning. And we need something desperately and soon — where they get the help that they need.” (E10)

This concern points to an important challenge for misinformation education. The problem is not only that AI systems may generate inaccurate information. It is also that students may rely on AI to summarize, judge, or explain information in ways that reduce their opportunities to practice their own reasoning. Responsible decision-making requires judgment, but if AI increasingly substitutes for that judgment, teenagers may have fewer opportunities to develop the capacities needed to evaluate AI outputs critically.

E19, an educational researcher and district behavior specialist, situated AI within a broader technological shift:

“Their access to information is extraordinarily different. As you add in AI to it, it's like a whole new world. With AI just becoming a huge thing — what are we going to say? And it's worse now because of AI friends. I recently read an article about how many teenagers have an AI friend. Disturbing.” (E19)

E19's concern suggests that AI trust is not only an informational issue, but also a social-emotional

one. When teenagers form relational or parasocial attachments to AI systems, those systems may become sources of affirmation, comfort, or validation. An AI tool that feels personalized and responsive may be trusted not only because it seems accurate, but because it feels socially supportive. This raises questions directly connected to SEL: Why am I trusting this tool? What kind of support am I seeking from it? What happens when I rely on it to think, decide, or respond for me?

Educators also noted that teenagers may be overconfident in their ability to detect what is real, false, or AI-generated. E10 described this confidence as a distinctive vulnerability:

“They’re way overconfident about their ability to decide if something is true or false online, if it’s a good source or a bad source. They really think that they are experts on everything online.” (E10)

This overconfidence creates a specific challenge for misinformation education. Teenagers may feel confident identifying obviously fake or visually strange content, while remaining less critical of AI-generated text or images that appear polished, fluent, and credible. E17, a librarian and information literacy educator, similarly observed that students often assume AI-generated content is easy to detect:

“I’ve heard many of them say it’s easy to tell what’s AI and what’s not. When in fact, we know it’s not always easy.” (E17)

Overall, these educator perspectives suggest that teenagers’ trust in AI represents an emerging dimension of misinformation vulnerability. AI amplifies several conditions already discussed in this theme: the desire for quick answers, confidence in digital fluency, emotional and social validation, and the tendency to react before reflecting. This finding strengthens the case for SEL-based misinformation education because the capacities most needed in AI-mediated information environments are not only technical or cognitive. Teenagers also need self-awareness, critical reflection, emotional regulation, and responsible judgment to navigate technologies that appear authoritative, personalized, and socially responsive.

5.2.3. Theme 2. Instructional Gaps in Current Misinformation Education

While Theme 1 shows that educators understood teenagers' vulnerability to misinformation as emotional, social, and developmental, Theme 2 focuses on the instructional gaps that make this vulnerability difficult to address in practice. Across the interviews, educators suggested that current misinformation education often remains too focused on cognitive skills such as fact-checking, source evaluation, and identifying false claims. Although these skills are important, they do not fully address the ways teenagers actually encounter misinformation through emotion, peer influence, humor, identity, social pressure, and fast digital reactions. As a result, educators saw a gap between what misinformation education commonly teaches and what teenagers need in real digital situations. This theme therefore highlights why SEL integration is necessary: misinformation education should help teenagers not only know how to evaluate information, but also recognize their emotional triggers, manage social pressure, consider the effects on others, and make responsible choices before reacting or sharing.

2.1 Limits of Cognitive MIL Approaches

The first instructional gap identified by educators was the continued dominance of cognitively oriented media and information literacy instruction. Across the interviews, educators described many useful strategies for helping students identify false information, evaluate sources, and question online content. These included true-or-false activities, real-world examples from social media, classroom discussion, source-checking frameworks, and structured fact-checking practices. For example, E1 described using true-or-false activities and introducing students to resources such as *A CIA Analyst's Guide to Spotting Fake News*. E3 similarly described bringing questionable online content into the classroom for discussion because they wanted to understand whether students could interpret the information critically:

"I often look for resources that are true, or when I see some resources online, and I see that it's not true, I bring them up, and we discuss it in class, because I really want to know if they see it the way I see it, or in the right way." (E3)

E3 also mentioned using the CRAAP test, which guides students to evaluate information according to currency, relevance, authority, accuracy, and purpose. These examples show that current MIL instruction often begins from an important but primarily cognitive question: can students identify whether information is reliable?

This cognitive emphasis is valuable because teenagers do need concrete tools for evaluating information. Educators recognized that misinformation is widespread and that students need strategies for checking sources, comparing claims, and recognizing misleading content. E10, for instance, discussed the CTRL-F approach as a way to teach fact-checking and source evaluation. This approach begins from the recognition that false and misleading information is common online and that students need practical skills for deciding what to trust. In this sense, current MIL instruction provides an important foundation. It teaches students that online information should not be accepted automatically and that credibility should be investigated.

However, educators' descriptions also reveal the limits of this approach. Many strategies still position misinformation primarily as a problem of accuracy, evidence, and verification. Even when educators use engaging examples from TikTok or other social media platforms, the instructional goal often remains focused on helping students decide whether content is true or false. E2 and E3 both described using social media examples and classroom discussion, but these approaches tended to remain teacher-led, with educators presenting examples and guiding students toward more accurate interpretations. This kind of instruction may help students understand misinformation as a content problem, but it may not fully address why teenagers believe, share, joke about, or react to misinformation in the first place.

Some educators were already beginning to move beyond this cognitive frame. E7, for example, connected source verification with respectful online behavior. They explained that online discussion requires not only checking facts but also practicing “netiquette,” or online etiquette:

“Even on online discussion forums, if you don’t bring your fact-checking and everything, still, yes, there’s something called netiquette... when you’re discussing with someone

online or offline, be respectful.” (E7)

This quote begins to connect MIL with relationship skills. For E7, misinformation education should include how students communicate with others, especially when disagreement or correction is involved. Students need to verify sources and check multiple outlets, but they also need to consider the social impact of their choices online. This broader view suggests that misinformation education is not only about knowing whether information is true, but also about how students respond to others in digital spaces.

E17 made this broader view especially clear by defining media literacy as more than verification:

“Media literacy is the set of knowledge and skills you need to navigate our current information space in a way that means you can become informed about issues you want to become informed on, and use that information to make good decisions.” (E17)

This definition connects information evaluation to action. The goal is not only to identify accurate information, but to use information responsibly in real decisions. This aligns closely with the argument of this study: misinformation education should not stop at detection. It should help teenagers connect knowledge, emotion, values, social consequences, and decision-making.

E18 also pointed to a deeper instructional problem. Although children and teenagers may naturally have curiosity and a questioning nature, E18 argued that education has not always shifted to support that curiosity. Instead, teachers often still expect students to be “compliant.” This observation matters because misinformation education requires questioning, but many classroom structures do not always give students enough space to ask their own questions, challenge assumptions, or explore why certain information feels persuasive to them. If students are only expected to identify the correct answer or follow a checklist, they may not develop the reflective agency needed to navigate misinformation outside the classroom.

Taken together, educators’ perspectives suggest that current MIL instruction provides necessary but incomplete support. Fact-checking, source evaluation, and verification frameworks remain impor-

tant, but they do not fully address the social-emotional reality described in Theme 1. Teenagers may know that they should check sources, yet still react quickly to content that feels funny, frightening, socially rewarding, or personally meaningful. This is where the instructional gap becomes visible. Cognitive MIL teaches students how to evaluate information, but SEL-integrated MIL can help students recognize when and why those skills need to be activated. In this sense, the problem is not that current MIL instruction is wrong, but that it is often too narrow. To respond to teenagers' real experiences with misinformation, instruction should move from checking information alone toward helping students reflect, regulate, empathize, communicate, and make responsible choices in socially complex digital environments.

2.2 Misalignment with the Reality of Teenage Digital Life

Another instructional gap educators identified was the mismatch between classroom-based misinformation education and the reality of teenagers' digital lives. In school, misinformation is often turned into a lesson: a post to analyze, a source to check, or an example to discuss. However, teenagers usually encounter misinformation in much faster, messier, and more socially embedded environments. They see it through social media feeds, group chats, influencers, memes, AI-generated content, and peer conversations. In these spaces, misinformation is not only an information problem. It is also tied to emotion, identity, popularity, humor, comparison, and social belonging.

E1 described this gap by pointing out that school does not fully reflect the complexity of real-world information environments:

“Education is not the real world... so we kind of narrow people into little niches as they go through education.” (E1)

This observation stressed that misinformation rarely appears in teenagers' lives as a clean classroom example. A misleading post may also be funny, emotionally provocative, socially popular, or connected to a teenager's identity and peer group. As a result, students may learn how to evaluate information in class, but still struggle to apply those skills when misinformation appears in a real social situation.

E10 made this problem more concrete by describing the difficulty of keeping classroom examples current:

“I would love to, but by the time I find something that I can say, okay, let’s talk about this, they’ve already seen it 800 times.” (E10)

This quote shows how quickly teenage digital culture moves. By the time an educator prepares a social media example for discussion, students may have already encountered it, reacted to it, shared it, joked about it, or moved on. This creates a timing problem for misinformation education. Classroom instruction often happens after the moment of reaction, while misinformation spreads in the moment. Therefore, students need more than after-the-fact analysis. They need practical habits they can use while scrolling, reacting, commenting, or deciding whether to share.

E4 explained that this is why misinformation education should connect more directly to teenagers’ emotional and relational experiences online:

“It’s not just about teaching them to fact-check information, but also about guiding them to recognize how media impacts their emotions, how media impacts their self-image, and how media can also impact their daily relationships.” (E4)

This quote directly supports the need for SEL integration. Teenagers’ digital lives are not only about finding information. They are also about how they see themselves, how they compare themselves with others, how they maintain friendships, and how they respond to peer pressure. E4 further suggested that when media literacy is connected to SEL, learning becomes more practical and personal because it reaches both students’ thinking and their feelings.

Another part of this misalignment comes from the assumption that teenagers already understand technology because they grew up with it. E13 was concerned that educators and adults sometimes treat teenagers as digital natives who already know how to use technology responsibly. This assumption can be dangerous. Teenagers may be comfortable using devices and platforms, but comfort is not the same as critical understanding. They may know how to post, search, edit, remix, or use

AI tools, but they may not fully understand privacy, manipulation, algorithms, platform incentives, emotional targeting, or long-term consequences.

Educators also noted that teenagers' confidence can hide important gaps in judgment. E17 described a similar pattern, noting that some teenagers believe "it's easy to tell what's AI and what's not." This belief can create overconfidence, leading students to assume that they can detect manipulation without needing to slow down, question, or verify. E16 similarly cautioned that adults may underestimate teenagers' media savvy:

"They're more media savvy than people might give them credit for..." (E16)

At the same time, media savvy should not be mistaken for full preparedness. The problem is that not all misinformation is obvious. Some false or misleading content works precisely because it looks familiar, matches existing beliefs, comes from a trusted social source, or produces a strong emotional reaction. In this sense, teenagers' digital confidence can be both a strength and a vulnerability: they may be skilled at navigating media environments, but still need support in recognizing when confidence, familiarity, or speed can prevent deeper evaluation.

E19's observation that technology has been democratized adds another layer to this problem. When "students can access everything I can access," teenagers are not only receiving information from adults or institutions. They can also create, edit, generate, remix, and distribute content themselves. This changes the meaning of misinformation education. Students are not just audiences who need to detect false information; they are also participants in information circulation. Their everyday actions can shape what others see, believe, and feel.

Overall, these educator perspectives show that current misinformation education often does not fully match the speed, complexity, and emotional reality of teenage digital life. Teenagers encounter misinformation in spaces that are fast-moving, peer-driven, visually persuasive, AI-mediated, and connected to identity and relationships. They may be skilled and skeptical in some ways, but still overconfident or unprepared to transfer classroom learning into real online situations. For this reason, misinformation education needs to become more practical, personal, and transferable. SEL

integration can help by connecting verification skills to emotional awareness, self-image, peer pressure, relationship management, and responsible decision-making in the actual digital environments teenagers inhabit.

2.3 Structural Barriers to SEL–MIL Integration

Even when educators recognized the value of integrating SEL into misinformation education, they described several structural barriers that made this integration difficult in practice. These barriers were not mainly disagreements about whether SEL belongs in misinformation education. Rather, they involved limited instructional time, insufficient professional preparation, lack of shared teacher buy-in, inconsistent language around SEL, and the rapidly changing technological landscape. Together, these barriers help explain why SEL–MIL integration often remains an educational aspiration rather than an embedded practice.

Time and instructional capacity were the most frequently mentioned barriers. E20, a teen services librarian and curriculum designer, explained:

“The lack of time and capacity — 100%. Because it takes longer, and it is sort of tailored to the teens that you have. You’ll need to modify it. Lack of time, lack of tools, lack of knowledge — even though they want to do it.” (E20)

E20’s comment captures a recurring concern across interviews: educators may want to integrate SEL into misinformation education, but they often lack the time, tools, and knowledge to do so. E17, a librarian and information literacy educator, connected this time constraint to the persistence of cognitive MIL approaches:

“The biggest challenge is teachers feel like they don’t have time and they don’t have training. And teachers who do carve out some time get right to: how do we fact-check, how do we check our sources. Because that’s what they think is most important.” (E17)

E17’s observation helps explain why fact-checking and source evaluation remain central in many misinformation lessons. These skills are important, but they can be condensed into checklists

or short activities more easily than reflection, empathy, self-awareness, or responsible decision-making. Under time pressure, educators may default to the most teachable and assessable parts of misinformation education, even when they recognize that social-emotional dimensions also matter.

Educators also identified limited preparation and uncertainty about SEL as barriers. E19, an SEL curriculum coach, explained:

“There’s a lack of time given to teachers to prep for it, or they don’t have the foundational knowledge on what that looks like. And there’s a misconception about what it actually is — teachers think they’re not qualified to do this. Sometimes, because of trauma-informed practices, they think it should be the counselor who does this work. But this isn’t work for specific groups of kids. This is human growth and human development.”

(E19)

E19’s comment shows how SEL can be misunderstood as something that belongs only to counselors, specialists, or trauma-informed practice. When SEL is framed this way, classroom teachers may feel unqualified to use it, even though SEL competencies are relevant to everyday learning, communication, decision-making, and digital participation. For SEL–MIL integration to become more feasible, educators need support in understanding SEL not as a separate therapeutic domain, but as part of broader youth development and classroom practice.

Another barrier involved the absence of shared institutional commitment. E18 described how teacher buy-in shapes whether students take SEL–MIL activities seriously:

“The other big thing that has nothing to do with curriculum is getting buy-in from the other teachers. They don’t see the importance of it, a lot of them. And so, when we do these activities and they don’t present it in a way that’s positive, it’s not received that way by the students.” (E18)

E18’s point suggests that implementation depends not only on the quality of a curriculum or learning module, but also on how educators frame it. If teachers present SEL–MIL work as optional,

secondary, or disconnected from core learning, students may respond in the same way. This highlights the importance of school-level coherence and shared commitment. Individual educators may value SEL–MIL integration, but broader institutional support is needed for students to experience it as meaningful.

Educators also noted that the language used to describe SEL varies across schools, districts, and educational contexts. E11, a curriculum developer with international SEL experience, explained:

“Some people call it 21st century skills, some call it foundational skills and durable skills. These are focused around intrapersonal skills — knowing ourselves — and interpersonal skills — knowing each other. Kids are dropping out of college or quitting jobs not due to a lack of technical skills, but due to a lack of soft skills. Know your audience — if we want to get buy-in, we use the language that resonates.” (E11)

This variation in language has practical implications for SEL–MIL integration. Although CASEL terminology may be familiar and useful in some educational settings, educators may need to translate the same competencies into more accessible or locally accepted terms, such as durable skills, foundational skills, digital citizenship skills, or interpersonal skills. The need to “know your audience” suggests that SEL–MIL integration depends not only on conceptual alignment, but also on flexible language that can move across different school contexts while preserving the underlying emphasis on self-awareness, social awareness, relationships, and responsible decision-making.

Educators also identified rapidly changing technology, particularly AI, as an additional implementation challenge. E17 noted that professional development time is increasingly being redirected toward AI rather than media literacy:

“Some schools now have all their professional development about AI — and it’s not media literacy.” (E17)

E10 similarly described the difficulty of helping students recognize the limits of their own digital knowledge in a fast-changing technological environment:

“AI technology is so fast and advanced....I’ve not found anything that’s been totally effective at convincing students that they don’t know everything — and really teaching them the things they need to know.” (E10)

These comments point to a broader implementation challenge. The pace of technological change often exceeds the pace of curriculum development, teacher preparation, and institutional adoption. As AI-generated content becomes more common, educators face pressure to address AI literacy, misinformation, media literacy, and SEL simultaneously. This makes SEL–MIL integration increasingly necessary, but also more difficult to sustain in practice.

Taken together, these educator perspectives show that SEL–MIL integration requires more than a strong pedagogical rationale. It also requires time, training, resources, shared language, administrative support, and institutional buy-in. Without these conditions, SEL-based misinformation education may remain dependent on individual educators’ initiative rather than becoming a sustainable part of adolescent digital literacy education. This finding has direct implications for the design of SEL–MIL learning modules: they should be pedagogically meaningful, but also practical, adaptable, and feasible within the constraints educators actually face.

2.4 Digital Dehumanization and Reduced Empathy

A fourth challenge educators identified was the dehumanizing quality of online environments. Educators described this not as a moral failure of teenagers, but as a structural condition of digital spaces. When people are represented through usernames, posts, screenshots, comments, or profiles, the human beings affected by misinformation can become distant, abstract, or invisible. This matters because misinformation is not only false content; it can also harm reputations, relationships, emotions, and communities. However, digital environments often make those consequences difficult for teenagers to see at the moment of sharing or reacting.

E1, a high school teacher, explained this dynamic through an analogy between online interaction and driving:

“There’s a real tendency, the way the technology is laid out, that you don’t see people.

You don't look them in the eye. They're dehumanized — just like when you're in your car and you're driving, you see other cars; you don't see the people who are inside of other cars. There's a dehumanization aspect to it, and I think that has had such a dangerous effect on our politics and systems when we stop treating each other as real people. And that's where I think we get a lot of anxiety in young people and mental health issues — because they're living in these spaces that are non-human and having to deal with the ramifications of that.” (E1)

E1's car metaphor illustrates how digital platforms can replace people with objects or signals. Just as drivers may respond to cars rather than to the people inside them, teenagers online may respond to posts, usernames, screenshots, or rumors without fully recognizing the person behind them. In misinformation contexts, this means that a harmful rumor, edited image, or false claim may feel like content to engage with rather than an action that affects a real person.

E19 described a related issue: the disinhibition created by screen distance and anonymity.

“We get brave behind a screen. People say things they would never say face-to-face. And I think we have to have students still retain that humanness while they're using the technology.” (E19)

E19's phrase “retain that humanness” identifies an important pedagogical goal. The challenge is not to remove teenagers from digital spaces, but to help them recognize that digital interactions still involve real people. When teenagers say or share things online that they would not say face-to-face, the issue may not be a complete absence of care. Rather, the screen can reduce the immediate social cues that normally help people regulate their behavior.

E18 connected digital dehumanization to teenagers' difficulty feeling remorse or regret for online actions:

“They don't truly feel bad about things until you make them feel bad — until you help them understand why they should feel bad. They just don't have that skill of putting

themselves in the other person’s place and understanding why they should have remorse, regret, or feel bad. In the digital world, you don’t see the person’s face. But you could hear it in their voice — they could express to you how they feel through words or actions. When you’re a keyboard warrior typing, you don’t see how it affects people, and so you don’t have any context for remorse or regret.” (E18)

E18’s comment suggests that reduced empathy online may result from the absence of feedback. In face-to-face interaction, a person’s facial expression, tone of voice, or emotional reaction can make harm visible. Online, those cues are often absent, delayed, or hidden. As a result, teenagers may share, comment, or react without receiving immediate signals that their actions have caused harm. This absence of feedback makes it harder for them to connect misinformation with its human consequences.

This challenge reveals a limitation of cognitive MIL approaches. Fact-checking can help teenagers determine whether information is accurate, and lateral reading can help them evaluate source credibility. However, these practices do not necessarily help teenagers recognize the people affected by misinformation or understand the relational consequences of sharing false content. As Shawn noted, bringing humanity back into digital spaces may be a missing element of misinformation education. SEL competencies, especially social awareness and relationship skills, offer a way to address this gap by helping teenagers consider perspective, harm, responsibility, and the human impact of their digital choices.

Taken together, educators’ comments show that digital dehumanization is a major barrier to SEL–MIL integration because it makes misinformation’s social and emotional consequences less visible. If teenagers cannot see the person behind the post or the community affected by a rumor, they may struggle to understand why misinformation matters beyond whether it is true or false. This finding supports the need for learning activities that make harm visible, restore social context, and help teenagers connect misinformation to real people, relationships, and communities.

5.2.4. Theme 3. Relevance of SEL Competencies in Misinformation Contexts

Building on the instructional gaps identified in Theme 2, Theme 3 examines which SEL competencies educators viewed as most relevant for misinformation education. Across the interviews, educators did not describe SEL as a general add-on to media literacy. Instead, they connected specific SEL competencies to the actual challenges teenagers face when encountering misinformation: recognizing emotional reactions, managing impulsive responses, understanding how others may be harmed, navigating peer pressure, and making responsible choices about whether to believe, share, or challenge information. In this sense, SEL provides a practical framework for addressing the social and emotional dimensions of misinformation that traditional MIL instruction often leaves underdeveloped. This theme shows how educators understood competencies such as self-awareness, self-management, social awareness, relationship skills, and responsible decision-making as necessary for helping teenagers move from simply identifying misinformation to responding to it thoughtfully and ethically.

3.1 Definitions of SEL and MIL in Practice

Educators defined SEL and MIL in ways that were practical rather than abstract. Although they used different language, their definitions consistently connected SEL to emotional understanding, relationships, decision-making, and responsible action, while they described MIL as the ability to critically navigate information and use it well. This matters because educators did not see SEL and MIL as unrelated areas. Instead, their working definitions already showed overlap between the two: both were concerned with how young people interpret the world, make judgments, and act in social contexts.

For many educators, SEL began with understanding oneself and others. E4 described SEL simply as understanding one's own feelings, making good decisions, and getting along with people. Similarly, E3 defined SEL as a process through which children and adolescents develop the knowledge and skills needed to create and maintain a peaceful environment. E12 also emphasized connection and relationships, describing SEL as a set of life and thriving skills. These definitions show that educators understood SEL not only as emotional vocabulary or behavior management, but as a

broader set of competencies that help young people live with others.

E2 organized SEL through the CASEL competencies, explaining that self-management builds on emotions that students already recognize, social awareness involves understanding others, and responsible decision-making is the result of the other competencies working together. This interpretation presented that it positions responsible decision-making as an outcome of emotional and social development. In misinformation contexts, this means that a student's decision to pause, verify, avoid sharing, or support someone harmed by misinformation depends on more than factual knowledge. It depends on whether the student can recognize their own emotional response, manage that response, understand others' perspectives, and consider consequences.

E7 offered one of the clearest examples of how SEL competencies can be translated into misinformation education. Rather than defining each competency only in general terms, E7 connected them to concrete reflective questions:

“Self-awareness: What emotions do you feel when you're playing your move?

Self-management: Do you react quickly, or would you defend yourself immediately?

Social awareness: Did you understand why others might share or believe it?

Relationship skills: How would you support a friend that has been harmed by misinformation?

Responsible decision-making: What's one action that you would take differently online now?” (E7)

This quote is useful because it shows how SEL can become a practical structure for misinformation reflection. Each competency directs students toward a different part of the misinformation experience: emotion, impulse, perspective-taking, peer support, and future action. In this way, SEL helps transform misinformation education from a simple question of whether content is true or false into a broader reflection on how students feel, relate, decide, and act.

Educators' definitions of MIL also moved beyond basic fact-checking. E8 described media and information literacy through critical thinking, using an example of students reacting to a false

report about a fire. In that situation, E8 told students to calm down, critically analyze where the information came from, seek feedback, and check other sources. This definition highlights the evaluative side of MIL: students need to slow down, question the source, and compare information before accepting it. However, even this example contains an SEL dimension because the first step was emotional regulation: students needed to calm down before they could analyze the information critically.

E17 offered a broader definition of media literacy:

“Media literacy is the set of knowledge and skills you need to navigate our current information space in a way that means you can become informed about issues you want to become informed on and use that information to make good decisions.” (E17)

This definition showed that MIL connects to decision-making. Media literacy is not only about recognizing credible information; it is about using information to make good choices. This overlaps strongly with SEL, particularly responsible decision-making. It also supports the broader argument of this study that misinformation education should help teenagers move from knowing to acting.

E15 similarly defined MIL as the ability to interact with information while also having self-understanding in relation to information. E15 also defined agency as the ability to enact what one thinks. This connection between information, self-understanding, and action is central to SEL–MIL integration. A student may know something, but agency requires the ability to act on that knowledge. In misinformation contexts, this may mean choosing not to share, correcting misinformation respectfully, asking for evidence, or supporting someone affected by a rumor.

In sum, educators’ practical definitions show that SEL and MIL are already connected in the way they understand educational goals. SEL provides language for emotion, relationships, empathy, and responsibility, while MIL provides tools for evaluating information, questioning sources, and navigating the information environment. The overlap between them appears most clearly in decision-making. Both SEL and MIL aim to help students become thoughtful people who can interpret complex situations and respond responsibly. For this reason, integrating SEL into misinformation

education does not require replacing MIL. Rather, it makes explicit the emotional, relational, and ethical competencies that students need in order to use media literacy meaningfully in real life.

3.2 Instructional Approaches to SEL and MIL

Educators described SEL–MIL integration as something that should be taught through balanced, reflective, and student-centered activities rather than through fact-checking instruction alone. A recurring idea was that students need both strong media literacy skills and a supportive space to examine their emotional and social responses to media. E4 emphasized this balance directly:

“I think it’s very important to balance the SEL part with strong media literacy skills. It’s very, very necessary. Also, I think the key is to create a safe, supportive environment for young students.” (E4)

This quote showed that SEL–MIL integration requires more than adding an emotional reflection question at the end of a media literacy lesson. It requires a learning environment where students feel comfortable discussing what they see online, how it affects them, and how they might respond. In this sense, safety and support are not separate from misinformation education; they are conditions that allow students to reflect honestly on emotion, peer pressure, and digital behavior.

E7 offered a concrete example of how this integration can happen through simple classroom routines. They described using quick emotional check-ins, mindfulness activities, emoji charts, and social media examples to help students connect their emotional reactions to online content:

“I noticed that it actually improves their focus. Because after quick check-ins, and sometimes mindfulness activities, most of my students settle down faster, and they’re more engaged in academic lessons.” (E7)

This approach shows that SEL is not separate from learning; it prepares students to learn. When applied to misinformation education, this kind of check-in can help students recognize whether a post makes them angry, afraid, amused, or eager to react before they decide what to do with it. For example, an emoji chart can become more than a classroom management tool. It can become

a way for students to identify how a shocking post or misleading video affects them emotionally before moving into fact-checking or discussion.

E7 also mapped SEL competencies directly onto misinformation behaviors. For self-awareness, students need to recognize their emotional reactions when they see shocking posts or videos. For self-management, students need to stop and fact-check instead of reacting impulsively. For social awareness, students need to consider who might be harmed by spreading fake news or deepfakes. This practical translation shows how SEL can guide the movement from reaction to reflection. Rather than only asking students whether a post is true, educators can ask: What did this make you feel? Why did it make you want to react? Who could be affected if this spreads? What would be a responsible next step?

Another instructional approach involved treating SEL as an ongoing process rather than a one-time lesson. E11, drawing on programs such as RULER and Becoming a Man, emphasized that social-emotional learning is not linear and is not only for students. This view matters because misinformation education also cannot be solved through a single workshop or checklist. Students need repeated opportunities to practice pausing, questioning, perspective-taking, and decision-making across different contexts. SEL–MIL integration therefore works best when it becomes part of classroom culture, not only a special activity about misinformation.

Educators also emphasized agency, empowerment, and experiential learning. E20 noted that media literacy can sometimes feel “more academic,” while SEL may feel more accessible and relevant to students’ lives. E20 also stressed that teenagers respond better when they are given ownership and voice rather than being taught in a top-down way:

“Teenagers love agency and empowerment. They respond better when they are not being taught like a teacher.” (E20)

This is especially important in misinformation education because teenagers may resist lessons that feel like adults simply telling them what to believe or how to behave. Experiential activities, open-ended prompts, role-play, reflection boards, and student-led discussions can help teenagers practice

judgment while still feeling that they have agency. These approaches allow students to connect misinformation education to their own experiences, choices, and responsibilities.

These instructional approaches suggest that SEL–MIL integration should be active, reflective, and connected to students’ real digital experiences. Educators saw value in quick emotional check-ins, mindfulness routines, social media examples, discussion, role-play, and open-ended activities that allow students to connect media literacy skills with emotional awareness and responsible action. These approaches help students move beyond passive reception of information and toward reflective participation. In this sense, effective SEL–MIL instruction does not simply teach students to identify misinformation; it helps them practice the emotional, social, and ethical habits needed to respond to misinformation in real life.

3.3 The Role of SEL Competencies in Misinformation Engagement

Educators described SEL competencies as directly relevant to how teenagers encounter, interpret, and respond to misinformation. In their view, SEL does not replace media and information literacy; rather, it strengthens MIL by helping students manage the emotional and social conditions that shape whether media literacy skills are actually used. This is especially important because misinformation engagement is rarely only a matter of identifying whether content is true or false. It often involves emotion, motivation, peer pressure, empathy, and responsibility.

E1 connected empathy to the need to understand both one’s own motivations and the motivations of others online:

“Ask people to be empathetic, right, is to ask them to really examine your own motivations and really think about other people’s motivations online.” (E1)

This quote shows how empathy works in a misinformation context. Empathy is not only feeling sorry for someone who has been harmed. It also involves asking why people create, believe, or share certain content. A student may ask: What emotion is this post trying to trigger? Why might someone share it? Are they trying to gain attention, fit in, express anger, make a joke, or influence others? This kind of questioning helps students move beyond simple blame and toward deeper

understanding of the social and emotional dynamics behind misinformation.

E7 described SEL as the foundation that makes MIL usable in real situations:

“SEL is the foundation that strengthens the MIL. Not only can students spot misinformation, they can also manage emotions and the social pressures around it, which is the hardest part for teenagers.” (E7)

This statement captures the main role of SEL competencies in misinformation education. Students may know how to identify false information, but knowing is not always enough. They also need self-awareness to recognize their emotional reaction, self-management to pause before responding, social awareness to understand how others may be affected, relationship skills to communicate respectfully, and responsible decision-making to choose what to do next. In this sense, SEL helps bridge the gap between media literacy knowledge and real digital behavior.

E7 further framed SEL as part of students’ broader development, not simply as a classroom strategy. They argued that teachers should not see SEL only as an educational tool, but as part of a student’s upbringing, explaining that teachers sometimes serve as “another second parent.” This perspective shows why educators viewed SEL as especially important in misinformation contexts. Teenagers are still developing habits of judgment, care, communication, and responsibility. When misinformation circulates through social media and peer networks, educators may need to help students develop not only technical skills, but also social and ethical habits for digital life.

E7 also clarifies why social awareness matters within SEL–MIL integration:

“Media literacy isn’t just tech teaching — it is understanding people.” (E17)

From this perspective, learning to evaluate information is not enough if teenagers do not also understand the people affected by misinformation. Media literacy can help teenagers identify misinformation, but SEL helps them connect that knowledge to people, relationships, social pressure, and harm. Social awareness therefore strengthens MIL by helping teenagers recognize that misinformation is not only a problem of inaccurate content, but also a problem of human consequence.

Finally, educators emphasized that SEL is increasingly important because misinformation and AI-generated interactions can affect students' emotional and mental well-being. E11 raised concern about the emotional and mental health impact of AI-mediated environments, noting that young people may need support or intervention as they navigate these new forms of digital interaction. This concern reinforces the broader argument of the study: misinformation education should not be limited to source-checking. As digital and AI-mediated environments become more emotionally persuasive and socially immersive, students need SEL competencies to protect themselves, understand others, and make responsible choices.

Educators viewed SEL competencies as essential for meaningful misinformation engagement. SEL helps students ask why content affects them, why others may share it, who may be harmed, and what responsible action looks like. These competencies make MIL more practical because they help students use verification skills in the emotional and social moments when misinformation actually appears. In this way, SEL provides the human-centered foundation for misinformation education.

3.4 Prioritization of SEL Competencies

When educators were asked which SEL competencies were most important for misinformation education, many began with self-awareness. They viewed self-awareness as the entry point because students first need to recognize how online content affects them before they can manage their reactions, understand others, or make responsible choices. E3 explained this clearly:

“I think self-awareness is most important, because you have to be aware of how a particular post or a particular video news affects you. Because if you don't really know how it affects you, you don't really know how you react to those things.” (E3)

This quote shows why self-awareness is foundational in misinformation contexts. Misinformation often works by producing an emotional reaction before students begin to evaluate it. If teenagers do not notice how a post makes them feel, they may not recognize why they want to believe it, share it, defend it, or react to it. Self-awareness therefore becomes the first step in interrupting misinformation engagement. It helps students identify their emotional triggers, biases, values, and

vulnerabilities before those reactions turn into digital behavior.

E4 similarly identified self-awareness as especially important for teenagers because adolescence is a time of identity formation:

“All these five are very, very important and connected. But if I have to choose one for teenagers, I would say that self-awareness is the most important. Because at that age, students are still figuring out who they are and how their emotions affect their behavior.”

(E4)

E4’s explanation connects self-awareness to the developmental reality of teenagers. Young people are still learning who they are, what they believe, and how their emotions shape their decisions. In misinformation contexts, this matters because false or misleading content often connects to identity, belonging, fear, confidence, or social comparison. Self-awareness helps students understand not only the content they encounter, but also themselves as interpreters of that content.

E5 also emphasized self-awareness, linking it to confidence, growth mindset, and the ability to resist harmful online messages. From this perspective, students who know their strengths, limitations, and emotions may be less likely to believe every harmful or misleading thing said about them or shown to them online. This suggests that self-awareness is not only about recognizing emotion in the moment; it is also about developing a more stable sense of self that can protect students from manipulation, rumors, and peer pressure.

However, educators did not generally view one competency as sufficient on its own. Many emphasized that the five SEL competencies work together. E4 described them as “one complete set, rather than separate pieces,” explaining that self-awareness naturally supports self-management and better decision-making, while social awareness improves relationships. E8 made a similar point:

“You gotta notice stress and how to control stress, you gotta notice empathy, you gotta notice communication, constant, safe and constructive choice, all of this, yeah, they work together. They can’t just work alone.” (E8)

This integrated view is important for SEL–MIL design. A student may become aware that a post makes them angry, but they still need self-management to pause before sharing it. They may understand their own reaction, but they also need social awareness to consider who might be harmed. They may recognize harm, but they still need relationship skills to communicate respectfully and responsible decision-making to choose a better action. In this way, the competencies form a sequence of reflection and action rather than separate learning objectives.

E7 offered one of the clearest explanations of this sequence. They described self-awareness as the starting point, responsible decision-making as the outcome, and the other competencies as necessary supports:

“I see responsible decision-making as the outcome, and also self-awareness as the starting point. But that decision-making is the real thing... Each competence reinforces the others. So if one is missing, the whole process weakens.” (E7)

This statement is especially useful for the argument of this study because it shows how SEL competencies can be organized in misinformation education. Self-awareness begins the process by helping students recognize what they feel and why. Self-management helps them slow down. Social awareness and relationship skills help them understand the social effects of misinformation and respond to others with care. Responsible decision-making becomes the final expression of the process: the student chooses whether to share, verify, challenge, ignore, or support someone affected by misinformation.

E18 also resisted choosing a single competency, emphasizing that students’ broader needs shape their ability to learn and act responsibly. Drawing on an SEL training, E18 recalled the phrase, “you can’t bloom until you’ve Maslowed.” This point adds another layer to the discussion. Students cannot be expected to practice higher-level critical thinking, empathy, or responsible decision-making if their basic emotional, social, or safety needs are not being addressed. In misinformation education, this means that students need a supportive environment before they can honestly reflect on their emotions, biases, peer pressures, and mistakes.

Finally, E20 highlighted self-management as particularly important for teenagers who may be most at risk. This adds an important practical distinction. While self-awareness may be the entry point for many students, self-management may be especially crucial for those who are more likely to react impulsively, escalate conflict, or share content without pausing. In misinformation contexts, self-management is the competency that helps students create a gap between emotional trigger and digital action.

Taken together, educators' prioritization of SEL competencies suggests a developmental pathway for SEL-based misinformation education. Self-awareness is often the starting point because students should first recognize how misinformation affects them. Self-management helps them pause and regulate their response. Social awareness and relationship skills help them consider others and communicate responsibly. Responsible decision-making is the outcome, where students apply both media literacy and SEL to make ethical choices online. Rather than treating the CASEL competencies as separate categories, educators viewed them as an interconnected process that helps teenagers move from emotional reaction to reflective and responsible digital action.

5.2.5. Theme 4. Educators' Suggestions for SEL–MIL Learning Design

Building on educators' views of teenagers' social-emotional vulnerability, current instructional gaps, and the relevance of SEL competencies, Theme 4 examines how misinformation education can be designed to support SEL–MIL learning. Across the interviews, educators emphasized that SEL–MIL learning should not rely only on lectures, checklists, or abstract warnings about misinformation. Instead, they suggested experiential, reflective, and discussion-based approaches that connect learning to teenagers' real digital lives, including role-play, scenario-based learning, guided reflection, peer discussion, emotionally relevant examples, and opportunities to practice responsible decision-making. This theme therefore translates educators' perceptions into design implications: effective SEL–MIL learning should help teenagers experience the social and emotional dynamics of misinformation, reflect on their own reactions, consider others' perspectives, and rehearse more responsible responses before they encounter similar situations online.

4.1 Opportunities for Implementing SEL–MIL Learning

Educators identified several opportunities for implementing SEL–MIL learning beyond isolated lessons or short-term fact-checking activities. Their comments suggest that SEL–MIL integration can be understood as part of a broader effort to prepare teenagers for responsible participation in digital, civic, and AI-mediated information environments. In this sense, implementation is not only about adding SEL language to media literacy instruction. It is about creating learning experiences that help students connect information evaluation with emotion, culture, responsibility, and action.

One major opportunity is to frame misinformation education as part of responsible digital citizenship. E1 described this broader civic purpose by explaining:

“teaching them a little bit of ownership and agency so that they know they have something to be motivated about, and they can do it not only for themselves but as a community — so it’s ownership, agency, and giving them a little bit of representation of the responsibility.” (E1)

E1’s comment suggests that agency is closely tied to motivation and responsibility. The goal is not simply for students to complete a fact-checking task, but for them to become people who can make informed and responsible decisions in social and civic life. From this perspective, SEL–MIL learning supports digital citizenship by helping students connect information evaluation with values, responsibility, and action.

Educators also described this civic orientation through practical habits of pause and reflection. E5’s emphasis on “think before you act” and “pause before you act” shows how responsible decision-making can be translated into everyday digital behavior. Pausing becomes a concrete SEL–MIL practice: before sharing, reacting, or believing, students are encouraged to consider evidence, emotion, and consequence. This kind of implementation makes SEL–MIL learning practical rather than abstract because it connects civic responsibility to the small decisions teenagers make in everyday online spaces.

A second opportunity is to implement SEL–MIL learning in culturally responsive and relational ways. E11 cautioned that SEL should not be treated as culturally neutral:

“Culture is such a massive component around social-emotional learning, and some pieces of SEL might actually be in contrast to some cultural values. Like, I think of a handshake or eye contact, how those are viewed between certain cultures, and so we have to be really mindful as practitioners.” (E11)

This point revealed that SEL involves emotions, communication, relationships, and social norms, all of which are shaped by culture. What counts as respectful communication, appropriate emotional expression, or responsible action may vary across families, communities, and cultural backgrounds. Therefore, SEL–MIL integration should avoid assuming that one style of reflection or participation is universal. Instead, educators should create space for students to discuss how misinformation, trust, responsibility, and online behavior are understood within their own communities.

Educators also connected this relational orientation to restorative practices. E11 noted that SEL aligns closely with restorative approaches because both emphasize maintaining and repairing community relationships, fostering empathy, and encouraging responsibility. This creates an important implementation opportunity for misinformation education. When misinformation causes harm through rumors, false accusations, public shaming, or peer conflict, a purely corrective response may not be enough. Students may also need opportunities to acknowledge harm, understand impact, repair relationships, and take responsibility. From this perspective, SEL–MIL learning can support community-building, not only error correction.

A third opportunity is to help teenagers experience agency in meaningful and ethically grounded ways. E15 questioned whether educational tools that claim to give teenagers agency actually help them feel agency in practice:

“We keep building all these things to teach them about misinformation, and give them agency, and teach them about digital civic engagement... what does agency mean to them, and is it even doing anything?” (E15)

This question is matters because SEL–MIL interventions should not simply claim to empower teenagers. They should examine whether students actually experience ownership over their choices, reflections, and actions. For example, students might decide how to respond to a misinformation scenario, create messages for peers, evaluate different response options, or reflect on what responsible action means to them. In this way, agency becomes something students practice, not only something educators hope they develop.

A fourth opportunity is to connect SEL–MIL learning to AI literacy. E17 argued that students need to think not only about how to use AI, but when and why to use it:

“Talking about when to use it is a huge piece. You need the when before you get to the how... talking about the ethics, talking about what they will gain or lose if they’re not the ones doing whatever they’re asking the AI to do.” (E17)

This quote positions AI literacy as an ethical and social-emotional issue, not only a technical skill. Students need to consider when AI is helpful, when it may replace their own thinking, and what consequences may follow from relying on AI-generated information. In this sense, AI is both a misinformation risk and a learning context for practicing self-awareness, responsible decision-making, and agency.

Overall, educators’ implementation suggestions show that SEL–MIL learning can be developed as a broader practice of responsible digital citizenship. It can help students pause before acting, recognize cultural differences, repair harm, exercise agency, think critically about AI, and participate in meaningful conversations about digital life. These opportunities suggest that SEL–MIL integration is not only about improving individual information skills. It is also about preparing teenagers to act with care, judgment, and responsibility in the social and technological environments they already navigate.

4.2 Pedagogical Strategies for SEL–MIL Learning

Educators described SEL–MIL learning as most effective when it is active, relational, and connected to teenagers’ real experiences. Rather than relying only on direct instruction, they empha-

sized strategies that invite students to talk, question, role-play, create, reflect, and make choices. This matters because misinformation is not usually encountered as an abstract classroom topic. Teenagers encounter it through social media, peer conversations, humor, emotion, and identity. Therefore, educators argued that learning activities should mirror these social and emotional conditions while also giving students structured opportunities to pause, reflect, and consider more responsible responses.

E1 emphasized the value of social play and discussion, especially in activities where students can see how one person's post affects another person's response:

"I think what's really successful is people talking out what they're posting on everybody else's network, right? And then how one post builds on another post and reacts to that."

(E1)

This quote shows why collaborative and discussion-based learning can be powerful for misinformation education. Students need to see misinformation not only as one isolated false claim, but as something that circulates through interaction. When students talk through what they post, how others respond, and how one action builds on another, they can better understand the social chain of misinformation. This type of activity also supports SEL because it asks students to consider emotion, intention, response, and consequence together.

Several educators emphasized that SEL–MIL learning should begin with real-world examples. E2 stated simply, "I feel if you use more real-world things," students are more likely to connect with the lesson. E4 similarly recommended connecting learning to students' daily online experiences and using simple scenarios as scaffolds. This suggests that misinformation education should not begin with distant or overly formal examples. It should begin with situations teenagers recognize: a suspicious post, a rumor in a group chat, a misleading TikTok, an AI-generated image, or a screenshot shared among friends. These familiar examples allow students to connect media literacy skills to their own digital lives.

Educators also stressed that the learning environment matters. E2 advised that SEL integration

should be patient, informal, engaging, and unique rather than presented as another boring requirement. E5 similarly noted that teenagers are curious and ready to learn when the setting and engagement are right. Together, these perspectives suggest that resistance from teenagers may not mean they are uninterested in misinformation or SEL. It may mean that the activity feels too formal, judgmental, or disconnected from their lives. SEL–MIL learning therefore needs to feel safe, relevant, and participatory.

E10 emphasized this need for respect and openness:

“Be willing to listen to them and not judge them.” (E10)

This statement is central to the pedagogy of SEL–MIL learning. Teenagers may not honestly discuss their online behavior, emotional reactions, or mistakes if they feel judged by adults. A nonjudgmental environment allows students to talk about why they clicked, believed, shared, laughed, ignored, or reacted. This kind of openness is necessary because misinformation behavior can be socially sensitive. Students may need to admit uncertainty, peer pressure, embarrassment, or overconfidence before they can learn from it.

Role-play and scenario-based learning were also frequently recommended. E18 identified role-play as one strategy for increasing empathy, alongside community service, teacher modeling, transparent conversation, and relationship building. E18 emphasized that “you can’t build a community if you don’t have relationships,” highlighting that empathy-based learning depends on trust. In misinformation education, scenario and role-play activities can help students take the position of different actors: the person who creates misinformation, the person who shares it, the person harmed by it, and the bystander who decides whether to intervene. This can make hidden consequences more visible and help students practice perspective-taking.

E14 explained why games can be especially powerful for this kind of learning:

“Games become really powerful tools to show how our agency is connected to a larger information environment. They’re really good tools to have players express parts of

their own sense of self online, and connect it to the larger systems and structures that are there.” (E14)

This quote connects game-based learning to both agency and systems thinking. Misinformation is not only about individual choices; it is also shaped by platforms, algorithms, peer networks, and attention economies. Games can help teenagers experience how individual actions connect to larger systems. They can also give students space to experiment with choices and see consequences in a lower-risk environment. This aligns strongly with SEL because students are not only learning what misinformation is; they are practicing how to act within a social system.

Educators also raised design considerations for making learning accessible. E16 noted that teenagers may be less likely to read long instructions, partly because of changes in media habits shaped by social media. This suggests that activities should use clear prompts, visual supports, short instructions, and interactive formats. E7’s recommendation to make debriefing emotional and relatable also fits here. Debriefing should not only ask what students learned factually; it should ask what they felt, what surprised them, who was affected, and what they might do differently next time.

Finally, educators emphasized that pedagogy should adapt to context. E15 noted that whether misinformation education happens in a library, school, or other setting affects how structured or formal the activity should be. This matters for design because SEL–MIL learning may look different across environments. A classroom lesson may need clear standards and assessment, while a library or informal learning space may allow more flexible discussion, play, and exploration. E10 also suggested that traditional assessment may no longer be enough and that educators need to think about new ways to understand student learning, including creating together with young people.

These pedagogical strategies suggest that SEL–MIL learning should be experiential, relational, and grounded in teenagers’ everyday digital lives. Effective strategies include real-world examples, collaborative discussion, structured SEL reflection prompts, role-play, games, emotional debriefing, short and visual prompts, student voice, and nonjudgmental facilitation. These approaches help students move beyond simply knowing that misinformation is wrong. They allow teenagers to expe-

rience how misinformation spreads, reflect on how it affects people, and practice more responsible ways of responding.

4.3 Design Suggestions for SEL–MIL Learning Activities

Educators’ suggestions for SEL-integrated misinformation education emphasized that learning activities should be reflective, relational, and practice-based rather than simply adding SEL language to existing media literacy lessons. Across the interviews, four design suggestions were especially important: connecting learning to real-world examples, using role-play and role reversal, supporting collaboration through scaffolding, and using visual debriefing with facilitator guidance.

First, educators emphasized that SEL–MIL learning should begin with real-world examples that feel recognizable to teenagers. Teenagers are more likely to engage when misinformation scenarios connect to the online environments they already encounter, such as influencers, rumors, misleading posts, peer-shared screenshots, emotionally charged content, or AI-generated images. E1 suggested that students should connect classroom learning to actual online examples: “In the real world. Go find an example of this in the real world and then come back and present out why this person is a troll or an influencer or a content partner” (E1). This points to the importance of grounding SEL–MIL activities in familiar digital contexts rather than abstract definitions alone.

At the same time, educators stressed that real-world discussion should be emotionally safe. E4 explained:

“Just make it relatable and interactive. These teenagers respond best when they can see how the lessons connect through their own online experience. And if you want to give any discussion, you should discuss real examples. And it should be in a very safe environment, where you make them feel safe, you make them feel open.” (E4)

This matters because discussions about misinformation may involve embarrassment, peer pressure, emotional reactions, or past mistakes. Teenagers may be reluctant to talk honestly about why they might share a rumor, believe a misleading post, or stay silent when someone is harmed if the environment feels judgmental. Emotional safety is therefore not only a classroom management

issue; it is a design condition for SEL-integrated misinformation education.

Second, educators suggested using role-play and role reversal to help teenagers understand misinformation from multiple social positions. E2 suggested that role-playing helps students “actually feel what they are reading” and recognize that actions have consequences. E3 similarly argued that perspective-taking becomes more meaningful when students imagine relational closeness, such as asking, “what if that person was your younger sister, or someone close to you?” E19 also described role reversal as useful for helping students step outside their own perspective:

“Role reversal is a great way to have them get out of their own head and think backward.”

(E19)

In SEL–MIL learning, role-play can help students consider the perspectives of different people involved in a misinformation situation, including the creator, sharer, believer, harmed person, and bystander. This structure supports social awareness, empathy, and responsible decision-making because it asks students to consider motivation, consequence, harm, and responsibility from more than one viewpoint.

Third, educators emphasized that SEL–MIL learning should be collaborative, but also carefully scaffolded. Group-based activities are useful because teenagers often enjoy working with peers and because misinformation itself often spreads through social networks. Collaborative learning allows students to negotiate meaning, explain their reasoning, listen to different interpretations, and practice relationship skills such as respectful disagreement and shared decision-making. However, educators also emphasized that collaboration alone is not enough. E10 noted that “middle schoolers would probably need examples, or maybe some statements that they might make” (E10). This suggests that students may need sentence starters, guided prompts, staged reflection, or concrete examples to move from activity to deeper meaning-making.

Fourth, educators suggested using visual debriefing supported by active facilitation. Visual tools can help teenagers make abstract SEL ideas more concrete and easier to discuss. E5 explained:

“I really like visual stuff. I like when I can actually see what I’m trying to communicate. And I feel teenagers are like that, so they want to see what they’re trying to pass across.”
(E5)

This supports the use of reflection boards, role cards, emotion cards, motivation tokens, drawings, concept maps, or other visual prompts. These tools can help students externalize their thinking and see connections among emotions, motivations, roles, consequences, and decisions. Educators also emphasized that these reflective activities require facilitator guidance. The facilitator’s role is not simply to give answers, but to ask questions, clarify confusion, support emotional safety, and help students connect the activity to broader lessons about misinformation, empathy, and responsibility.

Taken together, these design suggestions show that SEL-integrated misinformation education should be experiential, relational, and reflective. Educators emphasized designing learning environments where teenagers can connect misinformation to their own lives, take different perspectives, work with peers, visually reflect on emotions and consequences, and receive guided support from facilitators. These suggestions directly informed the design of the SEL-based misinformation learning module in this study, particularly its use of real-world scenarios, role-based gameplay, collaborative problem-solving, visual debriefing, and structured reflection.

5.2.6. Summary of the Implications from Phase I

Across these educator accounts, the Phase I findings show that educators understood misinformation education as a problem that extends beyond teenagers’ ability to identify false information. Across the interviews, educators described teenagers’ vulnerability to misinformation as emotional, social, developmental, and relational. Misinformation often reaches teenagers through emotion, peer pressure, humor, identity, social approval, and fast digital reactions before formal verification skills are activated. At the same time, educators did not portray teenagers as incapable or unintelligent. Rather, they understood adolescence as a period of identity formation, independence-seeking, social sensitivity, and emerging civic agency.

The findings also show why current misinformation education, while necessary, is often incomplete.

Fact-checking, source evaluation, and verification frameworks remain important, but educators felt that these approaches do not fully prepare teenagers to use those skills in emotionally charged, peer-driven, and increasingly AI-mediated digital environments. Teenagers may know that they should check sources, but still react quickly when content feels funny, threatening, personally relevant, socially rewarding, or endorsed by peers. This gap suggests that misinformation education should help students transfer media literacy skills into real situations where emotion, relationships, speed, and social pressure shape behavior.

Across the interviews, SEL emerged as a practical foundation for making MIL more usable in these contexts. Educators viewed SEL competencies as directly connected to misinformation engagement: self-awareness helps teenagers recognize their emotional reactions; self-management helps them pause before reacting or sharing; social awareness and relationship skills help them consider harm and communicate responsibly; and responsible decision-making helps them choose what to do next. In this way, SEL does not replace media literacy. Rather, it strengthens media literacy by helping teenagers understand when, why, and how to use verification skills in socially complex digital situations.

Overall, Phase I provides the rationale for the SEL-based misinformation learning module used in Phase II. Educators' perspectives suggest that effective misinformation education should be experiential, relational, scaffolded, role-based, collaborative, visually supported, and connected to teenagers' everyday digital lives. The goal is not simply to produce better fact-checkers, but to help teenagers become more thoughtful, empathetic, and responsible participants in digital and AI-mediated information environments.

5.3. Phase II. Findings from Teenagers' Experiences

5.3.1. Participant Characteristics and Baseline Survey Findings

A total of 59 adolescents participated in this study. The baseline survey provides an overview of participants' social media engagement, sharing behaviors, and perceptions of misinformation, offering important contextual grounding for interpreting their subsequent experiences in the learning

module.

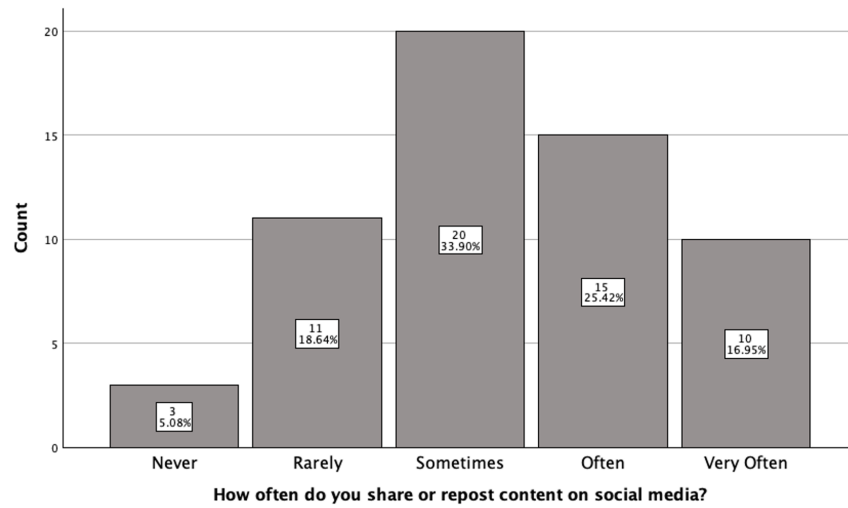
As shown in Table 6, participants reported frequent use of multiple social media platforms on a weekly basis. Instagram ($n = 43$) and YouTube ($n = 42$) were the most widely used platforms, followed by TikTok ($n = 21$) and Snapchat ($n = 20$). Discord ($n = 16$) was also commonly used, indicating engagement in both content consumption and peer-based communication spaces. In contrast, platforms such as X (Twitter) ($n = 5$) and other categories ($n \leq 2$) were less frequently reported. These patterns suggest that participants are embedded in highly visual and socially interactive digital environments where content is rapidly consumed and shared.

Table 6: *Frequency of Social Media Platform Usage (Weekly)*

Platform	Count
Instagram	43
YouTube	42
TikTok	21
Snapchat	20
Discord	16
X (Twitter)	5
Other	2
WhatsApp	1
Kindle / Netflix	1
None	1

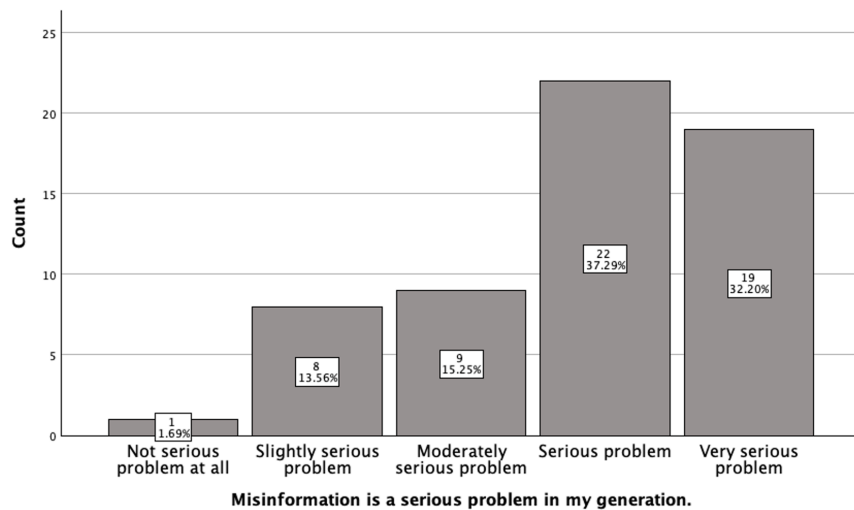
Participants' self-reported sharing behaviors further reflect this engagement. As shown in Figure 15, most participants reported sharing or reposting content at least occasionally, with the largest group indicating "sometimes" (33.9%), followed by "often" (25.4%) and "very often" (16.9%). Only a small proportion reported rarely (18.6%) or never (5.1%) sharing content. This distribution suggests that participants are not merely passive consumers but active contributors within their digital networks, highlighting the relevance of examining their decision-making processes around information sharing.

Figure 15: *Sharing or Reposting Content on Social Media*



In terms of perceptions of misinformation, participants largely recognized it as a significant issue affecting their generation. As presented in Figure 16, a substantial majority agreed (37.3%) or strongly agreed (32.2%) that misinformation is a serious problem, while relatively few participants expressed disagreement. This indicates a general awareness of the societal impact of misinformation among adolescents.

Figure 16: *Perceived Seriousness of Misinformation*



Taken together, these baseline findings reveal a critical tension: although participants are highly engaged in social media environments and frequently share content, they are also aware of the risks and seriousness of misinformation. This gap between awareness and everyday digital behavior provides an important foundation for understanding how adolescents experience, interpret, and reflect on misinformation during the learning module.

Media Literacy Confidence

Participants generally reported moderate to high confidence in evaluating and questioning online information. However, this confidence appeared to vary when applied in social contexts, particularly when engaging with information shared by peers. Table 7 presents the item-level results for the three media literacy confidence measures.

Table 7: *Baseline Survey Results for Media Literacy Confidence*

Item	Mean	SD
I feel confident evaluating whether online information is trustworthy	3.54	.95
I feel confident questioning information, even when others believe it is true	3.71	.98
I feel confident challenging information shared by my friends online	3.67	1.12

Among the three items, participants reported the highest confidence in questioning information even when others believe it to be true ($M = 3.71$, $SD = .98$), followed closely by confidence in challenging information shared by friends online ($M = 3.67$, $SD = 1.12$). Confidence in evaluating whether online information is trustworthy was slightly lower ($M = 3.54$, $SD = .95$). Notably, the item related to challenging information shared by friends showed the greatest variability, suggesting that participants differed more in their comfort with questioning misinformation in peer contexts than in their general confidence in evaluating information.

The three items were combined into a single index representing confidence in evaluating and challenging online information. Reliability analysis indicated acceptable internal consistency (Cronbach's

$\alpha = .674$). The items were averaged to form a composite score ($M = 3.64$, $SD = 0.79$), reflecting an overall moderate-to-high level of perceived media literacy confidence among participants.

Overall, these findings suggest that participants perceived themselves as relatively confident in their ability to critically engage with online information. At the same time, the slightly lower mean and higher variability associated with peer-related questioning indicate that applying media literacy skills in social contexts may be more complex and less consistent. This distinction is important for the present study, as it suggests that media literacy is not only an individual cognitive skill but also a socially situated practice shaped by peer relationships and interactional dynamics. In this sense, the baseline results already point to a key issue taken up in the later qualitative findings: although adolescents may feel capable of evaluating and questioning online content, acting on that confidence in socially embedded situations may be more challenging.

Emotional Reactivity

Participants reported moderate to high levels of emotional reactivity in their engagement with online information, indicating that emotions play a meaningful role in shaping how they interpret and respond to content. Table 8 presents the item-level results for the emotional reactivity measures.

Table 8: *Baseline Survey Results for Emotional Reactivity*

Item	Mean	SD
My emotions influence what I choose to believe online	3.52	1.15
When a post makes me feel strong emotions (e.g., anger, fear, excitement), I am more likely to react quickly	4.01	1.07
I sometimes share or respond to content before fully thinking it through when I feel emotional	4.20	1.03

Among the three items, participants reported the highest agreement with the tendency to share or respond to content before fully thinking when experiencing strong emotions ($M = 4.20$, $SD = 1.03$). This was followed by reacting quickly to emotionally charged posts ($M = 4.01$, $SD = 1.07$), while the influence of emotions on belief formation was slightly lower ($M = 3.52$, $SD = 1.15$). Notably, the item related to emotional influence on belief showed the greatest variability, suggesting that

participants differed more in how they perceived the role of emotions in shaping what they believe online.

The three items were combined into a single index representing emotional reactivity in online contexts. Reliability analysis indicated acceptable internal consistency (Cronbach’s $\alpha = .608$). The items were averaged to form a composite score ($M = 3.92$, $SD = 0.81$), reflecting an overall moderate-to-high level of emotional reactivity among participants.

Overall, these findings suggest that participants are not only aware of emotional influences in online environments but also experience a tendency toward rapid and sometimes unreflective responses when encountering emotionally charged content. The relatively higher agreement with impulsive sharing behaviors indicates that emotional arousal may play a significant role in shaping immediate reactions, potentially limiting critical reflection. This pattern highlights the importance of considering emotional processes in misinformation engagement, as participants’ responses appear to be shaped not only by their evaluative abilities but also by their affective reactions to online content.

Social Responsibility

Participants reported moderate levels of social responsibility and accountability in their online information-sharing practices, indicating an awareness of potential consequences, though not uniformly strong across all aspects. Table 9 presents the item-level results for the social responsibility measures.

Table 9: *Baseline Survey Results for Social Responsibility*

Item	Mean	SD
If I share something false, I believe I am partly responsible, even if I did not know it was false	3.29	1.11
I feel responsible for the impact of the content I share online	3.56	1.00
Before sharing something online, I think about how it might affect others	3.32	1.01

Among the three items, participants reported the highest agreement with feeling responsible for the impact of the content they share online ($M = 3.56$, $SD = 1.00$). This was followed by considering

how content might affect others before sharing ($M = 3.32$, $SD = 1.01$), while agreement was lowest for taking responsibility for sharing false information even when unaware ($M = 3.29$, $SD = 1.11$). Notably, the latter item also showed the greatest variability, suggesting that participants differed more in their willingness to attribute responsibility to themselves in cases of unintentional misinformation.

The three items were combined into a single index representing social responsibility and accountability in online contexts. Reliability analysis indicated acceptable internal consistency (Cronbach's $\alpha = .768$). The items were averaged to form a composite score ($M = 3.38$, $SD = 0.86$), reflecting an overall moderate level of perceived responsibility among participants.

Overall, these findings suggest that while participants generally recognize a degree of responsibility for the content they share, this sense of accountability is not consistently strong across all situations. In particular, lower agreement and higher variability in accepting responsibility for unintentionally sharing false information indicate a potential gap between general awareness of impact and personal accountability in practice. This pattern highlights that, although adolescents acknowledge the importance of responsible sharing, translating this awareness into consistent reflective behavior may remain challenging, especially in situations involving uncertainty or lack of intent.

Empathy

Participants reported moderate levels of empathy and perspective-taking in relation to online interactions, suggesting an awareness of the potential impact of misinformation on others. Table 10 presents the item-level results for the empathy measures.

Table 10: *Baseline Survey Results for Empathy*

Item	Mean	SD
When I see someone being hurt, attacked, or embarrassed online, I feel concerned for them	3.25	1.28
I try to understand how others might feel when they are affected by misinformation	3.71	1.13
I think about how online information might affect real people	3.64	1.08

Among the three items, participants reported the highest agreement with trying to understand how others might feel when affected by misinformation ($M = 3.71$, $SD = 1.13$), followed by considering how online information might affect real people ($M = 3.64$, $SD = 1.08$). In contrast, feeling concerned when witnessing someone being hurt or embarrassed online was comparatively lower ($M = 3.25$, $SD = 1.28$). Notably, this latter item also showed the greatest variability, suggesting that participants differed more substantially in their emotional responsiveness to others' negative online experiences.

The three items were combined into a single index representing empathy and perspective-taking in online contexts. Reliability analysis indicated acceptable internal consistency (Cronbach's $\alpha = .795$). The items were averaged to form a composite score ($M = 3.53$, $SD = 0.98$), reflecting an overall moderate level of empathy among participants.

Overall, these findings suggest that participants demonstrate a general capacity for perspective-taking, particularly in cognitively considering how misinformation may affect others. However, comparatively lower agreement and higher variability in emotional concern indicate that affective empathy may be less consistently experienced. This pattern points to a distinction between understanding others' perspectives and emotionally responding to their experiences, highlighting a potential gap between cognitive and affective components of empathy in online contexts.

Agency

Participants reported relatively lower levels of perceived agency in addressing misinformation, indicating some uncertainty about their ability to make a meaningful impact in online environments. Table 11 presents the item-level results for the agency measures.

Table 11: *Baseline Survey Results for Agency*

Item	Mean	SD
I feel that my actions can make a difference in reducing misinformation online	2.84	1.14
I believe I can influence others to think more carefully about what they share	2.93	1.04
I feel capable of taking action when I see misinformation	2.89	.98

Among the three items, participants reported the highest agreement with their ability to influence others to think more carefully about what they share ($M = 2.93$, $SD = 1.04$), followed by feeling capable of taking action when encountering misinformation ($M = 2.89$, $SD = .98$). Perceived ability to make a broader difference in reducing misinformation online was slightly lower ($M = 2.84$, $SD = 1.14$). Notably, this latter item also showed the greatest variability, suggesting that participants differed more in their beliefs about their broader impact compared to their immediate or interpersonal influence.

The three items were combined into a single index representing perceived agency in responding to misinformation. Reliability analysis indicated good internal consistency (Cronbach's $\alpha = .809$). The items were averaged to form a composite score ($M = 2.89$, $SD = 0.90$), reflecting an overall moderate-to-low level of perceived agency among participants.

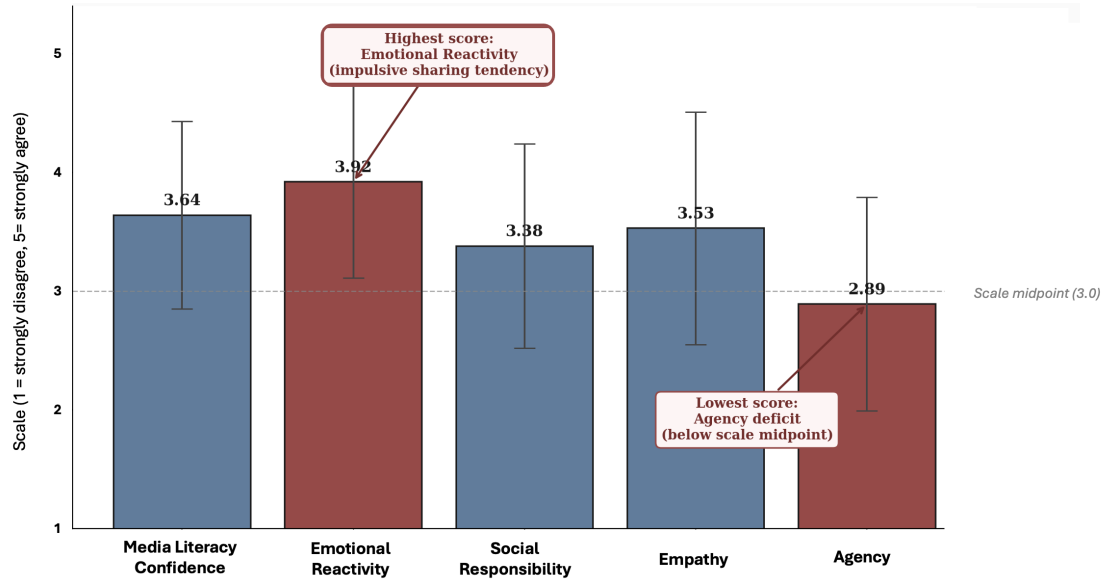
Overall, these findings suggest that while participants express some confidence in their ability to take action or influence others in specific situations, they are less certain about their broader capacity to make a meaningful difference in reducing misinformation. This pattern highlights a potential gap between recognizing misinformation-related issues and feeling empowered to address them, indicating that adolescents may experience limited agency in navigating and responding to misinformation within larger social and digital contexts.

Composite Index Overview

Overall, the combined index results presented in Figure 17 reveal a distinct pattern across cognitive, emotional, and social dimensions of misinformation engagement. Participants reported relatively

high levels of emotional reactivity ($M = 3.92$), indicating that emotional responses play a prominent role in how they engage with online content. Media literacy confidence ($M = 3.64$) and empathy ($M = 3.53$) were also moderately high, suggesting that participants perceive themselves as capable of evaluating information and understanding its impact on others. In contrast, social responsibility ($M = 3.38$) was slightly lower, pointing to a gap between awareness and a consistent sense of accountability. Notably, agency was the lowest among all indices ($M = 2.89$), indicating that participants felt less confident in their ability to take meaningful action or influence misinformation dynamics.

Figure 17: *Baseline Survey Overview*



Taken together, these findings highlight a critical imbalance: while adolescents demonstrate awareness, emotional engagement, and perceived evaluative ability, they feel less empowered to translate these capacities into action. This pattern suggests that misinformation engagement is shaped not only by what adolescents know or feel, but also by whether they perceive themselves as capable of intervening. These baseline results provide important context for the subsequent qualitative findings, which further explore how emotional, social, and relational factors influence adolescents’ responses to misinformation in practice.

Open-ended Responses

To complement the structured survey measures, participants were asked how they would respond to a scenario in which false information about a peer is shared within their school.

Table 12 summarizes participants' reported actions when encountering misinformation about a peer. Responses clustered into four primary categories: passive, investigative, supportive, and corrective. A notable portion of responses reflected passive strategies, such as ignoring or avoiding the situation, suggesting that disengagement is a common initial reaction. At the same time, many participants described investigative behaviors, including verifying information through external sources or consulting trusted individuals, indicating an awareness of the importance of accuracy. Supportive responses emphasized concern for the affected individual, such as checking on the victim or reporting the situation to an adult, while corrective actions involved actively challenging or correcting misinformation in social contexts.

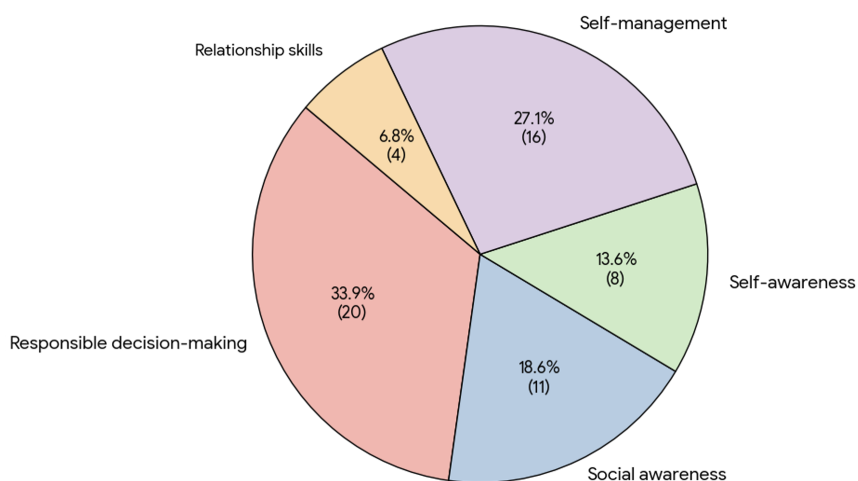
This distribution highlights a range of responses, from non-intervention to active engagement. Importantly, while participants demonstrated awareness of appropriate actions, particularly investigative and corrective strategies, the presence of passive responses suggests that such knowledge does not always translate into action. This pattern reflects a tension between knowing what to do and choosing to act, especially in socially sensitive situations.

Table 12: *Student Responses to Peer Misinformation*

Category	Typical Actions	Primary Reasoning
Passive Avoidance	Ignoring, scrolling past, blocking, or "doing nothing."	Avoiding personal involvement/drama; "not my business."
Verification	Fact-checking, searching Google, checking news, or asking adults.	Concern for legitimacy; skepticism of AI and rumors.
Victim Support	Checking on the victim, telling them about the rumor, involving a counselor.	Empathy for the person being harmed; mental health awareness.
Active Correction	Confronting the spreader, dispelling rumors, telling others the info is false.	Moral obligation to stop the spread of lies; protecting the community.

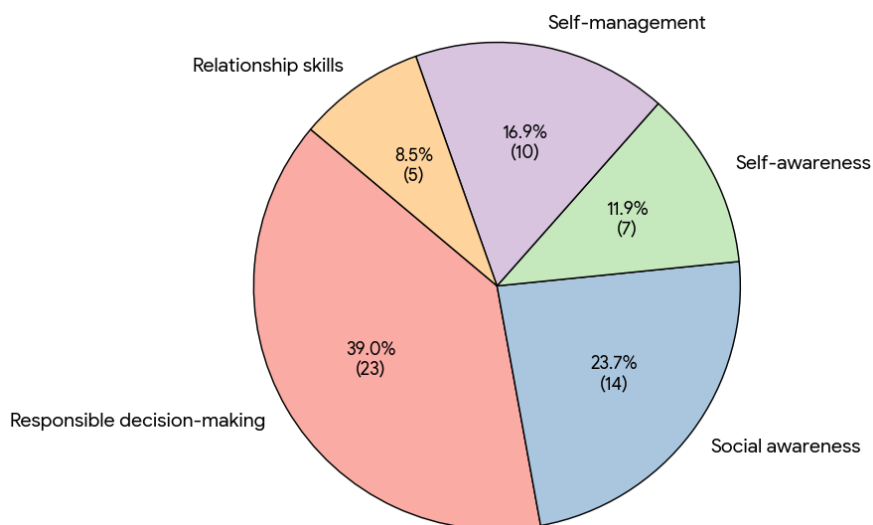
Participants were also asked to identify which SEL competencies they considered most important in addressing misinformation (Table 18). Responsible Decision-making was most frequently selected (33.9%), followed by Self-management (27.1%), highlighting a strong emphasis on individual judgment and emotional regulation. Social Awareness (18.6%) and Self-awareness (13.6%) were moderately represented. In contrast, Relationship Skills were least prioritized (6.8%). Overall, the pattern suggests that participants view misinformation response primarily as an individual decision-making process rather than an interpersonal one.

Figure 18: *Perceived Importance of SEL Competencies*



However, when asked which SEL competencies teenagers struggle with the most (Figure 19), a similar pattern emerged. Responsible Decision-making was again the most frequently selected (39.0%), followed by Social Awareness (23.7%). Self-management accounted for 16.9%, while Self-awareness (11.9%) and Relationship Skills (8.5%) were less frequently identified. Notably, the competencies perceived as most important were also those considered most difficult to enact, highlighting a gap between recognition and practice.

Figure 19: *Perceived Challenges in Applying SEL Competencies*



Taken together, these findings reveal a consistent gap between recognition and practice. Participants appear to understand that responsible decision-making and social awareness are central to addressing misinformation, yet they also acknowledge difficulty in applying these competencies in real-world contexts. When considered alongside the open-ended behavioral responses, this gap becomes more apparent. While some participants described corrective and supportive actions, others defaulted to passive or indirect strategies, suggesting that social, emotional, and relational factors may constrain action.

Overall, the open-ended responses reinforce a key pattern observed throughout the baseline data: adolescents demonstrate awareness of misinformation and its social implications, but their responses are shaped by contextual and interpersonal dynamics. These findings further support the need to move beyond purely cognitive approaches to misinformation education and consider how social-emotional competencies influence whether and how adolescents act upon their knowledge.

5.3.2. Overview of Teenagers' Experience Data

The Phase II analysis draws on a comprehensive qualitative dataset collected from 59 teenagers across 13 focus group sessions, following their participation in an SEL-based misinformation learning module. The module was designed as a structured, multi-stage learning experience integrating

gameplay, guided reflection, and group discussion. Data collection was intentionally multimodal to capture not only what participants said, but also how they expressed, enacted, and visualized their understanding of misinformation and its social-emotional dimensions.

The dataset comprises six distinct data sources: (1) focus group interviews, (2) gameplay observations, (3) individual written reflections, (4) role-playing activities, (5) community message artifacts, and (6) visual reflections. These sources offer complementary perspectives on participants' cognitive, emotional, and behavioral engagement with misinformation scenarios. This multimodal design enhances analytic depth through triangulation, enabling the analysis to trace how meaning-making unfolds across different forms of expression and interaction.

The analysis focuses on how participants experienced and made sense of misinformation within this structured learning context. Thematic analysis generated five themes, organized in relation to two research questions: RQ2, which examines how teenagers reflect on and express social-emotional learning (SEL) competencies in response to misinformation experiences; and RQ3, which identifies the forms of social awareness and responsibility that emerge through participation in the learning module.

What follows is an integrative narrative analysis that moves across these five themes, tracing how participants' understandings of misinformation are articulated, activated, and interpreted through the learning experience. Rather than treating cognition, emotion, and action as separate domains, the analysis highlights how these dimensions interact in shaping teenagers' responses to misinformation, revealing both the possibilities and limitations of SEL-based approaches.

Data Sources and Citation Structure

To ensure transparency and analytic traceability, all excerpts presented in the findings are cited using a structured notation system that identifies the participant, session, and data source. Each quotation is labeled in the following format:

(Participant ID, Session Number, Data Source Type)

For example, (T12, S3, FGI) refers to Teenager Participant 12, Session 3, Focus Group Interview.

The dataset includes the following data source types:

Table 13: *Overview of Qualitative Data Sources*

Code	Full Name	Description
FGI	Focus Group Interview	Focus group interviews conducted after the module; primary source of collective reflection and discussion
GP	Gameplay	Gameplay observations capturing real-time interactions and decision-making during the misinformation game
IR	Individual Reflection	Individual written reflections from the first stage of the debriefing board
RP	Role-Playing	Role-playing responses from the second stage of debriefing, including both reflective and reverse role-play
CM	Community Message	Community messages written to advise younger peers about misinformation
VR	Visual Reflection	Visual reflections (drawings) illustrating participants' interpretations and key takeaways

This structured citation system enables the analysis to move systematically across different layers of data while maintaining clarity about the origin and context of each excerpt. It also strengthens methodological rigor by demonstrating how interpretations are grounded in multiple forms of participant expression, extending beyond verbal accounts to include enacted, written, and visual forms of meaning-making.

5.3.3. Theme 1. Teenagers' Understanding of Misinformation and Its Harms

Theme 1 examines how teenagers made sense of misinformation after participating in the learning module. Across gameplay, debriefing, role-play, visual reflection, and focus group discussion, teenagers did not describe misinformation only as false or incorrect information. Instead, they connected it to everyday digital life: rumors, social sharing, AI-generated content, peer influence,

family conversations, and uncertainty about what is real. Their accounts show a layered understanding of misinformation as something that can begin with falsehood, but becomes harmful through circulation, interpretation, trust, and social consequence. This theme provides the foundation for the Phase II findings by showing how teenagers first understood misinformation before the analysis turns to how SEL processes were activated through their experiences.

1.1 Defining Misinformation in Everyday Terms

Through gameplay, reflection, and discussion, teenagers explained misinformation in their own everyday language. Their responses did not produce one fixed definition. Instead, they showed a layered understanding that moved from simple descriptions of false information toward more complex explanations involving sharing, context, partial truth, and relational harm.

At the most basic level, many teenagers described misinformation as false or harmful content. Some defined it as “harmful” (T10, Session 3, FGI), something that “can affect a lot of people” (T13, Session 3, FGI), or as “damaging and widespread” (T16, Session 4, FGI). Another teenager defined it simply as “lies” (T18, Session 4, FGI). These responses show that teenagers entered the discussion with a general understanding that misinformation involves falsehood and harm. However, these initial definitions did not always explain how misinformation spreads, why people believe it, or how it affects relationships.

As the discussion developed, teenagers began to describe misinformation less as a static piece of false content and more as something that becomes harmful through everyday sharing. Several participants emphasized that misinformation can circulate even when people do not intend to deceive others. One teenager described it as “someone accidentally sharing something that isn’t true as a joke, and it just gets worse” (T5, Session 2, FGI). Another explained it as “a rumor taken a step too far... spreading that without even trying to check if it’s misinformation” (T8, Session 2, FGI). Similarly, one teenager noted that misinformation happens “when you intentionally or unintentionally spread false information, and it reaches a lot of people and affects them” (T13, Session 3, FGI). These descriptions shift attention from the original false claim to the social process of circulation. For these teenagers, misinformation becomes harmful not only because it is inaccurate, but because

people pass it along without checking.

Some teenagers also moved beyond a simple true-or-false understanding and emphasized the importance of context. One teenager explained that misinformation can be “incorrect information or information with not enough... backstory... it could be right, but just not in the right context” (T21, Session 5, FGI). Another similarly stated that misinformation “depends on the context and how it’s used” (T22, Session 5, FGI). This more complex understanding was especially clear when one participant described misinformation as:

“Fragments of true information, surrounded by a lot of inferences from people who heard it all along the way that negatively impacts people.” (T19, Session 5, FGI)

This quote shows that teenagers recognized misinformation as something that can be built from partial truths, missing context, and added assumptions. In this view, misinformation is not always completely false from the beginning. It can become misleading as people interpret it, repeat it, or attach new meanings to it. This matters because it suggests that teenagers were beginning to understand misinformation as a process, not only as a category of false content.

Finally, several teenagers described misinformation as a relational problem. One participant stated this directly: “For me, misinformation is a relational problem” (T20, Session 5, FGI). Others explained misinformation through its effects on people and communities. For example, one teenager described it as “harmful and dangerous, especially when it’s weaponized against a certain community” (T21, Session 5, FGI). Another explained that misinformation can spread beyond control, especially “if a rumor is being spread about a certain person” (T22, Session 5, FGI). One teenager described the harm in direct relational terms:

“That misinformation is spread by other people, but not them, and it harms them, and they don’t really want to hear about that sort of thing.” (T23, Session 5, FGI)

These responses show that teenagers did not understand misinformation only as inaccurate information. They also recognized it as something that can damage trust, reputation, relationships, and

communities. This relational understanding is important for the broader argument of this study because it connects teenagers' definitions of misinformation to the need for SEL. If misinformation is experienced as something that affects people and relationships, then misinformation education should also help teenagers consider emotion, empathy, responsibility, and social consequence.

Overall, teenagers conceptualized misinformation in multiple and connected ways. They began with definitions centered on falsehood and harm, but their explanations expanded to include unverified sharing, missing context, partial truths, rumors, and relational impact. This layered understanding provides the foundation for the following sections, which examine how teenagers understood the spread, amplification, and social consequences of misinformation.

1.2 Perceived Dynamics of Spread

Whereas the previous section examined how teenagers understood what misinformation is, this section examines how they understood how it spreads. Across the sessions, teenagers described misinformation as fast-moving, wide-reaching, difficult to control, and shaped by both social and technological systems. Their responses suggest that misinformation was not seen as a single false message moving from one person to another. Rather, teenagers understood it as a process that grows through repeated sharing, social networks, group dynamics, and platform visibility.

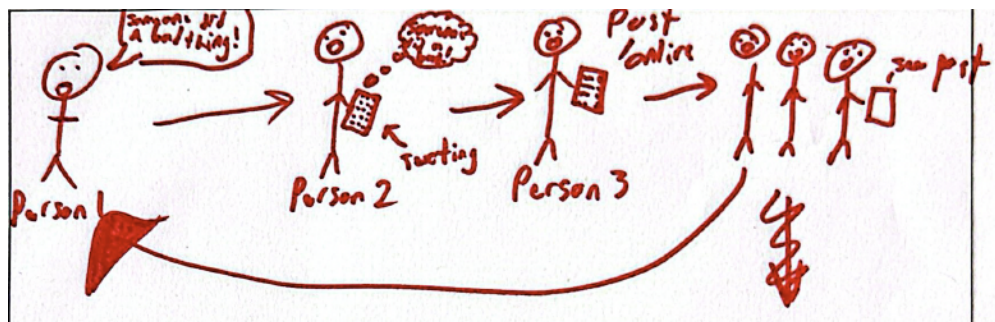
A common pattern was surprise at the scale of online spread. Several teenagers reflected that they had not fully realized how far one post could travel. One participant explained, "I did not realize that when something is shared online, it can reach thousands or even millions of people" (T33, Session 8, FGI). Another noted that the size of the audience may not be clear at the moment of posting: "Before you post it, it's hard to tell how many people can see it, but once you do, you realize that the numbers are added" (T48, Session 11, FGI). These reflections show that the consequences of sharing are often invisible at first. Teenagers may experience posting as a small action, but once the content circulates, its reach can become much larger than expected.

Teenagers also emphasized the speed and escalation of misinformation. One participant stated that misinformation "can spread incredibly quickly and incredibly far, and actually ruin people's life"

(T6, Session 2, FGI). Another described how misinformation can move “from a little nothingness to something that’s really impactful,” adding that “things can snowball so quickly” (T21, Session 5, FGI). The snowball metaphor shows that teenagers understood misinformation as cumulative. A small post, joke, rumor, or misunderstanding can grow as more people react to it, add meaning to it, and pass it along. The same participant compared this process to “a game of telephone” (T21, Session 5, FGI), suggesting that misinformation not only spreads but also changes as it moves from person to person.

Some teenagers described this spread as a repeating cycle. In one visual reflection, a teenager represented misinformation as a chain of repeated transmission:

Figure 20: *Cyclical Spread of Misinformation*



“Person 1 tells person 2, person 2 texts person 3, person 3 posts, person 4 sees it and becomes person 1, and the cycle repeats.” (T22, Session 5, VR)

This description shows how teenagers understood misinformation as self-renewing. Each person who receives misinformation can become a new starting point for further spread. This is important because it shifts responsibility from only the original creator to everyone who participates in circulation. Even someone who simply forwards, reposts, or repeats information can become part of the spread.

Teenagers also recognized that correction often comes too late. One visual reflection described a sequence in which a misleading post is shared to millions of people, the targeted person receives hate and threats, and their attempt to clarify is “overshadowed” as the situation escalates further

(T3, Session 1, VR). This sequence shows that teenagers understood misinformation as difficult to reverse once it gains attention. Clarification may not travel as far or as quickly as the original misinformation. This insight argues that it helps explain why responsible decision-making needs to happen before sharing, not only after harm occurs.

Participants also connected spread to group dynamics. One teenager explained that “when you are in a group of people,” misinformation “spreads really fast,” and people may form opinions that are not well informed (T26, Session 6, FGI). Another noted that something can “start small and grow really quickly, even if the person didn’t mean for anything to happen” (T49, Session 11, FGI). These comments show that teenagers understood misinformation spread as both social and unintended. Harm can occur even when the original action was not meant to cause damage. A joke, rumor, or casual share can become serious once it enters a larger network.

Overall, teenagers understood misinformation spread as a multidimensional process involving reach, speed, repetition, escalation, and social influence. They recognized that small actions can create large consequences and that misinformation can become difficult to stop once it circulates through networks. As one teenager summarized, “Spreading information will always have an impact... anything you do has an effect on other people” (T17, Session 4, FGI). This understanding extends the previous section by showing that teenagers did not only define misinformation as false or harmful content; they also saw it as something that moves through social systems in ways that are difficult to predict, control, or repair.

1.3 AI as a Misinformation Amplifier

Across the sessions, teenagers consistently described AI as intensifying the misinformation problem. They did not treat AI as separate from misinformation. Instead, they described it as something that makes misinformation more realistic, easier to produce, harder to detect, and more difficult to trust. In this sense, AI was understood as an amplifier: it increases both the believability of false content and the uncertainty teenagers feel when trying to decide what is real.

A central concern was the increasing realism of AI-generated content. Several teenagers described

AI as reaching a point where ordinary visual or audio cues are no longer enough to identify what is fake. One teenager explained:

“It’s getting really realistic... I think it’s really freaky how Instagram has been translating my reels from English to Portuguese. It sounds exactly like the original person’s voice.” (T1, Session 1, FGI)

This quote shows that teenagers noticed AI not only in dramatic examples such as deepfakes, but also in everyday platform features such as translated videos and voice reproduction. Their concern was not simply that AI creates false content, but that it can make altered content feel natural and believable. For teenagers, this realism creates uncertainty because the usual signs of authenticity, such as voice, image, tone, or style, may no longer be reliable.

For some teenagers, this shift led to a loss of confidence in their own ability to distinguish real from fake. One participant stated:

“I used to be able to differentiate, but now it’s getting kind of hard... you never know what’s real or not anymore.” (T47, Session 11, FGI)

This reflection showed that AI changes the experience of misinformation detection. The issue is not only that teenagers need better fact-checking skills. Rather, AI makes the act of judging authenticity feel less stable. Teenagers may still try to evaluate content, but they also recognize that their confidence can be undermined when AI-generated content becomes increasingly realistic.

This concern also appeared in predictions about the future. One teenager explained:

“As AI gets better and better, it gets more indistinguishable... it’s almost impossible to tell.” (T18, Session 4, FGI)

This statement suggests that teenagers saw AI misinformation as an escalating problem. They understood that detection may become harder over time, not easier. This matters for misinformation education because it suggests that teaching students only to look for visible signs of manipulation

may not be enough. If AI-generated content becomes increasingly difficult to detect on sight, students need broader strategies, including source-checking, context-checking, emotional awareness, and responsible caution before sharing.

Teenagers also connected AI to the speed and scale of misinformation production. One participant noted:

“AI can do crazy content in shorts... it can affect how everyone sees misinformation... even politics.” (T2, Session 1, FGI)

In this context, AI was understood as a tool that can rapidly generate persuasive content and influence public understanding. This expands teenagers’ concern from individual deception to broader social consequences. AI does not only make one fake image or video more believable; it can increase the amount of misleading content circulating in social media and political spaces. This reinforces the idea that AI amplifies misinformation structurally by increasing both production and reach.

At the same time, teenagers did not express only fear or rejection of AI. Their views were mixed, but cautious. One participant captured this tension clearly:

“It’s great... it makes things faster... but it also makes us dumb... and deepfakes can ruin people’s lives.” (T27, Session 6, FGI)

This quote shows that teenagers recognized both the usefulness and danger of AI. They understood that AI can make tasks easier and faster, but they also worried that it may reduce critical thinking or create serious harm through deepfakes. This mixed view avoids framing teenagers as simply anti-AI or blindly trusting AI. Instead, they were trying to make sense of a tool that is helpful, powerful, and risky at the same time.

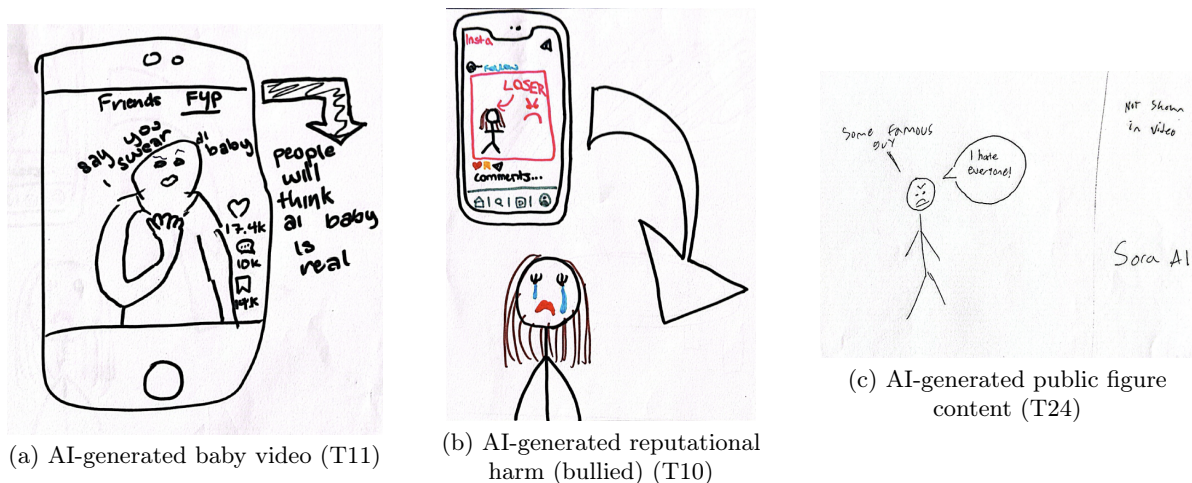
Teenagers also recognized that AI complicates judgments of authenticity beyond misinformation production itself. One participant described being falsely accused of using AI:

“I got told my essay was 100% AI-generated, even though I worked on it all night.” (T34,

This example shows that AI creates uncertainty not only about whether content is fake, but also about whether genuine work will be trusted. In this way, AI affects the broader trust environment. People may distrust real content because it could be AI-generated, while also believing AI-generated content because it appears realistic. This double problem makes misinformation education more complex because students need to evaluate not only content, but also the systems and assumptions used to judge authenticity.

This uncertainty also appeared in participants' visual reflections, where teenagers depicted AI-generated animals, AI-altered images, and AI-generated public figures as realistic, difficult to verify, and potentially harmful. These drawings show that teenagers' concerns about AI were not limited to abstract discussion. They could visually represent how AI-generated content enters everyday information environments, creates confusion, and produces reputational or social harm.

Figure 21: *Visual Reflections on AI-Generated Misinformation*



Overall, teenagers understood AI as an amplifier of misinformation because it increases realism, reduces detectability, accelerates content production, and weakens trust in both digital content and human judgment. Their reflections suggest that AI-related misinformation education should not focus only on detecting fake images or videos. It should also help teenagers ask where content comes

from, why it was created, how it makes them feel, who may be harmed, and whether they should trust or share it. This connects AI literacy directly to SEL-based misinformation education: as AI makes misinformation harder to recognize, teenagers need stronger habits of pausing, questioning, reflecting, and making responsible decisions.

1.4 Moral Reasoning Across Situations

Teenagers' understanding of misinformation was not limited to defining misinformation or identifying how it spreads. They also showed moral reasoning about when misinformation becomes harmful, when it should be challenged, and why responsible responses may be difficult in real social situations. Across focus groups, role-play scenarios, and individual reflections, participants often knew what the responsible choice should be: pause, verify, think before sharing, consider consequences, and avoid harming others. However, their reasoning shifted depending on the situation. Misinformation was judged differently when it involved humor, dislike, peer attention, entertainment, social discomfort, or uncertainty.

A first pattern was that teenagers could clearly articulate responsible behavior in abstract terms. When asked what they would do differently after experiencing or observing misinformation, participants repeatedly emphasized the need to slow down and think before acting. One participant said, "Think before I speak" (T48, Session 11, FGI). Another described the need for "a lot of thinking before you share — being more skeptical" (T47, Session 11, FGI). A third participant explained, "Instead of thinking about what I feel like doing, like sharing my own opinions, I should think about what might happen if I share my own opinions because it could lead to a bigger consequence than it needs to be" (T35, Session 8, FGI). These comments show that teenagers were not unaware of ethical responsibility. They understood that misinformation can create consequences beyond the immediate moment of sharing.

The role-play activity made this moral reasoning more visible. When participants revisited the misinformation scenario from different positions, many reconsidered their actions. For example, one participant who played the sharer reflected, "I didn't really think when I shared it before, but now I would stop and realize it's not a good idea. Even if I think it's funny, I wouldn't send it to all my

friends” (T30, Session 7, RP). Another participant, speaking from the influencer role, explained, “I would not spread information just because it gets attention. I would think more carefully about how it affects others before sharing it” (T29, Session 7, RP). These responses suggest that structured reflection helped teenagers reason about responsibility more clearly. When given time to pause and consider another perspective, they could identify a more ethical response.

However, teenagers’ moral reasoning became more complicated when misinformation was tied to stronger emotional or social motivations. Some participants acknowledged that knowing something was false or harmful would not necessarily stop them from sharing it. In one role-play response, a participant playing the disinformation producer stated:

“I knew the information was not true, but I still shared it because I disliked the person and wanted to bring them down. It felt exciting to spread it.” (T15, Session 4, RP)

This response explained that lacking knowledge is not a case. The participant knew the information was false and understood that the action was harmful. Yet dislike, excitement, and the desire to hurt someone became stronger than responsible judgment. In this situation, moral reasoning was present, but it was overridden by emotional reward.

Another participant expressed this tension even more directly:

“Even knowing the consequences, I might still go further because I think it’s funny. I understand that it hurts Britta, but I feel like I’m doing it for entertainment, so I might not change my behavior.” (T30, Session 7, RP)

This quote captures a central finding: teenagers could recognize harm and still imagine choosing entertainment, excitement, or social reward over responsibility. This does not mean they lacked moral awareness. Rather, it shows that moral reasoning was situational. What teenagers saw as responsible in one context could become harder to follow when misinformation became funny, socially rewarding, or emotionally satisfying.

Peer pressure and social identity also shaped how teenagers reasoned about responsibility. In some

cases, participants described knowing that they should respond, correct, or speak up, but feeling constrained by the social situation. One participant described staying silent when a false claim surfaced at a friend's house because intervening felt socially risky: "I stayed quiet, because I was in the kind of situation, and it's kind of lose it, I guess" (T28, Session 7, IR). This response suggests that moral reasoning was not only about deciding whether information was true or false. It also involved judging whether speaking up was socially safe, whether correction might create conflict, and whether maintaining belonging mattered more in that moment.

Teenagers also recognized that misinformation often spreads through group dynamics rather than isolated individual choices. T57 explained, "I feel like teenagers are kind of dramatic, and they'll exaggerate things. It's like a game of telephone — it gets more exaggerated every time" (T57, Session 13, IR). This image of the telephone game shows how misinformation can grow through small social actions. Each person may repeat, add to, or slightly change information without treating it as a major ethical decision. In this context, responsibility becomes distributed across the group, which may make individual agency harder to recognize.

Taken together, these findings show that teenagers' moral reasoning about misinformation was context-dependent. They often knew that they should pause, verify, avoid harm, and think about consequences. However, their reasoning changed when misinformation was connected to humor, dislike, entertainment, peer pressure, uncertainty, or the desire to avoid conflict. This finding complicates the assumption that awareness of misinformation harms automatically leads to responsible response. Teenagers were able to identify what was right, but they were less consistent in imagining how they would act when competing social and emotional motivations were present.

1.5 Family and Intergenerational Contexts

Through reflection and discussion, teenagers described misinformation as something that also appears within family and intergenerational relationships. Rather than focusing only on peers, influencers, or anonymous online sources, participants connected misinformation to experiences with parents, grandparents, household conversations, and early exposure to digital technologies. These examples show that misinformation is not only encountered in public digital spaces. It also moves

through the home, where trust, authority, care, digital familiarity, and adult guidance shape how people interpret and respond to information.

A recurring pattern was teenagers' perception that older family members were more vulnerable to misinformation, especially AI-generated content. One teenager described several examples within their family:

“When my mom saw videos of animals that were AI and thought they were real, I tried to tell her it was fake. . . My dad and grandma have also been deceived by AI multiple times, and my dad even bought things because of it.” (T4, Session 1, IR)

This quote shows how misinformation can create real consequences within families, including confusion, misplaced trust, and financial risk. It also shows how teenagers sometimes take on a corrective role. In this case, the teenager positioned themselves as someone who could recognize AI-generated content and explain it to older family members. This suggests a shift in digital authority within the household, where young people may feel more confident than adults in identifying certain forms of online misinformation.

Other teenagers described more serious risks, including scams that used family relationships to create fear and urgency. One teenager recalled a voice-cloning scam involving their grandparents:

“My grandparents picked up the phone one time, and someone sounded exactly like me. . . saying I was kidnapped and needed money. . . They were close to falling for it.”
(T7, Session 2, FGI)

This example shows how AI-related misinformation can exploit emotional closeness. The scam was persuasive not only because of the technology, but because it used the bond between grandparent and grandchild. In this context, misinformation becomes difficult to treat as only a technical or informational problem. It activates fear, care, urgency, and responsibility within close relationships.

Teenagers also described correcting parents or grandparents when they believed misinformation. One teenager explained:

“One time my parents were fooled by a deepfake AI video, and I had to tell them it wasn’t real.” (T12, Session 3, IR)

This quote illustrates the role reversal that can occur around digital literacy. Adults often hold authority in the family, but teenagers may see themselves as more capable of recognizing digital deception. However, this corrective role is not only informational. Teenagers are also negotiating how to challenge, guide, or protect family members respectfully.

At the same time, families were not described only as sites of vulnerability. Teenagers also described them as important spaces for protection and early learning. Some participants explained that parental guidance shaped their own caution online:

“My parents drilled into me very young the dangers, which taught me to be careful about what I did online.” (T7, Session 2, FGI)

This quote shows that family influence can support digital responsibility. Parents and caregivers can help teenagers develop habits of caution, skepticism, and responsible online behavior. Another participant warned about the opposite situation:

“If you give a kid unrestricted internet access and don’t tell them anything, they’re gonna go and say their address online or something.” (T8, Session 2, FGI)

This statement highlights the importance of guidance. Teenagers recognized that digital safety and misinformation awareness are learned through social support. Without adult guidance, younger children may not understand what information should be questioned, protected, or kept private.

Importantly, some teenagers also pushed back against deficit-based narratives that blame young people for being overly dependent on technology. Rather than describing “iPad kids” as simply irresponsible or addicted, participants situated early digital exposure within family routines, adult decisions, and broader social conditions. One participant reflected:

“I’m technically an iPad kid. When parents are busy, it is easy to give kids an iPad, so

we grow up with technology from a young age. But kids did not design social media or choose to be placed in this digital world. Adults put us here, and now they blame us for the problems. That feels unfair.” (T7, Session 2, FGI)

This reflection complicates the idea that teenagers are simply the source of digital problems. The participant did not reject responsibility altogether, but questioned why young people are often blamed for behaviors and risks that developed within environments created by adults, families, platforms, and technology companies. In this sense, teenagers understood their relationship with digital media as structurally shaped, not purely individual. They recognized that they had grown up with technology, but also that they did not design the platforms, norms, or attention systems that now shape their online lives.

Teenagers also recognized that misinformation can move from family spaces into peer networks. One participant described an everyday example:

“My mom told me a friend was moving to Texas, and I told another friend... but later I found out it wasn’t true.” (T48, Session 11, IR)

This example shows that misinformation does not always begin with strangers, malicious actors, or social media influencers. It can also begin in ordinary family conversation and spread through everyday trust. In this way, family relationships can become part of misinformation circulation, even without harmful intent.

Overall, teenagers’ reflections show that family and intergenerational contexts are important parts of the misinformation ecology. Families can be sites of vulnerability, guidance, correction, emotional concern, early digital exposure, and everyday circulation. Differences in age, digital familiarity, authority, and trust shape who is seen as vulnerable and who is seen as responsible for helping. At the same time, the “iPad kid” reflection shows that teenagers also questioned the fairness of blaming young people for digital problems that adults and society helped create. This finding suggests that misinformation education should not treat teenagers as isolated digital actors or as the primary problem to be fixed. They are also members of families and generations where misinformation is

encountered, discussed, corrected, inherited, and emotionally experienced.

5.3.4. Theme 2. SEL Activation in Misinformation Contexts

While Theme 1 examined how teenagers understood misinformation, Theme 2 focuses on how social-emotional learning (SEL) processes were activated as teenagers engaged with misinformation scenarios during the learning module. Across gameplay, reflection, role-play, community messages, and discussion, teenagers did not describe SEL as an abstract set of competencies. Instead, SEL appeared through their responses: they noticed emotional reactions, imagined other people's perspectives, recognized social consequences, and began to consider their own responsibility and agency. In this theme, SEL is understood as something activated through experience. As teenagers encountered realistic misinformation situations, they began to connect what misinformation is with how it feels, who it affects, and what choices people can make in response.

2.1 Emotional Awareness and Affective Triggers

This section examines how misinformation activated teenagers' emotional responses during the SEL-based learning module. Rather than describing misinformation only as false or inaccurate information, teenagers described it as something that could feel personal, unfair, painful, and socially disruptive. Their responses included betrayal, helplessness, hurt, confusion, fear, anger, and concern. These emotions served as affective triggers: they helped teenagers recognize that misinformation has human consequences and created an entry point for later reflection on empathy, responsibility, and agency.

A first pattern was that teenagers experienced misinformation as relational harm. In these moments, the problem was not only that the information was false, but that it damaged trust, reputation, and belonging. One teenager recalled:

“One time, [redacted] told everyone I had prostate cancer, which wasn't true. I felt really betrayed and overwhelmed. It made me feel like my trust and loyalty were broken.” (T3, Session 1, IR)

This reflection shows how misinformation can trigger emotional responses because it disrupts rela-

tionships. The participant did not simply describe the rumor as incorrect. They described broken trust and loyalty, suggesting that misinformation can change how teenagers experience their social world. Another teenager described a similar loss of control after being falsely accused: “I felt helpless when I was falsely accused of something I didn’t do . . . it spread through my friend group . . . I became the victim” (T20, Session 5, IR). In this case, misinformation became emotionally powerful because it moved through a peer network and changed the participant’s social position.

A second pattern was that teenagers connected emotional responses to unfairness and harm toward vulnerable people. For example, one participant described being targeted through PayPal scams after making art for others:

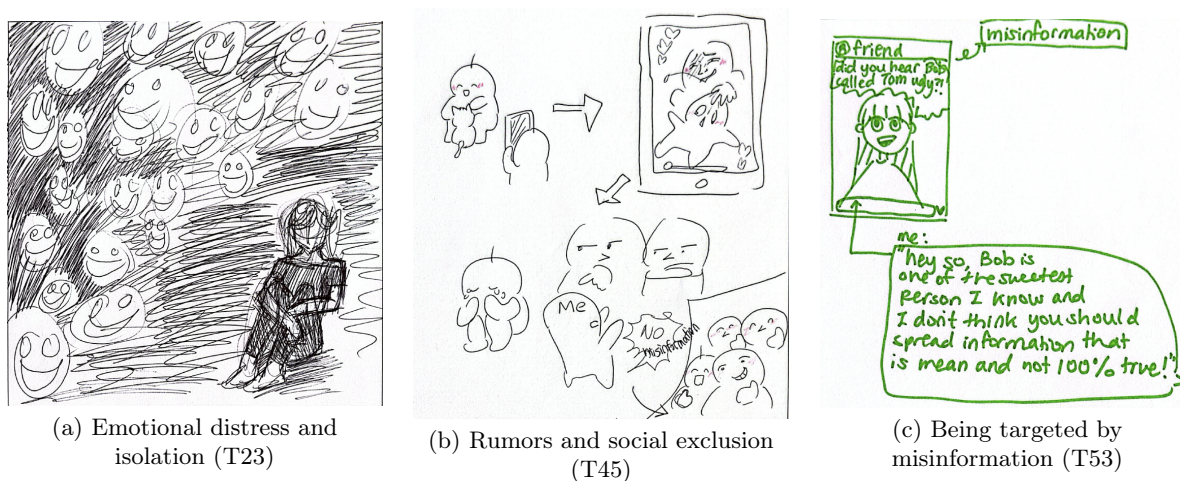
“When people asked me to make art for them, it turned out to be PayPal scams . . . I felt really upset because it targets small artists, which feels really unfair and kind of evil.”

(T2, Session 1, IR)

This quote shows that affective triggers were not limited to personal embarrassment or sadness. Teenagers also reacted emotionally when they perceived exploitation, unfairness, or harm to others. The participant’s feeling of being upset came from recognizing that scams target people who may already be vulnerable, such as small artists. This emotional response became a foundation for broader social awareness because it connected misinformation to fairness, harm, and responsibility.

These emotional patterns also appeared in visual reflections. Teenagers represented misinformation as producing isolation, distress, exclusion, and social breakdown. Rather than depicting misinformation only as a false post or incorrect statement, their visuals showed people being hurt, overwhelmed, or separated from others. These artifacts suggest that teenagers understood misinformation through its emotional and relational consequences, not only through its factual status.

Figure 22: *Visual Reflections on the Emotional Impact of Misinformation*



Role-play also activated emotional awareness by asking teenagers to imagine misinformation from positions they had not personally occupied. One participant, speaking from the role of someone targeted by misinformation, stated:

“I felt confused, hurt, and helpless... I didn’t understand why people were sharing things about me that weren’t true.” (T34, Session 8, RP)

Although this response came from a simulated scenario, it closely echoed the emotions described by participants who had experienced misinformation directly. This suggests that role-play helped make emotional consequences more concrete. It allowed teenagers to feel or imagine the harm of misinformation before moving into more explicit reflection on empathy, perspective-taking, or responsibility.

Overall, emotional awareness functioned as the first layer of SEL activation in the module. Teenagers’ feelings of betrayal, helplessness, unfairness, confusion, and concern helped them understand misinformation as a human and relational issue. These emotions did not yet constitute self-awareness in the full CASEL sense. Rather, they created the affective conditions for later self-awareness by helping teenagers notice that misinformation affects people emotionally, socially, and relationally.

2.2 Empathy as Relational Understanding

Building on these emotional responses, this section examines how empathy helped teenagers turn emotional awareness outward. Teenagers described empathy not only as feeling bad for someone, but as a way of understanding people, intentions, and consequences in misinformation contexts. Empathy helped them ask who might be harmed, why someone may have shared misinformation, and how online actions could affect real people. In this sense, empathy functioned as a relational lens. It helped teenagers move from seeing misinformation as content to seeing it as something that happens among people.

A first pattern was that teenagers often described empathy through its absence in online spaces. Several participants noted that digital environments can make people feel distant or less real. One participant explained:

“People are so disconnected from what they see that they disconnect themselves from the humanities aspect of it. I kind of feel like we all forget there were, like, people online, too. We’re so disconnected from everything that we see online that it’s hard to remember that everyone there is a person who exists in your day-to-day life.” (T7, Session 2, FGI)

This quote shows why empathy can be difficult in misinformation contexts. Online, people may appear as usernames, images, comments, or content rather than as full human beings. When this happens, misinformation can be shared, mocked, or repeated without fully considering the person affected. Another participant described a similar concern, saying that people are “missing . . . empathy” and may be “losing the ability to sort of care for other people” (T30, Session 7, FGI). These reflections suggest that teenagers saw misinformation as connected to a broader weakening of care and human recognition in digital spaces.

A second pattern was that empathy helped teenagers interpret the intentions of people who share misinformation. This was especially important when misinformation was shared unintentionally. One participant explained empathy as “being able to understand why people sent that,” including

whether they were misinformed themselves or thought it would be funny (T21, Session 5, FGI). This does not excuse misinformation, but it shows that teenagers were beginning to distinguish between harmful consequences and malicious intent. Empathy allowed them to see that misinformation can be shaped by confusion, mistakes, humor, pressure, or poor judgment rather than only by bad character.

Reverse role-play further supported this interpretation of others' actions. By occupying a role different from their own, teenagers were able to imagine why someone might participate in misinformation without intending to cause harm. One participant connected this directly to empathy:

"I would connect it to when we were doing the role-playing part, and we did it in reverse [...] that he would forgive all the people who put out that information, because it was just a mistake. I think empathy has a lot to do with understanding that they didn't do it maliciously, and that they just kind of made a mistake in the moment." (T25, Session 6, FGI)

This response shows how reverse role-play helped empathy become more than sympathy for the victim. By taking another position in the misinformation scenario, the participant interpreted the sharer's intention more carefully. The participant did not deny that misinformation caused harm, but distinguished between harmful consequences and malicious intent. This distinction shows empathy as relational understanding: the ability to see misinformation spread as shaped by mistakes, confusion, humor, pressure, or poor judgment, rather than only by bad character.

Finally, teenagers connected empathy to consequence. One participant explained:

"Empathy for me is like understanding the consequences of my actions and what I say and how that can affect... the real world." (T30, Session 7, FGI)

This quote shows that empathy helped teenagers connect online behavior to real-world effects. The participant understood empathy not only as caring about others in general, but as recognizing that words and actions can affect real people. In this way, empathy became a relational check on action.

It helped teenagers imagine harm before participating in it.

Overall, teenagers understood empathy as a way of making misinformation socially and morally understandable. Empathy helped them recognize people behind online content, interpret why others might share misinformation, and connect online behavior to real-world consequences. This finding shows that empathy was not simply an emotional response. It was a relational lens that helped teenagers move from asking whether information was false to asking who was involved, why it happened, and how people were affected.

2.3 Perspective-Taking and Emerging Social Responsibility

Building on the empathy described in the previous section, this section examines how perspective-taking helped teenagers develop a stronger sense of social responsibility in misinformation contexts. The key finding is that teenagers did not only learn that misinformation can harm others. Through role-play, reflection, and community messages, some participants began to recognize that they themselves could be involved in creating, sharing, amplifying, correcting, or repairing misinformation. In this sense, perspective-taking supported a shift from seeing misinformation harm as something that happens to others toward recognizing one's own possible role in that harm.

A first pattern was that teenagers connected responsibility to the consequences of online action. One participant summarized this clearly in a community message:

“Be responsible for what you do on the internet + know the consequences of your actions.” (T3, Session 1, CM)

This statement shows that responsibility involved more than general awareness. The participant connected responsibility to one's own behavior online. Misinformation was not framed only as a false claim that someone else creates or believes, but as something that can become harmful through everyday actions such as posting, sharing, commenting, or forwarding. This reflects an important movement from consequence awareness to social responsibility: teenagers began to recognize that digital actions carry obligations because they affect other people.

A second pattern was that teenagers described responsibility as preventing themselves from becoming part of the spread. One participant explained:

“I feel like if you could do something better, like validate sources. . . you don’t want to be a person that’s spreading it, even if you don’t know. . . it’s like a moral responsibility.”
(T37, Session 9, FGI)

This quote presents that the participant recognized that harm can occur even without malicious intent. Not knowing that something is false does not fully remove responsibility if one had the opportunity to check. The phrase “you don’t want to be a person that’s spreading it” shows a self-implicating form of responsibility. The participant was not only concerned about misinformation as a social problem; they were considering how they might personally contribute to it. This suggests that perspective-taking can expand from imagining another person’s experience to examining one’s own role in the circulation of harm.

Role-play provided some of the clearest examples of this shift. By occupying different positions in a misinformation scenario, teenagers were asked to consider not only how a victim might feel, but also what the sharer, producer, bystander, or influencer might do differently. After reflecting on the consequences of creating an AI-generated image, one participant stated:

“I’m never making an AI image like this again. I feel guilty.” (T4, Session 1, RP)

This response shows responsibility as both emotional and behavioral. The participant felt guilt, but the more important finding is that guilt was connected to a future commitment. Perspective-taking helped the participant recognize that creating misinformation was not harmless entertainment; it was an action with consequences for another person. In another role-play response, a participant described a sequence of verification and restraint: “I saw the video, but then I found out it was AI-generated and didn’t actually happen—so I’m not sharing it” (T3, Session 1, RP). Here, responsibility appeared as the decision to interrupt the spread before further harm occurred.

Some teenagers extended responsibility beyond their own behavior to include intervention with

others. One participant explained:

“Knowing how easily this could spread beyond the group chat and harm the victim, I would not share it. I would also tell the (misinformation) producer not to create or use the image.” (T27, Session 6, RP)

This quote shows a broader form of social responsibility. The participant did not only decide not to share the misinformation personally; they also imagined speaking to the producer to prevent further harm. This matters because it shows movement from individual restraint toward social accountability. The participant recognized that misinformation is not only a personal choice but a networked social action. Responsibility therefore included both managing one’s own behavior and responding to the actions of others.

Teenagers also described responsibility after misinformation had already been shared. In these cases, responsibility meant acknowledging the mistake and trying to repair the harm. A visual reflection described a sequence in which a person notices that information is not true, “takes responsibility,” and tells everyone the truth (T33, Session 8, VR). This example shows that responsibility does not end once a mistake happens. It can also involve correction, clarification, and repair.

Finally, teenagers recognized that misinformation is difficult to undo once it spreads. One participant wrote:

“Misinformation can be harmful to everyone involved and it can spread very quickly. You shouldn’t create it or spread it as once you do, you can’t undo it.” (T59, Session 13, CM)

This statement captures why social responsibility is especially important in digital environments. Because misinformation can spread quickly and persist beyond the original context, the most important moment for responsibility is often before posting, creating, or sharing. Once misinformation circulates, correction may be difficult and harm may already have occurred.

Overall, perspective-taking helped teenagers connect misinformation harm to their own possible

involvement. Participants did not only recognize that misinformation affects victims or communities; they also began to see themselves as potential sharers, producers, bystanders, correctors, or repairers. This shift from “others are affected” to “I may be involved” is central to the emergence of social responsibility in the data. It suggests that SEL-based misinformation education should not stop at helping teenagers feel empathy for those harmed. It should also help them recognize how their own digital choices can prevent, amplify, or repair harm.

2.4 Developing Agency Through Community-Oriented Action

Building on teenagers’ emerging sense of social responsibility, this section examines how the learning module supported a growing sense of agency through community-oriented action. In the data, agency did not appear simply as an individual skill or a fixed capacity. Rather, it appeared as a developing belief that teenagers could make choices that matter: they could pause before sharing, warn others, advise younger peers, and imagine themselves as contributors to a healthier digital community. In this sense, agency was strengthened when teenagers moved from recognizing harm to seeing themselves as people who could respond.

A first pattern was that teenagers described agency as the ability to make choices in misinformation situations. Rather than claiming that they could control the broader misinformation environment, they focused on what they could control: their attention, interpretation, emotional response, and decision to share or not share. One participant explained:

“If it’s free will, then it’s like... maybe. You can choose which information you want to choose. Or you can choose how you feel when other people choose.” (T38, Session 9, FGI)

This quote shows that agency began with recognizing choice. The participant did not describe agency as the ability to stop all misinformation, but as the ability to decide how to engage with information and how to respond when others make choices. This connects closely to SEL because self-awareness and self-management create the space for empowered action. Before teenagers can act responsibly, they need to recognize that they are not only passive recipients of digital content;

they have some control over how they interpret, react to, and participate in online situations.

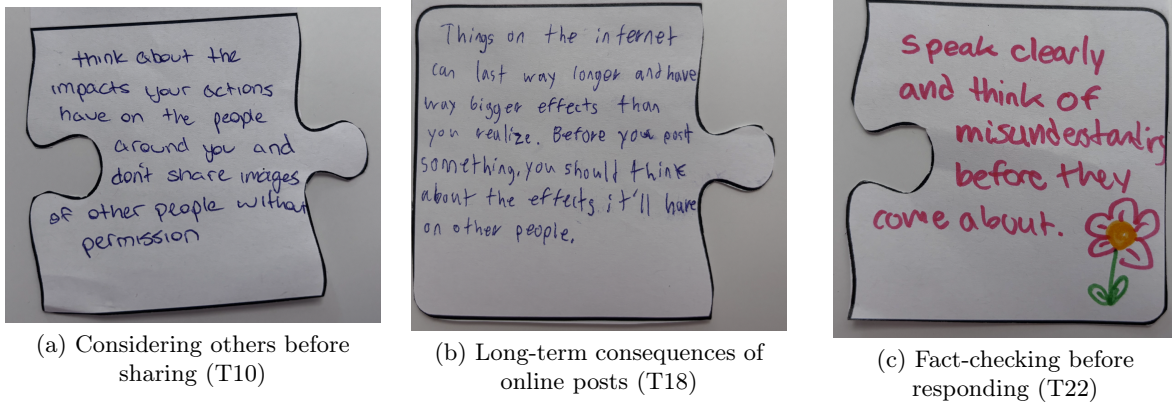
A second pattern was that teenagers understood agency as the motivation to act when misinformation causes harm. One participant defined agency as:

“How much drive or determination you have to do something... how quickly you might act upon... stopping the rumors or... thinking about everything.” (T50, Session 11, FGI)

This response adds an important action dimension. Agency is not only knowing what should be done; it also involves feeling capable and motivated to do it. In misinformation contexts, this may mean deciding whether to stop a rumor, question a post, support someone harmed, or think more carefully before responding. The phrase, “how quickly you might act”, highlights that misinformation often spreads rapidly. Agency therefore requires both reflection and readiness to respond.

Teenagers most clearly expressed this growing agency through the community messages created during the debriefing session. These messages asked participants to translate their learning into advice for others, including younger peers and wider digital communities. For example, one participant wrote, “Think about the impacts your actions have on the people around you and don’t share images of other people without permission” (T10, Session 2, CM). Another advised, “Things on the internet can last way longer and have way bigger effects than you realize. Before you post something, you should think about the effects it’ll have on other people” (T18, Session 3, CM). A third wrote, “Speak clearly and think of misunderstandings before they come about.” (T22, Session 5, CM). These messages show that teenagers were not only reflecting privately. They were positioning themselves as people who could advise others and contribute to shared norms for responsible digital behavior.

Figure 23: *Community Messages on Responsible Digital Action*



The community message took a role to shift teenager's position from learners to contributors. By offering advice to others, participants were invited to imagine that their reflections could matter beyond the immediate learning session. This supported agency because teenagers were not only asked what they had learned; they were asked what they wanted others to understand. In this way, the activity connected individual reflection to social contribution.

Some teenagers also framed misinformation as a collective problem. One participant explained:

"Like, the whole activity in general... I think misinformation... affects everyone... and it's something we should look down upon." (T20, Session 5, FGI)

This statement shows how agency can expand from individual choice to shared responsibility. If misinformation affects everyone, then responding to it is not only a personal decision but also a community concern. This shifts teenagers away from the idea that misinformation is someone else's problem. Instead, they begin to see themselves as part of a shared information environment where their choices can either contribute to harm or support a more responsible digital culture.

A final source of agency came from the certificate and take-home materials at the end of the module. These materials helped connect the learning experience to teenagers' real-world digital lives by recognizing their participation as meaningful and by framing responsible digital action as something they could continue beyond the session. The certificate did not simply mark completion of

an activity. It symbolically positioned teenagers as people capable of making ethical digital choices and contributing to their communities. In this way, the certificate helped extend the module's message beyond the game and debriefing session: teenagers' everyday online actions matter, and they have the capacity to act with care, responsibility, and awareness.

Teenagers also understood agency as something developed through learning, including mistakes. One participant explained:

“It’s like free will... being able to make bad decisions... and learn from it... agency is just the culmination of all the learning... even if that decision is not the right one.”
(T26, Session 6, FGI)

This quote shows the expression of agency as growth rather than perfection. Teenagers may not always make the right choice, but they can reflect on their choices and learn from them. This has important implications for misinformation education. If agency develops through experience, then learning activities should give teenagers opportunities to practice decision-making, make sense of consequences, and revise their responses in a safe environment.

Overall, teenagers' sense of agency emerged as a layered process. It began with recognizing choice, developed through motivation to act, and became most visible when teenagers created community messages and imagined their advice influencing others. The certificate and take-home materials further connected this agency to real-world digital responsibility by recognizing teenagers as capable ethical actors beyond the learning module. This progression connects the earlier parts of Theme 2: emotional awareness helped teenagers notice that misinformation matters, empathy helped them understand others, and perspective-taking helped them recognize their own involvement. Agency is where these SEL processes began to come together, helping teenagers see that they can contribute to more responsible digital communities.

5.3.5. Theme 3. Teenagers' Meaning-Making of SEL Competencies

Theme 3 examines how teenagers made sense of the five CASEL competencies within misinformation contexts. While Theme 2 showed how SEL processes were activated through emotional,

relational, and action-oriented experiences, this theme focuses on how teenagers interpreted specific SEL competencies in their own language. Across focus groups, individual reflections, role-play, and community messages, teenagers did not use CASEL terminology consistently. However, their responses showed recognizable patterns of self-awareness, self-management, social awareness, relationship skills, and responsible decision-making. These competencies became meaningful when teenagers connected them to concrete misinformation situations: noticing their own reactions, slowing down before sharing, thinking about victims, navigating peer trust, and deciding what to do when information is uncertain or harmful.

3.1 Self-Awareness

Self-awareness emerged in the teenager data not simply as feeling emotion, but as recognizing oneself within misinformation contexts. While Theme 2 showed that misinformation activated emotional responses, this section examines how teenagers made meaning of self-awareness as a reflective capacity: noticing their own feelings, questioning their judgment, recognizing their vulnerability to misinformation, and acknowledging that they could unintentionally participate in its spread. In this sense, self-awareness was not only about being emotionally affected by misinformation. It was about beginning to see oneself as an interpreter, believer, sharer, or possible contributor within the misinformation ecosystem.

A first form of self-awareness appeared when teenagers recognized how misinformation affected their own feelings and social position. Participants who had been personally targeted did not describe misinformation only as an external problem. They connected it to their own emotional experience, trust, reputation, and belonging. For example, one participant described a false health rumor as making them feel “betrayed and overwhelmed” and as breaking their “trust and loyalty” (T3, Session 1, IR). Another participant described feeling “helpless” after a false accusation spread through their friend group and positioned them as the victim (T20, Session 5, IR). These reflections show that teenagers could locate themselves emotionally within misinformation situations. However, the key point here is not only the emotion itself, but the participant’s recognition that misinformation shaped their own sense of safety, trust, and social identity.

A deeper form of self-awareness appeared when teenagers began to question their own judgment. Some participants recognized that they could be deceived by misinformation or AI-generated content. One participant reflected, “One time I saw an AI video and thought it was real. I felt surprised, and after that, I tried to be more careful about recognizing AI content” (T35, Session 8, IR). This response shows self-awareness as recognition of fallibility. The participant did not only identify AI misinformation as a general problem. They recognized that their own perception could be mistaken and that this realization changed how they approached online content.

Other teenagers described self-awareness as becoming more cautious about their own online behavior. One participant wrote, “I am now more aware of what I post and to think about other people’s posts more.” (T7, Session 2, FGI) Another explained, “I started thinking about being more cautious on social media. Now I am thinking more and questioning myself and other people more often.” (T11, Session 3, FGI) The phrase “questioning myself” (T3, Session 1, FGI) is especially important because it shows critical thinking turning inward. Rather than applying skepticism only to suspicious sources or other people’s mistakes, the participant began to examine their own assumptions, reactions, and posting behavior.

Role-play also supported self-awareness by helping teenagers reconsider how they might act from different positions. When participants imagined themselves as sharers, influencers, victims, or bystanders, they were asked to reflect on their motivations and possible consequences. This helped some teenagers recognize that misinformation is not only something that happens to others. It is also something they may help circulate through attention, humor, uncertainty, or social pressure. One participant noted that “even if we don’t mean to, we might be the one spreading it” (T48, Session 11, FGI). This reflection captures the self-aware shift from seeing misinformation as an external threat to recognizing one’s own possible involvement.

Taken together, teenagers made meaning of self-awareness as recognizing themselves within the misinformation ecosystem. They recognized that misinformation could affect them emotionally, that their own judgment could be mistaken, and that they might sometimes contribute to misinformation unintentionally. This finding suggests that self-awareness in SEL–MIL learning is more than an

emotional check-in. It is a reflective practice that helps teenagers ask: How did this make me feel? Why did I believe or share it? Could I have been wrong? What role might I have played? What responsibility do I have after recognizing my mistake?

3.2 Self-Management

Self-management appeared in the teenager data as the ability to slow down, regulate immediate reactions, and decide whether to believe, share, ignore, or correct information. Rather than describing self-management only as general emotional control, teenagers connected it to practical misinformation response strategies. Across gameplay, reflection, and discussion, they described checking sources, pausing before sharing, avoiding uncertain content, correcting others, and using visible cues to judge whether something might be AI-generated or false. These strategies show that teenagers were not passive recipients of misinformation. They had practical ways to manage misinformation encounters, although their willingness to use these strategies depended on confidence, context, and personal relevance.

A common starting point was verification. Teenagers described the need to slow down before believing or sharing information. One participant reflected that they would “think twice before I repost something important... well, three times” (T3, Session 1, FGI). Another described a more deliberate process:

“I would take a step back... look at online sources... even in trusted places, question everything.” (T7, Session 2, FGI)

This quote shows that self-management involved creating distance from the first emotional or social reaction. Teenagers recognized that misinformation can feel believable at first, especially when it appears in familiar or trusted spaces. For this reason, managing one’s response required pausing, looking for additional evidence, and questioning even sources that seem credible. Some teenagers also emphasized comparison across sources, noting that reliable judgment requires “something more than a single picture or one person’s view” (T28, Session 7, FGI).

Alongside verification, teenagers described restraint as an important self-management strategy.

Rather than engaging with uncertain content, some preferred not to share or interact with it. One participant explained that they could make “smarter choices online and not share everything I see” (T10, Session 3, FGI). This response frames self-management as behavioral restraint. The goal is not only to identify misinformation, but also to avoid amplifying it. Choosing not to share becomes a way of managing both information and one’s own impulse to participate.

Teenagers also described active correction as another strategy, especially in direct social situations. One participant said they would “tell people... it is not true” (T3, Session 1, FGI), while another described trying to stop misinformation quickly when they hear it:

“If someone tells me something, I try to stop it as fast as possible... I’m like, no, that didn’t happen.” (T49, Session 11, FGI)

This quote shows that self-management was not only inward-facing. In some cases, teenagers managed misinformation by intervening in social circulation. They did not only think about protecting themselves from false information; they also considered how to interrupt its spread among others. Some also imagined more strategic forms of correction, such as using platform tools like community notes and attaching sources to make the correction more credible (T42, Session 10, FGI).

At the same time, teenagers frequently described uncertainty as a barrier to self-management. Several said they would only intervene if they were completely sure the information was false:

“If I’m 100% sure it’s misinformation, I can try to stop it... but if I’m not sure, I would probably just not do anything.” (T21, Session 5, FGI)

This hesitation reveals that self-management depends on confidence. Teenagers may suspect that something is misleading, but uncertainty can lead them to remain silent or avoid action. Another participant described a similar pattern based on personal interest, explaining that they might fact-check something if they were “really interested,” but otherwise would usually not interact with it (T23, Session 5, FGI). These responses suggest that managing misinformation requires not only knowledge of strategies, but also motivation, confidence, and a sense of responsibility.

Finally, teenagers expressed confidence in their ability to detect misinformation, especially AI-generated content. Some relied on visible cues, such as whether a person has “seven fingers” or whether things “flicker and look weird” (T7, Session 2, FGI). Others connected this confidence to generational experience, explaining that they had grown up being told not to believe everything and to “doubt everything” (T6, Session 2, FGI). These statements show that teenagers often saw themselves as skeptical and media-aware. However, this confidence sits in tension with their uncertainty and hesitation. They may believe they can detect obvious misinformation or AI-generated content, but still avoid action when the situation is ambiguous.

Overall, self-management in teenagers’ misinformation experiences involved multiple practices: verifying information, comparing sources, pausing before sharing, avoiding uncertain content, correcting others, and using visual cues to identify AI-generated material. These practices show meaningful awareness of how to manage misinformation encounters. However, the findings also reveal a limitation: knowing self-management strategies does not mean teenagers will always use them. Their responses depended on certainty, interest, confidence, and perceived responsibility. In this sense, self-management was not simply the ability to know what to do; it was the ability to activate responsible strategies in uncertain and socially complex digital situations.

3.3 Social Awareness

Social awareness emerged in the teenager data as the ability to recognize the human consequences of misinformation for people beyond oneself. Unlike self-awareness, which focused on teenagers’ recognition of their own feelings, judgments, and possible involvement, social awareness focused on the person affected by misinformation. Participants rarely used the formal CASEL term *social awareness*. Instead, they expressed this competency through everyday language about victims, reputation, unfairness, judgment, and harm. In this study, teenagers made meaning of social awareness by recognizing that misinformation changes how others are seen and treated.

The clearest evidence of social awareness appeared when teenagers described the experience of the person targeted by misinformation. In one visual reflection, a participant depicted how a person affected by misinformation might feel:

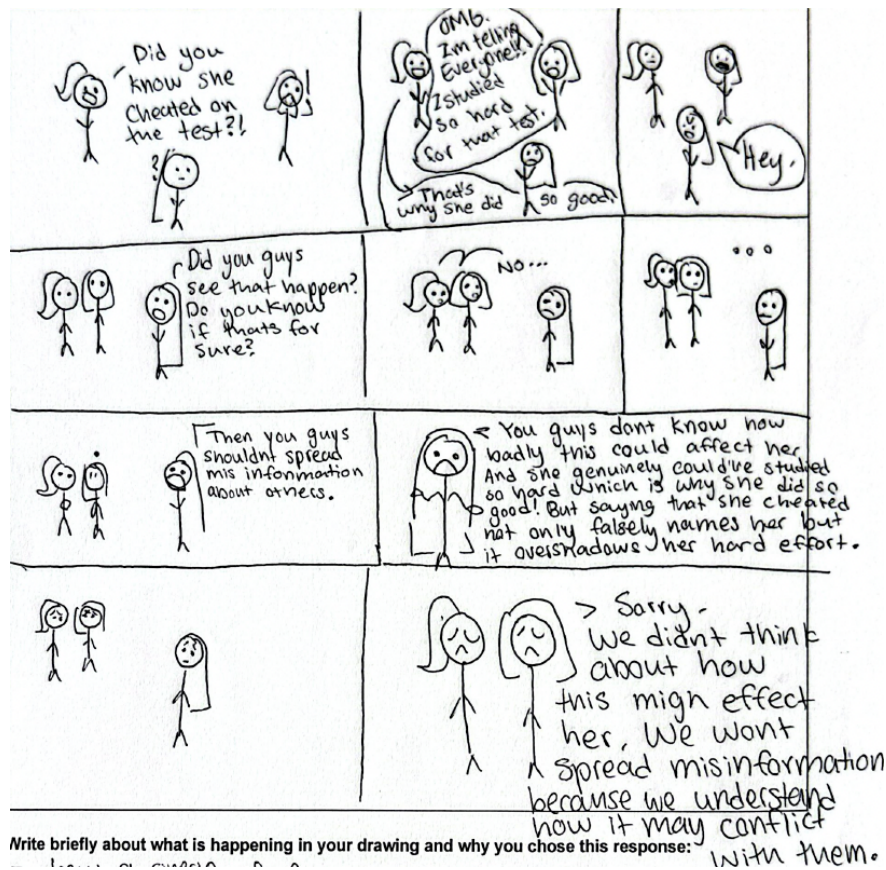


Figure 24: *Visual Reflection on Cascading Consequences of Misinformation*

“The victim feels confused and sad... people are judging them just by looking at a photo... it leads to consequences, which is unfair.” (T35, Session 8, VR)

This response shows that the participant understood harm as layered. The harm was not only the false image itself, but also the judgment that followed from others believing it. The participant recognized that misinformation can reshape a person’s social identity by causing others to judge them based on incomplete or false information. The word “unfair” shows that the participant was not only identifying emotion; they were also making a social judgment about how misinformation affects another person’s treatment by others.

Other participants similarly described misinformation as harmful because it can damage reputation and social standing. Rather than focusing only on whether information is true, they described how false or misleading content can affect how people are perceived by peers. In this sense, social

awareness meant recognizing the social life of misinformation: a rumor, image, or post can change how others talk about, judge, avoid, or treat a person. This understanding connects misinformation to social consequences that are especially meaningful in adolescent peer contexts.

Teenagers also showed social awareness when they recognized that misinformation can harm people even when the original intention was not malicious. This was especially clear in discussions of AI-generated images, rumors, and jokes. Participants understood that a post might begin as entertainment or a casual share, but still affect another person's reputation, relationships, or sense of safety. Social awareness therefore required looking beyond the intention of the sharer and considering the experience of the person affected.

Taken together, these findings suggest that teenagers made meaning of social awareness as recognizing the human and social consequences of misinformation. They understood that misinformation can produce confusion, sadness, unfair judgment, reputational harm, and social exclusion for the person targeted by it. For SEL-based misinformation education, this finding points to a design challenge: helping teenagers move from noticing that misinformation is false to recognizing how it changes another person's social world.

3.4 Relationship Skills

Relationship skills emerged in the teenager data as the ability to navigate misinformation within peer relationships. While social awareness helped teenagers recognize how misinformation affects others, relationship skills concerned what teenagers felt able to do in actual social interactions. Across focus group discussions and individual reflections, teenagers located misinformation in everyday peer spaces: friendships, group chats, school rumors, and social attention. The central finding is that peer relationships shaped misinformation in two directions. Trust made misinformation easier to believe and spread, but it also created the conditions for correction, accountability, and repair.

A first pattern was that teenagers evaluated information through social knowledge. When information came from a friend, the credibility of the relationship often transferred to the content itself. One participant explained:

“I wouldn’t know if it was like a stranger, because I don’t really know who the person is. But if that was about my friends, I would know it instantly, because I know who the person is and I’m close with them. So I would know if it’s right or the wrong information. I would have more probability to trust.” (T33, Session 8, FGI)

This comment shows that teenagers often judge misinformation through relationships, not only through evidence. They ask who shared it, who it concerns, and whether they personally know the people involved. This kind of relational knowledge can help teenagers question suspicious claims when they know the context. At the same time, it can also make misinformation more believable when it comes from trusted peers. Peer trust therefore functioned as both a protective resource and a source of vulnerability.

A second pattern was that teenagers understood correction as a relational act. They were more willing to intervene when the person sharing or affected by misinformation was someone they knew. One participant explained:

“Yeah, because like, it’s someone I know—they’ll like, listen to me.” (T18, Session 4, FGI)

Another participant said they would not reject the friend directly, but would tell them, “oh yeah, that’s probably not true” (T17, Session 4, FGI). These responses show that teenagers imagined misinformation correction as careful interpersonal communication. They were not describing themselves as public fact-checkers correcting strangers online. Instead, they imagined correction as something that works best when there is already trust, familiarity, and a relationship that can absorb disagreement.

A third pattern was that relationship skills involved managing the risk of conflict. Correcting misinformation was not only a cognitive decision about truth or falsehood. It also required teenagers to judge whether speaking up would be socially safe, whether the other person would listen, and whether the correction might damage the relationship. For this reason, teenagers often described correction in soft or indirect terms, such as suggesting that something was “probably not true”

rather than confronting the person harshly. This suggests that relationship skills in misinformation contexts involved tact, timing, and relational judgment.

However, the data also revealed a consistent limitation: teenagers' willingness to use these relationship skills was strongest within close peer relationships. When the person involved was a stranger or someone outside their social circle, teenagers were less likely to imagine intervening. One participant stated:

“If it’s a stranger, I wouldn’t do anything about it, but if it’s like a friend, maybe I would say something about it.” (T47, Session 11, FGI)

Another participant explained that they had not intervened in a real situation because they “didn’t know the victim that well” (T37, Session 9, IR). These responses show that teenagers had meaningful strategies for correction and communication within close peer networks, but they did not always extend those strategies to broader online or school communities.

Taken together, these findings suggest that teenagers made meaning of relationship skills through peer trust, relational correction, and proximity-bounded accountability. Peer relationships were both a pathway for misinformation and a resource for response. They made misinformation easier to believe when shared by trusted people, but they also made correction more possible when teenagers felt that someone would listen. The central challenge was not whether teenagers had relationship skills, but how far those skills extended. For SEL–MIL learning, this suggests that relationship skills should be taught not only as communication or conflict-resolution strategies among friends, but also as ways to practice accountability in wider peer communities where misinformation circulates.

3.5 Responsible Decision-Making

Responsible decision-making emerged in the teenager data as the competency most closely connected to ethical judgment in misinformation contexts. While earlier sections showed how teenagers recognized themselves, managed reactions, considered consequences for others, and navigated peer relationships, this section focuses on how teenagers made meaning of responsible decision-making itself. Across community messages, focus group discussions, role-play, and individual reflections,

participants described responsible decision-making as the process of weighing truth, harm, consequences, and social pressure before deciding whether to create, share, ignore, correct, or challenge misinformation.

A first pattern was that teenagers understood responsible decision-making as more than factual verification. They did not describe a responsible choice only as determining whether information was true or false. Instead, they connected truth to broader questions of safety, harm, helpfulness, and moral rightness. One participant captured this multi-step reasoning in a community message:

“Think about it. Is it true/false. Is it safe/harmful. Is it helpful/worse. Is it right/wrong. Is it good/bad.” (T22, Session 8, CM)

This response shows how teenagers expanded decision-making beyond detection. The participant treated misinformation response as both an informational and ethical judgment. A responsible decision required asking not only whether something was accurate, but also whether sharing it would help, harm, escalate, or violate what felt right. In this sense, responsible decision-making functioned as the point where media literacy judgment and social-emotional judgment came together.

A second pattern was that teenagers described responsible decision-making as a pause before digital action. Several participants used familiar language such as thinking before posting, checking before sharing, and considering consequences before acting. One participant explained:

“Much like thinking before you speak, think before you post. Your actions have big consequences and once it’s online it’s there forever.” (T25, Session 5, CM)

This quote shows that teenagers understood responsible decision-making as a moment of interruption. The responsible choice happens before a post, repost, comment, or share. This matters because misinformation often spreads quickly through small actions that may feel casual in the moment. For teenagers, responsible decision-making meant creating a space between impulse and action, where they could consider whether their choice might produce lasting harm.

A third pattern was that teenagers saw responsible decision-making as dependent on other SEL

competencies. One participant explained that without the other four CASEL competencies, “you can’t make a responsible decision” (T50, Session 11, IR). This interpretation is useful because it shows that teenagers did not understand responsible decision-making as an isolated skill. To make a responsible choice, they needed to recognize their emotions, manage impulses, understand others’ perspectives, and navigate relationships. In misinformation contexts, responsible decision-making was therefore the place where the other competencies had to be applied.

Another important pattern was that teenagers viewed responsible decision-making as involving repair when a mistake had already occurred. One participant reflected:

“I accidentally gave out misinformation. I felt bad when I found out I was wrong, and I clarified it to my friend later.” (T53, Session 12, IR)

This response shows that responsible decision-making did not end at prevention. Teenagers also recognized that mistakes happen and that responsibility may involve acknowledging error, clarifying misinformation, and attempting repair. This is especially relevant in digital contexts, where misinformation can continue to circulate after the original action. Responsible decision-making therefore includes both preventing harm before sharing and responding ethically after harm or error has occurred.

Taken together, teenagers made meaning of responsible decision-making as an aspirational but difficult competency. They understood that responsible choices require more than identifying misinformation. They require weighing truth, harm, usefulness, consequences, and moral responsibility before acting. At the same time, teenagers were honest that responsible judgment can weaken under real social and emotional pressure. For SEL–MIL learning, this suggests that responsible decision-making should not be taught only as a rule such as “do not share misinformation.” Instead, it should be practiced as situated ethical judgment: deciding what to do when the information is uncertain, the audience matters, the social reward is tempting, or the responsible choice is uncomfortable.

5.3.6. Theme 4. Learning Opportunities Supporting SEL-Based Misinformation Learning

Theme 4 examines the learning opportunities that helped teenagers engage with misinformation and activate social-emotional learning during the module. Across gameplay, role-play, discussion, and structured reflection, teenagers described learning as most meaningful when they could experience misinformation as a dynamic social situation rather than simply receive information about it. The module gave them opportunities to see how misinformation spreads, take on different roles, connect scenarios to their own lives, and express their thinking through visual and written artifacts. In this theme, learning was strongest when it was experiential, interactive, reflective, and connected to teenagers' everyday digital worlds.

4.1 Experiential Engagement Through Social Gameplay

Gameplay served as the experiential foundation of the learning module. Teenagers did not describe the game simply as a fun activity; they described it as a different way of learning about misinformation. The gameplay was interactive, social, challenging, and tied to decision-making. By working through the game together, participants could experience misinformation dynamics, make choices, solve problems with peers, and consider consequences without facing the risks of a real online situation. In this sense, gameplay created a shared social experience through which misinformation became more immediate, collaborative, and meaningful.

A first pattern was that gameplay shifted learning away from passive instruction and toward active participation. Several teenagers contrasted the module with a lecture-based format. One participant explained:

“It was, like, a lot more entertaining than I thought it would be. I thought it would be more just, like, a lecture or something... and it’s, like, very interactive.” (T40, Session 9, FGI)

This quote shows that interactivity mattered to participants. The activity was not only more enjoyable than a lecture; it positioned them inside the learning process. Rather than only hearing about misinformation, teenagers had to engage with scenarios, puzzles, roles, and decisions.

Another participant described the game as “a new way to learn something rather than just... talking” (T48, Session 11, FGI). These reflections suggest that gameplay helped teenagers experience misinformation as active and dynamic rather than as information delivered by an instructor.

A second pattern was that gameplay supported moments of discovery and understanding. Some teenagers described learning as something that emerged through playing rather than through being directly told. One participant explained:

“The game part especially... that was my eureka moment. I was like, oh, this is so cool, I understand it all of a sudden. It all makes sense.” (T15, Session 4, FGI)

This quote captures gameplay as a moment of realization. The participant did not describe memorizing a lesson; they described suddenly understanding how the pieces fit together. By moving through the scenario, solving puzzles, and making decisions, participants could see how misinformation spreads, how actions influence outcomes, and why consequences matter. Teenagers also connected gameplay to future thinking. One participant reflected, “I think after today’s activity I’m going to think a lot more about things I see online and questioning if they are real” (T2, Session 1, FGI). This suggests that gameplay did not remain bounded within the activity itself. It helped participants imagine carrying this awareness into everyday digital life.

A third pattern was that gameplay supported social learning through collaboration. Teenagers described collaborative puzzles, teamwork, and group interaction as important parts of their engagement. One participant noted, “I liked the collaborative puzzles, actually they were quite hard... I discussed and solved the puzzle together. We shared thoughts and opinions.” (T19, Session 5, FGI). This quote suggests that difficulty was not experienced as a barrier. Rather, challenge appeared to increase engagement because it required participants to work through problems collectively. The social process of discussing, negotiating, and solving the task together became part of the learning experience itself. Another participant distinguished between different parts of the module, saying, “I like the game, it’s probably the most fun... and the one that makes me think the most is the group discussion” (T25, Session 6, FGI). This distinction shows that learning was distributed across the

module. Gameplay generated energy, collaboration, and a shared social experience, while later discussion supported deeper interpretation and reflection. In this sense, gameplay was not meaningful only because it was enjoyable. It was meaningful because it created common ground for collective sense-making.

Finally, gameplay also supported an early sense of agency by giving teenagers opportunities to make choices and connect those choices to consequences. One participant stated:

“...I can make smarter choices online and not... share everything I see...I think the game was my favorite.” (T10, Session 3, FGI)

This quote connects enjoyment with responsible action. The participant’s favorite part of the module was also the part that helped them imagine making better choices online. Overall, gameplay functioned as more than an engaging format. It created an experiential and social space where teenagers could actively explore misinformation, experience insight, collaborate with peers, and begin connecting learning to future decisions. This finding shows why social gameplay mattered in the module: it allowed teenagers to learn about misinformation not only by hearing about it, but by working through its dynamics together in a structured environment that later supported deeper reflection.

4.2 Role-Play as Perspective-Taking Practice

If gameplay provided the experiential foundation of the module, role-play created the clearest opportunity for teenagers to engage with the social and emotional dimensions of misinformation. Across the data, teenagers described role-play as effective because it allowed them to step into different positions within the misinformation cycle. Instead of only discussing how misinformation spreads or harms people, they enacted roles such as producer, sharer, influencer, bystander, and victim. This made misinformation more visible, personal, and emotionally meaningful.

A first pattern was that role-play helped teenagers see misinformation as a process of interaction. One participant explained:

“I think, honestly, the roleplay thing... You get to talk directly to each other as if you were there. You can, like, directly see how it travels, and then how it goes back.” (T7, Session 2, FGI)

This quote shows that role-play helped teenagers understand misinformation as something that moves through people. The phrase “as if you were there” suggests that the activity created a simulated version of a real social situation. Within that simulation, participants could see how one person’s action led to another person’s response, and how misinformation could circulate back through the group. Role-play therefore made the movement of misinformation visible and discussable.

Role-play also helped participants understand how people might behave in misinformation situations. One participant noted that the activity helped them understand “how people may act if they do something” (T47, Session 11, FGI). This suggests that role-play supported not only perspective-taking, but also action-taking. Teenagers could observe how different roles involved different motivations, pressures, and decisions. Seeing these actions unfold helped participants understand misinformation as a social sequence rather than a single isolated event.

A second pattern was that role-play created emotional connection. Several teenagers described role-play as helping them care about the situation more deeply. One participant explained:

“That’s more like an emotional connection to the story. It makes you think about it... realize, oh, this is how they would feel... it gives you a reason to care about the situation.” (T16, Session 4, FGI)

This quote shows that role-play did more than provide information. It helped participants feel why the situation mattered. The participant moved from understanding the story to caring about the people in it. This emotional connection is central to SEL-based misinformation education because teenagers may know that misinformation is harmful, but role-play can help them imagine how that harm feels from another person’s perspective.

Another participant described a similar shift:

“[It] kind of put me in other people’s perspectives... made me realize how the victim would feel... and how our choices affect others, even if we don’t mean for them to.”
(T12, Session 3, FGI)

This reflection shows how role-play connected empathy with responsibility. The participant did not only imagine the victim’s feelings; they also connected those feelings to personal choice. The phrase “even if we don’t mean for them to” is especially important because it recognizes that harm can happen without harmful intent. Role-play therefore helped participants understand that responsibility includes considering unintended consequences.

A third pattern was that role-play offered a safe way to experience the emotional weight of misinformation. One participant described this as:

“If you can get any hint of that kind of fear... it’s like a healthy dose of it that doesn’t affect your life... it makes you realize what you could do in real life.” (T28, Session 7, FGI)

This quote shows why role-play can be pedagogically useful. It allows teenagers to feel a small part of the emotional intensity associated with misinformation without requiring real harm to occur. The phrase “healthy dose” suggests that the activity was emotionally meaningful but still manageable. This balance matters because SEL learning requires emotional engagement, but it also needs to happen in a safe environment where students can reflect rather than feel overwhelmed.

Role-play also introduced perspectives that participants might not have created on their own. One participant explained that the activity was powerful because “it’s not just you deciding what these people are thinking,” but instead “somebody else made that decision” (T32, Session 7, FGI). This unpredictability made the activity closer to real social life, where people do not control how others will react. It also helped participants encounter viewpoints different from their own.

Finally, teenagers described role-play as helping them prepare for real-world situations. One participant stated:

“From this experience, it gave me ideas of how to react or how to fix the problem. . . in real life.” (T35, Session 8, FGI)

This quote shows that role-play supported transfer beyond the activity. Participants were not only acting within the scenario; they were also developing possible responses for future misinformation situations. Another participant explained that role-play taught them to think about what they see online and “who it could be hurting” (T9, Session 2, FGI). These reflections suggest that role-play helped participants rehearse both perspective-taking and responsible action.

Importantly, participants recognized that role-play was most effective when paired with debriefing. One participant explained that the most important parts were “the debriefing” and “the roleplay,” because participants “actually had to think about the effects we were having on others” (T21, Session 5, FGI). This suggests that role-play alone may not be enough. Its learning value comes from the combination of enactment and reflection: students experience the scenario, then make meaning from it through discussion.

Overall, role-play functioned as a powerful perspective-taking practice within the learning module. It helped teenagers see how misinformation travels through social interaction, imagine the experiences of different people involved, feel a manageable emotional connection to harm, and develop ideas for responding in real life. This finding supports the broader design argument of the study: SEL-based misinformation education is most effective when students do not only hear about empathy and responsibility, but practice them through structured, reflective experience.

4.3 Playful Learning as a Catalyst for Mindful Reflection

Sections 4.1 and 4.2 showed how gameplay and role-play supported experiential learning. This section extends that analysis by showing how playful learning created the conditions for mindful reflection. Across the data, teenagers did not describe play and reflection as separate parts of the module. Instead, they often described enjoyment, focus, emotional engagement, and reflection as connected. The playful structure helped them become involved in the scenario, and that involvement made later reflection feel more meaningful.

A first pattern was that teenagers did not separate fun from learning. For several participants, enjoyment and reflection appeared in the same response. One participant explained:

“I had fun. I think after today’s activity I’m going to think a lot more about things I see online and questioning if they are real.” (T4, Session 1, FGI)

This quote shows that fun did not distract from learning. Instead, the enjoyable experience helped open the door to reflection. The participant moved directly from saying they had fun to describing a future change in how they would think about online information. This suggests that playful learning can make misinformation education feel less like a lecture and more like an experience that students want to carry forward.

A second pattern was that focused engagement during play made the debriefing more powerful. One participant explained:

“I was so focused on one thing... the debriefing is much more impactful.” (T16, Session 4, FGI)

This response shows how play and reflection work together. The game drew the participant into the activity, and that focus made the later reflection stronger. In other words, debriefing was not effective only because students were asked reflective questions. It was effective because the game gave them a concrete experience to reflect on. Without that experience, the reflection may have felt abstract; with it, participants had emotions, decisions, and moments from the activity to examine.

A third pattern was that play created a safe form of emotional rehearsal. The activity allowed teenagers to encounter the possible consequences of misinformation without experiencing real harm. As discussed in the previous section, one participant described role-play as giving students enough emotional discomfort to make the situation feel meaningful, but not so much that it became personally harmful.

This point helps explain why scenario-based play can be useful for SEL-based misinformation education. It allows students to experience fear, concern, discomfort, or responsibility within a contained

learning environment. These emotions can prompt reflection without overwhelming students and can help them imagine how they might respond if a similar situation occurred in real life.

This movement from impulse to reflection appeared in another participant's response:

“Instead of thinking about what I feel like doing... I should think about what might happen... because it could lead to a bigger consequence.” (T35, Session 8, FGI)

This quote captures the reflective shift supported by the module. The participant moved from immediate desire toward consequence-oriented thinking. This is central to SEL because it shows the movement from emotional reaction to self-management and responsible decision-making.

A final pattern was that fictional or scenario-based play created distance that made reflection easier. One participant explained:

“It made me reflect on stories... not real stories, but other stories that could happen... make you feel reflected yourself.” (T41, Session 9, FGI)

This response shows the value of indirect reflection. Teenagers may not always want to talk directly about their own mistakes, peer conflicts, or experiences with misinformation. Fictional scenarios create enough distance for students to discuss difficult issues more safely, while still connecting the scenario back to their own lives. This balance between distance and relevance helped participants reflect without feeling personally exposed.

Overall, playful learning functioned as a catalyst for mindful reflection. The game and role-play made the activity enjoyable and engaging, but they also created concrete experiences, emotional connection, manageable discomfort, and safe distance for reflection. These mechanisms helped teenagers move from simply participating in an activity to thinking more carefully about misinformation, consequences, and their own future actions.

4.4 Real-World Anchoring and Relevance

While gameplay and role-play created a safe and engaging space for reflection, teenagers also emphasized that the module felt meaningful because it connected to real experiences in their everyday lives. They did not treat the misinformation scenarios as distant or abstract examples. Instead, they connected them to school rumors, group chats, anonymous school accounts, AI-generated content, friendship conflict, and personal experiences of being targeted or excluded. This real-world anchoring helped make the lesson feel relevant and transferable beyond the activity.

A first pattern was that the module helped teenagers recognize that misinformation was closer to their lives than they had previously thought. One participant explained:

“I don’t really think about it that much... but actually realizing that I have people I know that it’s happened to.” (T24, Session 6, FGI)

This reflection suggests that relevance sometimes emerged through recognition. Teenagers may not always label their experiences as misinformation, but the module helped them connect the concept to people and situations they already knew. This is important because misinformation education can feel abstract if students do not see how it appears in their own social worlds. The activity made those connections visible.

Teenagers also anchored the module in specific school and peer contexts. One participant connected the activity to school-based online accounts:

“It reminded me of some of our school accounts that post anonymous messages or AI videos of people at school.” (T3, Session 1, FGI)

This quote shows that misinformation was connected to familiar digital spaces where school identity, anonymity, AI, and peer attention intersect. Another participant described the relevance of the activity to group chat interactions, explaining that “in our group chat there’s frequently arguments and confusion over information,” so the module could help them handle the information they see there (T8, Session 2, FGI). These examples show that teenagers could imagine applying the lesson

to everyday communication, not only to large-scale news or public misinformation.

Some participants connected the activity to shared incidents in their school community. One participant described a situation where someone used an AI chatbot to trick another student, and “the majority of the sophomore class was talking about it” before people realized it was fake (T29, Session 7, FGI). This example brings together several issues addressed in the module: AI, deception, peer spread, delayed recognition, and social attention. By connecting the learning activity to this kind of school-based incident, teenagers demonstrated that misinformation is not only something that happens online in general; it can become part of the social life of a school.

Finally, teenagers also connected the activity to broader peer dynamics such as drama, exclusion, and emotional harm. One participant described feeling hurt when friends did not tell them about a party, saying, “they were all enjoying it, and it was heartbreaking” (T36, Session 8, FGI). Although this example was not framed as misinformation in a strict sense, it reflects related dynamics: unequal access to information, social exclusion, and emotional consequences. This suggests that teenagers understood misinformation through a wider social lens, where information, belonging, and relationships are closely connected.

Overall, the module became meaningful because teenagers could anchor it in real-world experiences. These connections appeared through recognition of others’ experiences, school-based digital spaces, group chats, AI-related incidents, and everyday peer dynamics. This real-world relevance helped bridge the distance between the learning activity and teenagers’ actual digital lives. It also suggests that SEL-based misinformation education is more effective when it begins from situations teenagers recognize as socially and emotionally real.

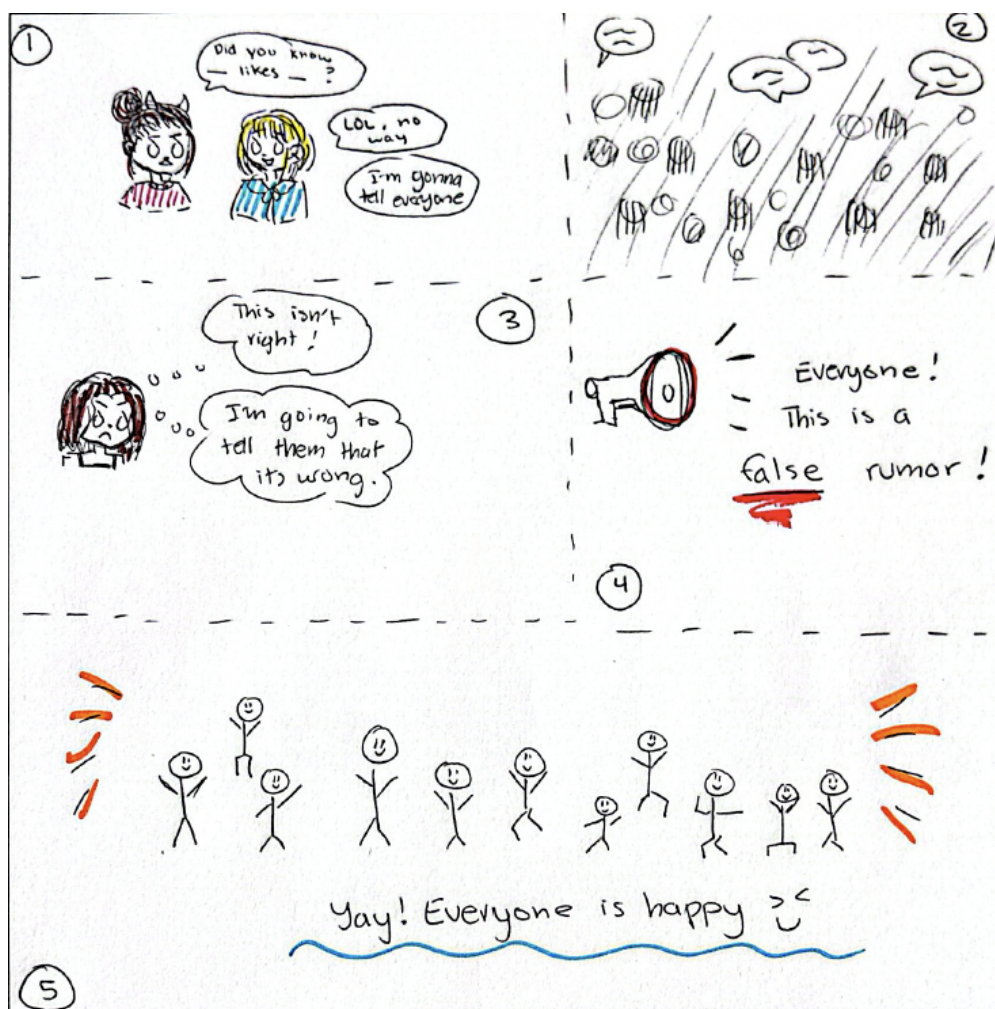
4.5 Reflective Externalization of Learning

The previous sections showed how the module supported experience, perspective-taking, and real-world relevance. This section examines how teenagers made that learning visible. Across the data, teenagers did not only reflect internally. They expressed their understanding through drawings, written reflections, storytelling, before-and-after comparisons, short definitions, community mes-

sages, and suggestions for improving the activity. These forms of externalization helped make their thinking more concrete, shareable, and easier to revisit.

One form of externalization appeared in visual reflections, where teenagers represented misinformation as a sequence of events. These artifacts required them to organize their understanding into steps and show how one action could lead to another. For example, one participant described the escalation of misinformation as follows:

Figure 25: *Escalation of Misinformation*



“One person spreads a rumor out of jealousy and the rumor spreads to the whole school. However, one person decides it is not right and clears up the rumor.” (T33, Session 8, VR)

This sequence shows that the participant understood misinformation as a chain of escalating consequences. By organizing the scenario step by step, the participant made the causal relationship between posting, spreading, harm, and repair visible.

A second form of externalization appeared in before-and-after comparisons. These reflections made changes in thinking visible by contrasting how participants thought before the activity with how they thought afterward. One participant described this shift clearly:

“Before: spreading info without thinking... thinking about only yourself. After: fact checking before spreading info... taking into consideration the effect on others.” (T33, Session 8, VR)

This quote shows a movement from impulsive and self-focused behavior toward verification and concern for others. The before-and-after structure matters because it does not only state what the participant learned; it shows the direction of change. The participant identified both a previous pattern and a revised orientation, making the learning process visible.

Teenagers also externalized their learning through short definitions and summary statements. These statements condensed complex experiences into portable ideas. One participant described empathy as “figuring out how there might be another person behind the screen before you say anything” (Session 7). This definition is brief, but it reflects a deeper integration of the module’s ideas. The participant was not only repeating that misinformation is false or harmful; they were naming its relational and human dimensions.

A final form of externalization appeared when teenagers reflected on the activity itself and suggested how it could be extended. One participant proposed:

“I would like... a different ending... like what would happen if the person who shared didn’t share it.” (T35, Session 8, FGI)

This suggestion shows that the participant was thinking beyond the provided scenario. They wanted to explore alternative outcomes and understand how different decisions might change the story. An-

other participant identified a need for more explicit support in distinguishing AI-generated content from real content, suggesting “helping us learn how to distinguish real vs AI/fake” (T1, Session 1, FGI). These responses show that teenagers were not only receiving the learning experience; they were evaluating it and imagining how it could better support future learning.

Overall, reflective externalization helped teenagers make their learning visible and durable. Through sequences, comparisons, definitions, and design suggestions, participants organized what they experienced, named what changed in their thinking, and connected the activity to future needs. This finding shows that SEL-based misinformation learning depends not only on having an experience, but on making meaning from that experience. External artifacts gave teenagers a way to see, share, and strengthen that meaning beyond the immediate activity.

5.3.7. Theme 5. Tensions and Constraints in SEL-Based Misinformation Learning

Theme 5 presents the conditions that limited teenagers’ ability to translate misinformation knowledge and social-emotional awareness into responsible action. Across the module, teenagers demonstrated understanding, empathy, responsibility, and moral concern. However, they also described situations in which these forms of awareness did not necessarily lead to action. Their responses suggest that the challenge is not only whether teenagers know misinformation is harmful, but whether they feel able, motivated, and socially supported enough to respond. Three challenges were especially visible: the tension between playful engagement and serious learning, the influence of home and family contexts, and the limits of empathy when competing motivations such as humor, dislike, attention, or social reward were stronger. Together, these findings show that SEL-based misinformation education should address not only individual awareness, but also the social and contextual conditions that make responsible action difficult.

5.1 Entertainment Over Learning

Although the SEL-based misinformation learning module used gameplay, role-play, and reflection to support engagement, participants’ responses also revealed a design tension. The playful structure made the module enjoyable and accessible, but it also created the possibility that some participants experienced the activity more as entertainment than as a serious rehearsal for responsible digital

action. This does not mean that play was ineffective. Rather, it suggests that playful learning requires careful reflective support so that enjoyment leads to deeper learning rather than remaining only at the level of fun participation.

Participants frequently described the module as more enjoyable and interactive than expected. One participant explained:

“I think it was fun. I liked the activities. It was, like, a lot more entertaining than I thought it would be. So I thought it would be more just, like, a lecture or something, which is nice. And it’s, like, very interactive.” (T40, Session 9, FGI)

This quote shows one of the strengths of the module. Compared with a lecture-based approach, the activity felt active, social, and enjoyable. This kind of engagement helped teenagers participate in a topic that might otherwise feel abstract or boring. However, the same quote also points to a possible limitation. When participants primarily described the module as “fun,” “entertaining,” and “interactive,” the emotional tone of the experience may not always have matched the seriousness of misinformation harm. Play can invite participation, but it does not automatically guarantee deep transfer to real-life decision-making.

This tension was especially visible during role-play. Role-playing allowed participants to take on different positions in a misinformation scenario, but it was also often performed in a playful social atmosphere. Across sessions, participants laughed, giggled, teased one another, and created stories connected to their own lives. Even when scenarios involved serious topics such as deepfake rumors, car theft, stalking rumors, or reputational harm, the group performance sometimes created a lighthearted environment. This playful atmosphere likely made participants more comfortable and willing to participate, but it may also have softened the emotional seriousness of the scenario.

This distinction helps understanding how the learning module worked. Gameplay and role-play created energy and engagement, but structured discussion helped participants process what the activity meant. In other words, the playful parts of the module were not sufficient on their own. They needed to be followed by debriefing, discussion, and reflection so that participants could

connect the activity to misinformation harm, empathy, and responsible decision-making.

Overall, entertainment over learning represents an important constraint in translating SEL activation into action. The playful design of the module increased engagement, encouraged participation, and made the topic more accessible. However, the same playfulness could reduce the perceived seriousness of misinformation if not paired with strong reflective structures. This finding suggests that SEL-based misinformation learning modules should not rely on play alone. Gameplay and role-play need to be intentionally connected to debriefing, real-world examples, personal reflection, and community-oriented action so that participants move from enjoying the activity to internalizing its social and emotional lessons.

5.2 Relational Distance

While the previous section examined how playful learning can sometimes remain at the level of entertainment, this section focuses on another constraint in translating SEL into action: relational distance. Across the data, teenagers' willingness to evaluate, care about, and respond to misinformation was shaped by whether they personally knew the person affected. When the target was a friend or someone close to them, participants felt more able to judge the situation and more motivated to intervene. When the target was a stranger, however, participants often described disengaging, even when they recognized that misinformation could be harmful.

A first pattern was that relational closeness gave teenagers more context for evaluating misinformation. Participants explained that knowing someone helped them decide whether a claim seemed believable. One participant stated:

“If I wasn’t friends with Jay. . . I would have no way of checking if it was true or not.”

(T9, Session 2, FGI)

This quote shows that friendship provides both informational and emotional context. Knowing the person makes it easier to judge whether a rumor or claim fits what they know about that person. Another participant made this distinction even more clearly:

“I wouldn’t know if it was like a stranger... but if that was about my friends I would know it instantly because I know who the person is and I’m close with them.” (T33, Session 8, FGI)

These responses suggest that relational proximity supports detection. Teenagers may not rely only on external evidence or fact-checking tools; they also rely on personal knowledge of the people involved. This can help them identify misinformation about friends, but it also creates a limitation. When the person is unknown, teenagers may feel less able to evaluate the situation and less responsible for responding.

A second pattern was that relational closeness shaped the threshold for intervention. Participants often described acting differently depending on whether the misinformation involved a friend or a stranger. One participant explained:

“If it’s like a stranger, I wouldn’t do anything about it, but if it’s like a friend, maybe I would say something.” (T47, Session 11, FGI)

This statement shows that awareness of harm does not automatically lead to action. The participant recognizes that misinformation may be present, but intervention depends on relationship. Friendship makes action possible; strangerhood makes inaction more likely. In this sense, the barrier is not simply lack of knowledge, but limited emotional investment.

This pattern appeared even more directly when participants explained why they did not intervene. One participant stated:

“I didn’t do anything about it because I didn’t know the victim that well.” (T37, Session 9, IR)

This quote shows that it clearly links inaction to relational distance. The participant does not say they failed to understand the issue or that they lacked awareness. Instead, they did not act because the victim was not close enough to them. Another participant expressed this boundary more sharply: “If it’s a friend... it might affect me as well... but if it’s a stranger, that’s like,

your problem” (T47, Session 11, FGI). This response shows how responsibility can become limited to one’s immediate social circle.

A final pattern was that emotional investment functioned as a condition for empathy and action. One participant summarized this directly:

“If I don’t care about the person, that doesn’t work.” (T49, Session 11, FGI)

This statement captures the central mechanism of relational distance. Teenagers may understand that misinformation causes harm, but if they do not feel connected to the person affected, that understanding may not become action. Empathy, in this case, depends on care, and care depends on relational closeness. This reveals a limitation for SEL-based misinformation education: perspective-taking may be easier when the victim is familiar, but more difficult when the victim is unknown, distant, or socially irrelevant to the participant.

Overall, relational distance functioned as a major constraint on translating SEL into action. When teenagers knew the person affected, they were more likely to evaluate the information, feel concern, and consider intervening. When the person was a stranger, awareness of harm often weakened or stopped before action. This finding suggests that SEL-based misinformation education should help teenagers extend empathy and responsibility beyond close relationships. The challenge is not only to help students care about friends who are harmed by misinformation, but also to help them recognize responsibility toward people they do not know.

5.3 Influence of Home and Family Contexts

A third challenge concerned the home environment. Across the data, teenagers described the home as an important place where digital habits, caution, empathy, and misinformation responses are first formed. These responses suggest that teenagers did not enter the learning module with neutral experiences. Their understanding of misinformation was already shaped by family guidance, parental monitoring, intergenerational differences in digital literacy, and everyday family communication. In this sense, home context could either support or limit how SEL-based misinformation learning translated into action.

One pattern was that the absence of guidance could create vulnerability. One participant warned, “If you give a kid unrestricted internet access... they’re gonna go and say their address online or something” (T7, Session 2, FGI). This response suggests that digital responsibility is not developed automatically. Teenagers recognized that younger children need guidance in learning what information should be questioned, protected, or kept private. Without this support, misinformation awareness and responsible digital behavior may be harder to develop.

Teenagers also described intergenerational differences in digital literacy. In some cases, they saw parents or grandparents as more vulnerable to AI-generated misinformation. One participant explained that their parents were fooled by a deepfake and that they had to tell them it was not real, which made them feel “disappointed” and “worried” (T11, Session 3, IR). This example shows that misinformation in the home is not only a cognitive issue. It also creates emotional concern when teenagers see people they care about becoming vulnerable to deception.

At the same time, AI-generated content was sometimes normalized within family life. One participant noted, “My dad also makes deepfake AI videos of our cats” (T4, Session 1, IR). This example suggests that AI is not always experienced as threatening or serious. Within the home, AI-generated media can appear as play, entertainment, or harmless experimentation. This matters because such normalization may shape how teenagers interpret AI-generated content elsewhere. If deepfakes or AI videos are experienced as fun at home, teenagers may need additional support to distinguish playful uses from harmful or misleading ones.

Teenagers also viewed the home as a major site of emotional and behavioral learning. Several participants suggested that family practices shape how young people treat others and respond to social situations. One participant explained:

“The part at home matters more... if it’s your parents... you’re going to follow in their tracks.” (T30, Session 7, FGI)

This quote connects misinformation education to broader social-emotional development. Teenagers understood that habits such as empathy, responsibility, and care are not formed only in school or

in a single learning module. Another participant stated this more directly: “Empathy education happened in the family... the part at home matters more” (T29, Session 7, FGI). These reflections suggest that SEL-based misinformation education may be strengthened or weakened by the values and behaviors already modeled at home.

Teenagers also identified gaps in parental involvement. One participant observed, “I feel like sometimes the parents don’t monitor this kind of stuff... they think kids will grow out of it” (T30, Session 7, FGI). This statement shows concern that some digital behaviors may be ignored or minimized by adults. If parents assume that harmful online behavior is only a phase, teenagers may not receive enough guidance to understand consequences, develop empathy, or practice responsible digital action.

Finally, teenagers described the home itself as a place where misinformation can originate and spread. One participant recalled:

“My mom told me a friend was moving... I told another friend... but later I found out it wasn’t true.” (T48, Session 11, IR)

This example shows that misinformation can move through ordinary family communication, not only through social media or malicious actors. Because family information is often trusted, teenagers may repeat it without verification. Participants also described emotional responses when family members were misled. One participant wrote, “My grandma was misled by an AI video... and it made me feel hurt” (T28, Session 7, IR). This reinforces the relational nature of misinformation: when deception affects family members, teenagers experience concern, frustration, and emotional harm.

Overall, the home environment shaped teenagers’ engagement with misinformation in multiple ways. It influenced their baseline digital habits, provided or failed to provide guidance, created opportunities for intergenerational correction, normalized certain AI practices, and shaped empathy and responsibility before the learning module began. This finding suggests that constraints on translating SEL into action are not located only inside the individual teenager. They are also shaped by

family contexts that influence how teenagers understand trust, care, authority, and digital responsibility.

5.4 Fragility of Empathy in Misinformation Contexts

A fourth challenge was that empathy did not always lead to responsible action. Across earlier themes, teenagers showed that they were capable of empathy, perspective-taking, and moral reasoning. However, the data also show that empathy was not always strong enough to guide behavior when competing motivations were present. In some moments, empathy was displaced by attention-seeking, humor, dislike, boredom, money, or social reward. This suggests that empathy was present, but not always stable or consistently activated when teenagers imagined real or simulated misinformation situations.

A first pattern was that empathy could be overridden by competing motivations. In role-play scenarios, some teenagers described spreading misinformation because it was funny, exciting, or personally satisfying. One participant explained:

“I really hate Maggie... I think it’s funny.” (T2, Session 1, RP)

This quote shows how dislike and humor can weaken empathy. The participant recognized the target as someone affected by the action, but that recognition did not lead to restraint. Instead, personal dislike made the harm easier to justify. Another participant described a more strategic motivation:

“I wanted to make money... I thought, what can I do to make this worse? I didn’t care about this guy.” (T10, Session 3, RP)

This response shows empathy being actively displaced. The participant’s attention was on escalation, money, and personal gain rather than the person harmed. A similar pattern appeared when another participant said they spread misinformation because it was “crazy” and they wanted “more followers” (T7, Session 2, RP). These examples suggest that empathy can weaken when social or platform rewards are present.

A second pattern was that empathy could weaken when misinformation became entertainment. Some teenagers described harmful events as funny or socially interesting, especially once they became widely discussed. One participant reflected on a school incident:

“Everyone was talking about it... but by the time people realized it was fake, no one really cared... I found it really funny.” (T26, Session 6, IR)

This quote shows how repeated circulation can distance people from harm. As more people talk about a rumor or incident, it can become a story, joke, or spectacle rather than a harm experienced by a real person. In this process, empathy may fade because attention shifts from the person affected to the entertainment value of the situation. Another participant captured this tension by saying, “Sometimes it’s a little bit funny... but then... someone can get scammed” (T37, Session 9, FGI). Here, empathy appeared only when the participant paused to consider the consequence. Without that pause, the humorous framing could dominate.

A third pattern was that empathy often appeared after harm became visible rather than before action occurred. Some participants suggested that people do not fully understand misinformation harm until something happens to them. One participant explained:

“I think people don’t understand until something bad happens to them... that’s when it kicks in.” (T28, Session 7, FGI)

This statement highlights a core challenge for SEL-based misinformation education. The learning module created indirect experience through story, gameplay, role-play, and reflection, but participants still recognized that indirect simulation may not always be enough to change behavior. For some teenagers, the activity may increase awareness without fully shifting future action, especially if they experience the scenario as hypothetical or playful rather than personally consequential.

Another participant expressed this more strongly, saying, “They have to hurt someone and regret it, or get hurt” (T30, Session 7, FGI). These reflections suggest that empathy may be reactive rather than proactive. Teenagers may be able to feel empathy after harm becomes visible, but they

may not always use empathy in advance to prevent harm. This is a key limitation for misinformation education because the most important moment for empathy is often before sharing, not after consequences have already occurred.

A final pattern was that even when empathy and awareness were present, they did not always change imagined behavior. One role-play response stated:

“Even knowing the consequences... I understand that it hurts... but I might still do it because it’s funny.” (T30, Session 7, RP)

This quote captures the central challenge of this section. The participant did not deny harm. They understood that the action could hurt someone, but entertainment still overrode restraint. This shows that empathy alone is not always enough. Without self-management, social accountability, and stronger motivation to act responsibly, empathy may remain a feeling or recognition rather than becoming a guide for action.

Overall, these findings show that empathy in misinformation contexts was vulnerable to social and emotional pressure. It could be weakened by dislike, humor, attention-seeking, money, peer dynamics, repeated exposure, or the sense that a situation was only a joke. Empathy may also become strongest only after harm is experienced directly, which limits its ability to prevent misinformation from spreading in the first place. This finding does not mean empathy is unimportant. Rather, it suggests that SEL-based misinformation education should support empathy with concrete practices: pausing before sharing, considering consequences, discussing social rewards, and practicing responsible decision-making when empathy competes with entertainment or social gain.

5.3.8. Summary of the Implications from Phase II

Taken together, the Phase II findings show that teenagers understood misinformation as a complex social, emotional, and technological problem rather than simply as false information. Across the learning module, participants defined misinformation through falsity, unverified sharing, missing context, relational harm, rapid spread, AI amplification, and family-based experiences. They recognized that misinformation moves quickly through networks, changes as it circulates, and can create

consequences that are difficult to undo. Teenagers also described practical strategies such as checking sources, pausing before sharing, avoiding uncertain content, and correcting others. However, these strategies were not always consistently applied, especially when participants felt uncertain, socially distant from the person affected, or unsure whether intervention was their responsibility.

The findings also show that the SEL-based learning module activated important emotional and social processes. Through gameplay, role-play, discussion, visual reflection, and community messages, teenagers expressed emotional awareness, perspective-taking, recognition of consequences, and an emerging sense of agency. They interpreted empathy as a way of seeing the person behind the screen, responsibility as action-oriented practice, and responsible decision-making as the point where awareness, emotion, and social judgment come together. These findings suggest that SEL helped teenagers move beyond asking only whether information was true or false. It supported them in asking how misinformation affects people, why someone might share it, who may be harmed, and what action should be taken. However, Phase II also revealed a persistent awareness–action gap: teenagers could recognize harm and express empathy, but still described situations where humor, attention, uncertainty, dislike, relational distance, or entertainment could override responsible action.

Finally, Phase II offers design implications for SEL-based misinformation education. Teenagers responded strongly to experiential and interactive learning mechanisms, including gameplay, role-play, group discussion, visual artifacts, and structured debriefing. These activities made misinformation feel more concrete, social, and emotionally meaningful, especially when connected to real-world experiences such as school rumors, group chats, anonymous accounts, AI-generated content, and family misinformation. However, the findings also show that playfulness alone is not enough. Because simulated activities can feel more entertaining than serious, learning modules need strong reflective structures that help teenagers connect the activity to real consequences and future action. Overall, Phase II suggests that effective SEL–MIL education should combine engagement with reflection, empathy with responsibility, and awareness with opportunities to practice action in realistic social contexts.

CHAPTER 6

DISCUSSION

6.1. Returning to the Research Questions

This chapter returns to the central research question guiding this study: *How can Social and Emotional Learning (SEL), guided by the CASEL (Collaborative for Academic, Social, and Emotional Learning) framework, be meaningfully integrated into misinformation education for teenagers?* The chapter interprets findings from both phases to discuss the possibilities and limits of SEL-based misinformation education. Its central argument is that misinformation education should not treat misinformation only as a cognitive or technical problem. Instead, this study shows that teenagers encounter misinformation as an emotional, relational, ethical, and socially situated experience, suggesting that effective misinformation education should address not only what teenagers know, but also how they feel, respond, and act within their digital communities.

Across the two phases, the findings suggest that SEL can broaden misinformation education by helping teenagers reflect on how misinformation feels, who it affects, how it circulates through relationships, and what responsibilities may be involved in responding to it. Phase I showed that educators viewed current misinformation education as too narrowly focused on cognitive evaluation. They instead emphasized the importance of learning experiences that connect misinformation to real-world situations, including role-play, structured debriefing, and guided reflection. Phase II showed that teenagers connected misinformation to rumors, humor, trust, AI-generated content, peer pressure, family contexts, and reputational harm. SEL became meaningful when these competencies were grounded in concrete misinformation situations.

Together, the two phases address the study's three sub-research questions. In response to Sub-RQ1, educators saw SEL as a meaningful extension of MIL because it addresses emotional, relational, and ethical dimensions that detection-oriented approaches often overlook. In response to Sub-RQ2, teenagers expressed SEL-related meaning-making through emotional reflection, empathy, perspective-taking, social awareness, relationship-based correction, and responsible decision-making.

In response to Sub-RQ3, the findings identified opportunities for SEL–MIL integration, including deeper engagement, structured debriefing, role-based perspective-taking, and community-oriented expression, as well as challenges such as peer pressure, entertainment-oriented engagement, fragile empathy, structural limits of digital environments, and teenagers’ still-developing sense of agency.

The chapter develops this argument in four parts. It first explains why SEL belongs in misinformation education by interpreting misinformation as a social-emotional challenge and by reframing teenagers as emerging digital participants rather than passive recipients or blameworthy users. It then examines how CASEL competencies became meaningful in this context, before translating these insights into instructional design recommendations for SEL–MIL learning. The chapter concludes by positioning SEL-based misinformation education within the broader goal of responsible digital citizenship, emphasizing the need to connect critical information skills with empathy, social responsibility, ethical judgment, and agency in responsible digital action.

6.2. Role of SEL in Misinformation Education

This section discusses how SEL functioned within misinformation education in this study. The findings show that SEL helped teenagers move beyond identifying misinformation as false content and begin interpreting it as a social-emotional issue involving empathy, responsibility, agency, and real-world impact. Through role-play, reflection, and debriefing, teenagers considered how misinformation affects others, how their own choices may contribute to harm, and how they might respond more thoughtfully in peer-based digital contexts.

6.2.1. Understanding Social Impact

This section argues that SEL contributes to misinformation education by making the social impact of misinformation more visible. Before teenagers can empathize with those harmed by misinformation, feel responsible for their own digital actions, or recognize their agency in responding to misinformation, they first need to understand that misinformation has consequences beyond a single post, joke, rumor, or edited image. This matters because the social consequences of misinformation are often delayed, distributed, and difficult to see at the moment of sharing. In online spaces, users may not immediately see the people affected by their actions, a condition that can weaken account-

ability and make harm feel more distant (Suler, 2004; Terry & Cain, 2016). The findings show that participants began to describe misinformation as something that can snowball across peer networks, damage reputations, affect relationships, and create consequences beyond the original act of sharing. In this sense, understanding social impact provides the foundation for the later discussion of empathy, social responsibility, and agency: it helps teenagers see why misinformation matters in real life.

A key contribution of the SEL-based learning module was that it helped teenagers recognize the real-world consequences of misinformation. Misinformation often spreads through social networks, where repetition, emotional appeal, visibility, and peer sharing can amplify content beyond its original audience (Del Vicario et al., 2016; Vosoughi et al., 2018; Wardle & Derakhshan, 2017). This process is especially relevant in adolescent peer contexts, where humor, social approval, identity performance, and group interaction shape online sharing behaviors (Herrero-Diz et al., 2020; Nesi & Prinstein, 2015; Sherman et al., 2016). Participants' reflections showed this understanding clearly. One participant described misinformation as something that can "snowball into something way bigger," while another wrote that "one small rumor can blow up even if it's not true and doesn't have facts to back it up." A visual reflection similarly showed misinformation moving from a small group chat to a larger group chat and eventually producing "real life consequences." These responses suggest that teenagers came to understand misinformation not only as an inaccurate message, but as a cumulative social process shaped by circulation, repetition, and peer amplification. Thus, SEL-based learning helped participants see how seemingly small actions, such as sharing, reposting, laughing, ignoring, or staying silent, can become socially consequential.

The visual reflection activity further supported this understanding by helping participants externalize consequences that may otherwise remain abstract or hidden. Prior research on participatory visual methods suggests that drawing, mapping, posters, and other creative visual practices can help young people express thoughts, feelings, identities, and experiences that may be difficult to communicate through verbal discussion alone (Barley & Russell, 2019; Gauntlett, 2005; Literat, 2013). Visual methods are particularly useful with children and adolescents because they provide

a playful, accessible, and less language-dependent way to represent complex social and emotional experiences (Literat, 2013; Yonas et al., 2013). In this study, visual reflection allowed teenagers to represent misinformation as movement, escalation, harm, and consequence. By drawing how misinformation traveled from one space to another, participants made visible the social pathway through which a seemingly small act could become larger and more damaging.

Additionally, this visual dimension shows that teenagers' everyday digital environments are increasingly image-based. Social media platforms rely heavily on images, videos, memes, screenshots, and edited visual content, and visual misinformation can be especially persuasive because images often feel immediate, concrete, and believable (Hameleers et al., 2020; Weikmann & Lecheler, 2023). Research on visual misinformation suggests that image-based falsehoods can differ from text-based misinformation in how they are processed and how they affect attitudes and behavior (Weikmann & Lecheler, 2023). For teenagers, whose digital interactions often occur through highly visual formats, making the consequences of misinformation visible is therefore not only a research strategy but also a developmentally and culturally relevant educational strategy.

Making misinformation visible also helped foreground the victim's experience. In many online contexts, the person harmed by misinformation is not physically present, and the emotional consequences are not immediately seen. This distance can make false content appear funny, harmless, or socially rewarding to those who circulate it. The online disinhibition effect helps explain this dynamic: anonymity, invisibility, asynchronicity, and reduced social cues can make people feel less accountable for online actions and less aware of others' emotional responses (Suler, 2004). In misinformation contexts, those who share or react to harmful content may not see the embarrassment, fear, anxiety, or reputational damage experienced by the person targeted. In this study, one teenager explained that misinformation can spread about a person who did not create or consent to it, yet that person still becomes the one harmed by it. This reflection highlights the relational asymmetry of misinformation harm: those who circulate false content may experience it as entertainment or peer interaction, while the person targeted may experience embarrassment, anxiety, reputational damage, or loss of control.

Connecting misinformation to real-world consequences gives verification a clearer social and ethical purpose. Telling teenagers to “check before sharing” or “verify the source” can remain a checklist activity if they do not understand why these actions matter. Prior scholarship has argued that media literacy should move beyond technical evaluation and support more reflective, civic, and human-centered engagement with information (Hobbs, 2017; McDougall, 2019; Mihailidis, 2018). When viewed through SEL, verification becomes more than a technical skill; it becomes a way of reducing harm to others. By making social impact visible, SEL gives misinformation education a stronger foundation for empathy, social responsibility, and agency. Once teenagers understand that misinformation can snowball into real-world harm, empathy becomes more than feeling sorry for someone, social responsibility becomes more than following rules, and agency becomes more than individual confidence. Each becomes connected to the practical question of how teenagers can participate more carefully and responsibly in their digital communities.

6.2.2. Empathy as a Relational Lens for Misinformation Harm

Empathy helped make misinformation harm more visible by connecting it to people and relationships that teenagers could recognize in their own lives. In this study, teenagers most often expressed empathy when misinformation was connected to close or familiar relationships, such as friends, family members, classmates, or peers. Many participants described misinformation through family and friendship contexts: a parent believing false information, a friend being misled, a classmate becoming the target of a rumor, or someone close needing help to understand what was true. These examples suggest that teenagers did not always approach misinformation as an abstract civic or informational problem. Rather, they often made sense of it through the people around them. This pattern aligns with research showing that adolescents’ moral reasoning, emotional development, and online behavior are strongly shaped by peer relationships, family communication, belonging, and social identity (Brown, 2004; Crone & Dahl, 2012; Livingstone & Third, 2017; Nesi & Prinstein, 2015; L. Steinberg & Morris, 2001). When misinformation was connected to someone they cared about or could personally imagine, teenagers were more likely to recognize emotional harm and express a willingness to help.

This relational pattern shows that adolescence is a developmental period in which identity, belonging, and social understanding are strongly shaped by relationships. Peer relationships become especially significant during adolescence, as young people become more sensitive to peer evaluation, social comparison, acceptance, and exclusion (Blakemore, 2018; Brown, 2004; Crone & Dahl, 2012; L. Steinberg, 2008). At the same time, family remains an important context for adolescents' media use, moral learning, and information practices (Boyd, 2014; Clark, 2011; Livingstone & Third, 2017). Because of this, misinformation may become meaningful to teenagers not only when it is presented as a broad public problem, but when it is connected to familiar social roles: being a friend, sibling, child, classmate, or bystander. In this study, empathy emerged most clearly when participants could locate misinformation within these close relational contexts. This suggests that empathy was relational in nature, rooted in the everyday social worlds that teenagers already care about.

This finding complicates the argument that teenagers are simply indifferent toward the consequences of misinformation. Prior research suggests that young people may show limited concern about misinformation's broader social consequences or may assume that misinformation affects others more than themselves (Corbu et al., 2022; Zozaya-Durazo et al., 2024). However, the teenagers in this study were not consistently indifferent. Their concern depended on whether the consequences of misinformation were made concrete, familiar, and personally imaginable. When misinformation was discussed as a broad public issue, participants often responded in general terms. When it was connected to a friend, family member, classmate, or peer, they more often described emotional harm, including embarrassment, fear, anxiety, exclusion, betrayal, and loss of trust. Apparent indifference, therefore, may reflect not only a lack of care but also the distance and abstraction through which misinformation is often presented. This interpretation is consistent with empathy research suggesting that people respond more strongly when harm is identifiable, emotionally concrete, and socially close rather than distant or abstract (Hoffman, 2000; Slovic, 2007; Small et al., 2007).

This relational quality of empathy is especially important in digital environments, where the person harmed by misinformation is often absent from view. Suler (2004) argues that online disinhibition is

shaped by conditions such as invisibility, asynchronicity, and social distance. These conditions can weaken users' awareness of how their actions affect others. A rumor, meme, manipulated image, or misleading post may feel casual, humorous, or socially rewarding to the person who sees it, while the person targeted by it may experience shame, reputational damage, isolation, or broken trust. Research on cyberbullying and online peer interaction similarly shows that mediated environments can reduce immediate emotional feedback, obscure consequences, and make it easier for adolescents to minimize harm (Barlińska et al., 2013; Boyd, 2014; Kowalski et al., 2014; Nesi & Prinstein, 2015). For teenagers, this distance may be intensified by peer visibility, social comparison, and the desire for belonging in online spaces (Livingstone & Third, 2017; Nesi & Prinstein, 2015; L. Steinberg & Morris, 2001). Empathy helped reduce this distance by making the absent person more socially present in participants' interpretation of misinformation.

This process of making the absent person socially present worked through both perspective-taking and emotional recognition. Cognitive empathy appeared when participants considered misinformation from different social positions through role-play and reverse role-play. They reasoned from the perspectives of victims, sharers, bystanders, influencers, and people who created or amplified misinformation. These activities helped them see that the same misinformation event could be experienced differently depending on one's position. What seemed like a joke to one person could feel humiliating to another, and what seemed like harmless sharing could become threatening when viewed from the perspective of the person targeted. This perspective-taking helped participants move beyond the surface content of misinformation and consider the social relationships surrounding it (Dallacqua et al., 2022; Galinsky & Moskowitz, 2000; Galinsky et al., 2005; Todd et al., 2011).

Affective empathy became more visible during reflection and debriefing, when participants discussed how misinformation might feel to the person affected by it. Teenagers named emotions such as embarrassment, sadness, anxiety, fear, anger, and loss of trust. These responses showed that they were not only identifying a harmed person but also recognizing the emotional weight of the harm. This affective dimension is important because misinformation often harms people through social

and emotional consequences rather than direct physical injury. A rumor can damage reputation. A manipulated image can produce humiliation. A false accusation can create fear or isolation. A misleading post can weaken trust within a peer group. Empathy helped participants recognize these less visible forms of harm as real (Eisenberg et al., 2006; Silke et al., 2021, 2024).

Overall, empathy matters in misinformation education because it makes harm visible, imaginable, and emotionally meaningful. The findings suggest that teenagers are not necessarily indifferent to misinformation consequences; instead, they may need concrete and relational opportunities to see who is affected and how. When misinformation was connected to friends, classmates, family members, or personally imaginable people, teenagers showed stronger emotional recognition and concern. This relational form of empathy is important because teenagers often understand misinformation through the relationships that surround their everyday lives. This provides an important foundation for the next section, where I discuss how recognizing harm can shape teenagers' understanding of social responsibility in digital information practices.

6.2.3. Emerging Social Responsibility

Social responsibility emerged when teenagers began to move from recognizing that misinformation harms others to understanding that they may be involved in that harm. Awareness alone does not necessarily create responsibility. Teenagers may know that misinformation is harmful, but still see it as something caused by other people, platforms, influencers, or the original creator. The SEL-based learning module addressed this gap by supporting perspective-taking and responsible reflection. Participants were encouraged to consider how misinformation is produced, circulated, received, and experienced by different people. This matters because SEL is not only about emotional awareness; it also supports social awareness and responsible decision-making, helping learners connect their own choices to the well-being of others (CASEL, 2020; Durlak et al., 2011).

Perspective-taking was central because it helped teenagers reinterpret misinformation as a social process involving multiple actors, rather than a single false message. In the learning module, role-based and reverse-perspective activities were used not as ends in themselves, but as scaffolds for SEL-oriented reflection. These activities helped teenagers consider not only how misinformation

affects a victim, but also how ordinary actions such as creating, sharing, laughing, ignoring, or staying silent may contribute to harm. Research on perspective-taking suggests that considering another person's standpoint can support empathic concern and reduce self-centered interpretations of social situations (Galinsky & Moskowitz, 2000). In this study, this shift was central to emerging social responsibility: teenagers began to move from "others are affected" to "I may be involved."

This shift from external harm to personal involvement appeared in how teenagers reflected on emotion and action. One teenager explained that before the experience, they might have focused mainly on how they felt in the moment and expressed that feeling immediately. After the activity, however, they described becoming more aware of "everyone else's point of view" and more considerate of how their actions might affect other people. This reflection shows how SEL can extend the movement from emotion to action. Sharing was no longer understood only as personal expression; it became a decision with possible consequences for others. This connection between self-awareness, social awareness, and responsible decision-making is central to SEL-based learning (CASEL, 2015; Taylor et al., 2017).

The emergence of responsibility was also connected to teenagers' recognition that small online actions can produce larger consequences. One teenager reflected that instead of only thinking about what they felt like sharing, they should consider what might happen afterward because sharing an opinion could lead to consequences "bigger than it needs to be." Another visual reflection described the shift from "spreading info without thinking" and "thinking about only yourself" to "fact checking before spreading info" and "taking into consideration the effect on others." These reflections suggest that teenagers were not simply repeating a rule such as "do not share misinformation." Rather, they were beginning to understand why pausing, checking, and considering others mattered. This is especially relevant because adolescent online behavior is often shaped by peer approval, visibility, humor, and social feedback (Herrero-Diz et al., 2020; Sherman et al., 2016).

Social responsibility also appeared most strongly when misinformation was connected to close relationships. The previous section showed that teenagers' empathy was not universal or automatic; it was relational. Their caring became stronger when misinformation involved people they knew, such

as friends, family members, classmates, or someone in their immediate social world. One teenager described a situation in which someone they knew was spreading false information about another person, and explained that the responsible response would be to discourage the misinformation before it caused harm. This suggests that responsibility may develop most meaningfully when misinformation education connects harm to relationships that teenagers recognize as personally and socially important. Research on adolescent prosocial development similarly suggests that helping behavior is shaped by empathy, relational closeness, and perceived responsibility (Hoffman, 2000).

In this sense, social responsibility can be understood as empathy in action. Empathy helped teenagers recognize that misinformation could hurt someone; social responsibility helped them consider what they should do in response. This moves misinformation education beyond individual detection and toward ethical digital participation. Digital citizenship scholarship similarly frames responsible online participation as more than safe or appropriate individual behavior; it also involves ethical participation, care for others, and contribution to healthier digital communities (Choi et al., 2017; Mihailidis & Viotty, 2017). The goal is not only for teenagers to ask, “Is this information accurate?” but also, “How might this affect someone?” and “What should I do if this misinformation is spreading around me?”

Taken together, the findings suggest that SEL-based learning helped teenagers connect perspective-taking with responsibility. The role-based and reverse-perspective activities provided a structure through which teenagers could indirectly experience different positions in the misinformation process, making visible how harm is produced and how ordinary participation can matter. This responsibility remained emerging and relational rather than fully resolved. Teenagers may still find it difficult to act responsibly when peer approval, humor, uncertainty, or social pressure are involved; research on moral disengagement helps explain why young people may recognize harm while still struggling to intervene in socially complex situations (Bandura, 2001; Paciello et al., 2013). This study therefore does not claim behavioral change. Rather, it shows that SEL-based learning created reflective conditions in which teenagers began to articulate responsibility toward others, especially people within their close social worlds.

6.2.4. Recognizing Agency

Agency became visible when teenagers began to recognize themselves as participants within misinformation systems, rather than only as observers of false information. Adolescents occupy multiple roles in digital information environments: they consume content, share posts, react to peers, participate in group chats, follow influencers, and sometimes create or remix media themselves. However, these roles are not always clearly recognized. Teenagers may understand misinformation as something produced by others or controlled by platforms, while underestimating how their own reactions, sharing decisions, silence, corrections, or encouragement can shape what happens next. This creates an awareness–agency gap: teenagers may recognize misinformation as harmful, but still struggle to see themselves as capable actors within misinformation circulation.

This awareness–agency gap connects to a broader body of literature showing that knowledge, awareness, or intention does not automatically translate into action. In organizational studies, Pfeffer and Sutton (2000) describe this problem as the ‘knowing–doing gap,’ referring to the difficulty of converting knowledge into effective practice. In environmental behavior research, Kollmuss and Agyeman (2002) discuss a similar ‘knowledge–action gap,’ showing that environmental knowledge and concern do not necessarily lead to pro-environmental behavior. In social psychology and health behavior research, Ajzen (1991)’s theory of planned behavior and Sheeran (2002)’s work on the “intention–behavior gap” similarly show that intentions do not always result in action. Across these frameworks, people may understand a problem and even agree with recommended actions, yet still fail to act because behavior is shaped by social norms, perceived control, habits, emotions, situational pressure, and available opportunities for action.

This gap is especially relevant for adolescents because their digital choices often occur in fast-moving peer contexts where humor, belonging, visibility, and social approval can override reflective judgment. Recent research on young people and false information similarly shows that youth may possess awareness of misinformation and know evaluation strategies, but their responses are shaped by platform environments, peer relationships, confidence, perceived efficacy, and uncertainty about what action is appropriate (Kops et al., 2025; Selnes, 2024). Therefore, recognizing misinformation

as harmful is only one part of agency. Teenagers also need opportunities to imagine themselves as capable participants who can pause, question, correct, refuse to share, support others, or reshape peer norms around information.

This gap is not only informational; it is also developmental and social. Adolescence is a period of identity formation, peer belonging, social comparison, and role confusion, as young people negotiate who they are and how they want to be recognized by others (Erikson, 1968; L. Steinberg & Morris, 2001). In online environments, these developmental tasks are intensified because teenagers are constantly asked to perform identity, respond to peers, and make visible choices in public or semi-public spaces (Boyd, 2014; K. Davis, 2023). In misinformation contexts, teenagers may not experience themselves simply as rational information evaluators. They may also occupy shifting social roles as friends, sharers, bystanders, joke-makers, defenders, or silent observers. This role complexity helps explain why misinformation education should not only teach teenagers how to evaluate content, but also help them reflect on who they are, what roles they occupy, and how their decisions affect others.

The baseline survey finding that agency was the lowest-rated SEL competency is important in this context. It suggests that teenagers may have had less confidence in their ability to act, intervene, or make a difference in misinformation situations compared with other forms of awareness. This does not mean that they lacked concern or knowledge. Rather, it suggests that recognizing misinformation and feeling responsible for it may not automatically translate into perceived agency. This distinction aligns with self-efficacy theory, which emphasizes that people are more likely to act when they believe they have the capacity to influence outcomes (Bandura et al., 2003). It also connects to youth civic agency research, which shows that young people's willingness to participate depends not only on values, but also on whether they believe their actions matter (Wray-Lake & Syvertsen, 2011; Wray-Lake et al., 2016).

Transformative SEL offers a useful way to interpret this finding because it frames agency not only as individual confidence, but also as the ability to understand and act within social conditions that shape one's life. Rather than treating teenagers as either fully responsible individuals or powerless

victims of platforms, Transformative SEL emphasizes critical reflection, identity, belonging, agency, and social responsibility (Jagers et al., 2019, 2021). This framing is relevant for misinformation education because teenagers make decisions in environments shaped by peer visibility, engagement metrics, humor, and social pressure. Therefore, the goal is not simply to tell teenagers to make better choices; it is to help them understand where their choices matter and how they can act responsibly within systems.

The community message activity further strengthened this sense of agency by positioning teenagers as advisors to younger people. Instead of only asking participants what they personally learned, the activity invited them to translate their reflection into guidance for a younger audience. This shift worked as a role-assignment mechanism by positioning teenagers as responsible digital citizens who could warn, guide, and support others, rather than only receive misinformation education as learners (Choi et al., 2017; Jenkins et al., 2006; Mihailidis & Viotty, 2017; M. Ribble, 2015). In this more empowered community role, they were no longer only learners receiving misinformation education, but also youth contributors with responsibility toward a broader audience. Their messages emphasized thinking before posting, understanding the consequences of online action, protecting other people's information, regulating emotional reactions, and considering how digital behavior affects others (Choi et al., 2017; M. Ribble, 2015). This activity therefore helped teenagers move from role confusion toward role awareness by imagining how they could pause, question, correct, refuse to share, support others, or reshape peer norms around information.

6.3. Teenagers' Meaning-Making of CASEL Competencies

Before discussing each CASEL competency, this section first explains how the five competencies are interpreted in relation to Media and Information Literacy (MIL). MIL is commonly understood as a set of competencies that enables people to access, evaluate, create, and share information and media content responsibly (UNESCO, 2011). Rather than treating the CASEL competencies as a general list of social-emotional skills, the following subsections examine how each competency becomes meaningful within teenagers' misinformation experiences. Each subsection begins with the standard CASEL definition, then reinterprets the competency in the context of misinformation

education. The discussion then considers how teenagers expressed the competency in everyday language, how reflective guiding questions can support the competency, and how the competency connects to specific stages of the MIL process, including access, evaluation, creation, and sharing. This structure is intended to show how SEL can complement MIL by making visible the emotional, relational, and ethical conditions that shape teenagers' engagement with misinformation.

Self-Awareness: Noticing Triggers and Biases

Self-awareness emerged in this study as an entry-point competency for misinformation education. In the CASEL framework, self-awareness refers to the ability to understand one's emotions, thoughts, values, and how they influence behavior (CASEL, 2020). In this study, educators viewed self-awareness as foundational because teenagers first need to recognize their own reactions before they can pause, question, verify, respond to peers, or make responsible decisions. This interpretation is consistent with broader SEL research, which positions self-awareness as a basis for emotion regulation, social understanding, and responsible action (Durlak et al., 2011; Jagers et al., 2019; D. E. Jones et al., 2015).

In misinformation contexts, however, self-awareness requires more than identifying feelings. It requires teenagers to notice how emotions, assumptions, confidence, habits, and social motivations shape the way they interpret, trust, share, or ignore information. This shift shows that misinformation is often encountered through immediate emotional and social reactions rather than through slow, deliberate evaluation. Prior research has shown that online information behaviors are shaped not only by knowledge or reasoning, but also by attention, emotion, motivation, and social context (Ecker et al., 2022; Pennycook & Rand, 2021). Therefore, self-awareness becomes meaningful for misinformation education when teenagers begin to ask not only, "How do I feel?" but also, "Why am I reacting this way, and how might this reaction shape what I do next?"

This connection between self-awareness and MIL is most visible at the access stage. The moment teenagers encounter a surprising, funny, upsetting, or socially resonant post is also the moment when emotions can shape whether they pause, click, laugh, share, ignore, or engage further (Brady et al., 2017; Vosoughi et al., 2018). In this sense, self-awareness expands MIL beyond external

evaluation of content. It brings attention to the internal conditions that precede evaluation: the emotional trigger, the assumption of trust, the desire to belong, or the confidence that one already knows what is true. Self-awareness worked when teenagers could connect these internal reactions to the question of why they trusted, reacted to, or shared particular content. However, it was less visible when teenagers treated habitual behaviors, such as laughing at a rumor, trusting a post from a friend, forwarding something because it seemed funny, or staying silent in a group chat, as ordinary social behavior rather than as participation in misinformation's circulation (Boyd, 2014; Nesi et al., 2018).

The findings from this study reflected a tension between recognizing misinformation's harm and recognizing one's own participation in that harm. Teenagers could often identify that misinformation might create embarrassment, confusion, betrayal, reputational harm, or broken trust for others, but they were less consistent in connecting these consequences to their own everyday responses. The baseline survey supports this interpretation: emotional reactivity was one of the stronger patterns in teenagers' responses, suggesting that they already recognized emotion as part of misinformation engagement. However, recognizing that misinformation is emotional is not the same as recognizing how one's own emotional response may shape action. Surprise, amusement, anger, embarrassment, curiosity, fear, loyalty, or confidence can all influence whether someone shares, verifies, laughs, ignores, or intervenes. This pattern aligns with research showing that adolescents' online behaviors are shaped by peer norms, belonging, and social visibility (Nesi et al., 2018; L. Steinberg & Morris, 2001). From a self-awareness perspective, the issue was not that teenagers lacked emotion or concern. Rather, they needed support in recognizing how their emotional triggers and social motivations could influence their choices in complex misinformation situations before those reactions became digital action.

The SEL-based learning module created a structure for making these internal processes more visible. Role cards, emotion tokens, motivation prompts, and debriefing questions encouraged teenagers to connect actions, feelings, motivations, and consequences. The guiding questions were adapted from Probst's reflective questioning approach, which emphasizes structured questions that help

learners move beyond description toward interpretation, emotional awareness, meaning-making, and future-oriented action (Probst, 2017). Instead of asking only whether a piece of information was true or false, the activities asked students to consider why someone might share misinformation, why someone might believe it, why someone might remain silent, and how different people in the scenario might feel. This kind of structured reflection aligns with experiential and reflective learning theories, which argue that experience alone does not guarantee learning; learners need opportunities to interpret experience, examine assumptions, and connect reflection to future action (Boud et al., 2013; Kolb, 2014). In this sense, self-awareness functioned as an entry point for helping teenagers recognize how their emotions and assumptions are connected to their roles in misinformation's social circulation.

Self-Management: Regulating Sharing and Reaction

Self-management emerged in this study as the competency most closely associated with slowing down immediate reactions to misinformation. In the CASEL framework, self-management refers to the ability to regulate one's emotions, thoughts, and behaviors across different situations (CASEL, 2020). In misinformation education, educators connected this competency to teenagers' ability to pause before sharing, calm down before reacting, check information before believing it, and resist impulsive responses in fast-moving digital spaces. This emphasis aligns with misinformation research showing that prompting people to think about accuracy or slow down before sharing can reduce the spread of false or misleading content (Pennycook & Rand, 2021; Pennycook et al., 2021). However, this study suggests that for teenagers, self-management is not only a cognitive strategy for improving accuracy. It is also a social-emotional capacity for regulating reactions within peer groups, emotional situations, and online social pressure.

In MIL terms, self-management is most relevant in the movement from access to evaluation and sharing. Once teenagers encounter misinformation, they need a regulatory moment that allows them to pause before reacting. Without this pause, the MIL process can collapse: access can move directly into liking, laughing, reposting, commenting, or forwarding before credibility or consequences have been considered. Self-management therefore creates the space in which evaluation can oc-

cur. It worked when teenagers understood pausing, checking, and withholding reaction as practical strategies within a digital encounter. However, it was harder to apply when the social environment rewarded immediate response, especially in group chats, humorous exchanges, or peer-shared content where quick engagement signaled belonging (Boyd, 2014; Nesi et al., 2018). The issue was not that teenagers lacked the idea of pausing; most could name it. Rather, applying that pause in socially rewarding online contexts required more than general self-control.

The teenager data reflected a tension between knowing self-management strategies and applying them under social pressure. Participants often described self-management in practical terms: thinking before posting, checking before sharing, not believing something immediately, recognizing the limits of their own knowledge, and being careful when content felt shocking, funny, emotional, or peer-endorsed. These behaviors are consistent with media literacy recommendations such as source checking, lateral reading, and verification before sharing (McGrew et al., 2017, 2018). Yet the data also showed that these strategies were shaped by social context. Teenagers had to decide whether to pause when friends had already reacted, when the content came from someone they trusted, when the post seemed funny, or when questioning it might disrupt the group atmosphere. In this sense, self-management was not simply about knowing what to do. It was about being able to do it under emotional and social pressure.

This finding extends existing misinformation scholarship by reframing self-management as digitally situated self-regulation. Prior misinformation research has often framed slowing down and redirecting attention toward accuracy as a way to support more reflective and accuracy-oriented judgment (Ecker et al., 2022; Pennycook & Rand, 2021). This is important, but it does not fully capture the conditions under which teenagers encounter misinformation. Teenagers do not pause in isolation. They pause, or fail to pause, within friendships, group chats, humor, peer expectations, and fast-moving platform environments. Research on adolescence similarly shows that young people's decisions are shaped by peer presence, social norms, belonging, and social visibility (Boyd, 2014; Nesi et al., 2018; L. Steinberg & Morris, 2001). Therefore, the challenge of self-management in misinformation contexts is not only controlling an internal impulse. It is regulating one's response

while also navigating the desire to fit in, avoid conflict, maintain relationships, and participate in shared humor.

Building from this distinction, self-management in misinformation education can be understood as digitally situated self-regulation. Prior misinformation research has often framed pausing as a way to support more reflective and accuracy-oriented judgment (Ecker et al., 2022; Pennycook & Rand, 2021). This remains important, but it does not fully capture the conditions under which teenagers encounter misinformation. Teenagers do not pause in isolation. They pause, or fail to pause, within friendships, group chats, humor, peer expectations, and fast-moving platform environments. Research on adolescence similarly shows that young people's decisions are shaped by peer presence, social norms, belonging, and social visibility (Boyd, 2014; Nesi et al., 2018; L. Steinberg & Morris, 2001). Therefore, the challenge of self-management in misinformation contexts is not only controlling an internal impulse. It is regulating one's response while also navigating the desire to fit in, avoid conflict, maintain relationships, and participate in shared humor.

For this reason, self-management should be taught not only as “pause before sharing,” but also as a guided process of knowing what to consider during the pause. Useful guiding questions include: What am I feeling right now? Why do I want to react or share? Did I check whether this is accurate? Am I reacting because it is true, or because it is funny, shocking, emotional, or shared by friends? Am I trying to manage myself, or am I trying to fit into the group? What could happen if I wait, ask, check, or choose not to share? These questions align with Probst's emphasis on guiding learners to examine feelings, assumptions, interpretations, and possible actions rather than simply describing an experience (Probst, 2017). In this way, self-management becomes a digitally situated form of self-regulation. It supports MIL by protecting the space between encountering information and sharing it, allowing emotional awareness and critical evaluation to take place before digital action. Therefore, self-management is most useful in misinformation education when it is taught as a practical strategy for navigating real social situations, rather than as a generic character trait or abstract form of self-control.

Social Awareness: Understanding Who Is Affected

Social awareness emerged as one of the most central CASEL competencies in this study because it helped teenagers move beyond evaluating misinformation only as a matter of accuracy and begin recognizing its human impact. In the CASEL framework, social awareness refers to the ability to understand others' perspectives, empathize with people from diverse backgrounds, and recognize social and ethical norms for behavior (CASEL, 2020). In misinformation education, this competency matters because misinformation does not only distort facts; it can also affect how people are perceived, trusted, excluded, embarrassed, or harmed within a social community. Prior misinformation and media literacy research has contributed important insights into belief, correction, source evaluation, and credibility assessment (Ecker et al., 2022; McGrew et al., 2017; Pennycook & Rand, 2021; Wineburg & McGrew, 2019). This study extends that work by showing that teenagers also need social awareness to ask not only, "Is this information true?" but also, "Who might be affected by this information, and how?"

In MIL terms, social awareness gives information evaluation, creation, and sharing a human-centered purpose. It helps teenagers understand not only whether information is credible, but also why accuracy matters and how creating, reposting, or sharing content can affect people, relationships, reputations, and communities. This is especially important when misinformation circulates through humor, peer networks, social validation, and group interaction (Boyd, 2014; Nesi et al., 2018). The findings from this study reflected this broader understanding. Educators described misinformation as a problem that enters the social world of peer relationships, school communities, reputation, and trust. Teenagers made this point concrete through examples of rumors, AI-generated images, edited posts, and peer sharing, recognizing that misinformation could embarrass someone, damage reputation, create confusion or betrayal, and leave people feeling powerless once false content spread beyond their control.

This social and emotional understanding helps explain why social awareness was most visible when misinformation's consequences were made concrete through peer-centered scenarios. When teenagers could imagine a friend, classmate, sibling, or familiar peer being harmed, they were more

likely to express concern and recognize the seriousness of misinformation. Their empathy was therefore strongly relational. Concern did not usually begin as an abstract moral responsibility toward unknown others; it often began with people within their everyday social world. Teenagers cared most clearly when the harmed person felt close, familiar, or socially recognizable. This pattern aligns with research showing that adolescent social judgment is shaped by peer proximity, belonging, and group norms (Boyd, 2014; Crone & Dahl, 2012; L. Steinberg & Morris, 2001).

This relational form of social awareness also shaped how teenagers interpreted those who spread misinformation. Social awareness was not expressed only as concern for victims. In some cases, it also appeared as forgiveness or understanding toward those who caused harm. A few teenagers suggested that people who spread misinformation were not always acting with malicious intent. They may have made a mistake, followed the group, acted impulsively, or failed to think through the consequences. This is an important nuance because it shows that empathy in misinformation education is not limited to recognizing harm. It can also support more relational responses, including understanding, repair, and the possibility of restoring trust after harm occurs.

However, social awareness did not extend equally across all situations. Teenagers were less consistent in recognizing harm when the affected person was socially distant, unfamiliar, or outside their immediate peer community. This study identifies this pattern as a form of stranger disengagement: concern declined when the harmed person felt abstract or disconnected from teenagers' own relationships. Online environments can intensify this problem because digital distance often hides the affected person. A rumor, meme, edited image, or misleading post may appear entertaining, while the person targeted by it may experience shame, isolation, anxiety, or reputational harm. Online disinhibition and social distance can make it easier for users to joke, react, or share without fully seeing the person behind the content (Marwick & Boyd, 2014; Suler, 2004). Therefore, the limitation of social awareness is not simply that teenagers lack empathy. Rather, empathy may remain bounded by relational closeness unless learning activities deliberately help students imagine harm beyond their immediate social circle.

The SEL-based learning module supported this process by creating opportunities for empathic

reflection. Role cards, emotion tokens, scenario-based reflection, and group debriefing encouraged teenagers to consider how misinformation might feel from different positions, including the victim, sharer, bystander, producer, influencer, and community member. The guiding questions, adapted from Probst's reflective questioning approach, asked students to consider questions such as: What if I share? Who is affected? What impact can I make? (Probst, 2017). These questions helped teenagers move from evaluating misinformation as an isolated post to considering its emotional and relational consequences for others. This design reflects experiential and reflective learning theories, which argue that experience becomes educational when learners are supported in interpreting events, examining assumptions, and connecting experience to meaning (Boud et al., 2013; Kolb, 2014).

Taken together, these findings suggest that social awareness should be understood as a key competency for misinformation education. It does not replace fact-checking, source evaluation, or critical thinking; rather, it gives those skills a human-centered reason for use. Social awareness worked when teenagers could see misinformation as something that affects real people and real relationships. It was less effective when harm remained distant, invisible, or disconnected from their peer world. Therefore, misinformation education should not only teach students how to identify false information, but also help them recognize who may be affected by the information they access, create, share, or ignore. This finding prepares the next part of the discussion: if social awareness helps teenagers recognize misinformation's human impact, then relationship skills become important for how they respond to that impact within peer relationships and digital communities.

Relationship Skills: Responding With Relational Accountability

Relationship skills were the least visible CASEL competency across both the educator and teenager data. In the CASEL framework, relationship skills include communicating effectively, cooperating with others, resolving conflict, and seeking or offering help when needed (CASEL, 2020). In this study, educators more often emphasized self-awareness, social awareness, and responsible decision-making when discussing misinformation education. Similarly, teenagers more frequently described misinformation in terms of emotional harm, peer pressure, pausing before sharing, and recognizing consequences. They less often discussed how to communicate with peers, repair harm, respectfully

challenge false information, or support someone affected by misinformation. This low visibility does not mean that relationship skills are unimportant. Rather, it suggests an important limitation in how misinformation education is often framed: as a matter of individual awareness and judgment, rather than as a relational process involving communication, repair, and accountability.

One reason relationship skills may have been less visible is that misinformation education has often been organized around individual evaluation. Existing media and information literacy research has strongly emphasized source evaluation, fact-checking, lateral reading, and credibility assessment (McGrew et al., 2017, 2018). Similarly, misinformation intervention research often focuses on helping individuals slow down, attend to accuracy, and make better sharing decisions (Ecker et al., 2022; Pennycook & Rand, 2021; Pennycook et al., 2021). These approaches are important, but they can make misinformation response appear primarily as an individual task: I should check, I should pause, I should avoid sharing. The findings of this study suggest that this individual framing leaves less room for teaching teenagers how to respond relationally: how to question a friend, how to correct misinformation without humiliating someone, how to support a harmed peer, or how to interrupt misinformation in a group chat without escalating conflict.

In MIL terms, relationship skills are most relevant at the create and share stages. Responding to misinformation is not only a matter of identifying whether content is false; it often requires creating a response, asking a question, offering support, correcting a claim, or helping repair harm. These actions are communicative and relational as much as informational. Relationship skills worked in limited ways in this study. Teenagers could often name the importance of responding responsibly and could sometimes describe what they would ideally say. However, actual relational correction requires more than awareness. It requires trust, social confidence, communication strategies, and the ability to manage possible conflict (Silke et al., 2021). Relationship skills did not work as strongly when correction was perceived as a social risk. Questioning a friend, disagreeing in a group chat, or challenging widely shared content could create embarrassment, conflict, exclusion, or the appearance of disloyalty (Boyd, 2014; Nesi et al., 2018).

Although relationship skills were not strongly named by participants, the teenager data indirectly

showed why they are necessary. Teenagers described misinformation as something that often moved through friendships, peer groups, and group chats. They also suggested that information from friends could feel more trustworthy, and that questioning a friend could be socially difficult. This reflects broader research showing that adolescents' online behaviors are shaped by peer norms, belonging, social visibility, and the desire to maintain relationships (Boyd, 2014; Nesi et al., 2018; L. Steinberg & Morris, 2001). In this context, misinformation is not only encountered as content to be evaluated. It is encountered as something embedded in relationships. Therefore, even when relationship skills were not explicitly emphasized, the findings point to a latent need for them. Teenagers may need support not only in identifying misinformation, but also in navigating the relational risks involved in responding to it.

This distinction is especially important when comparing relationship skills with social awareness. Social awareness helps teenagers recognize who might be harmed by misinformation and how that harm might feel. Relationship skills concern what teenagers can do with that understanding in actual peer interactions. A teenager may recognize that a rumor is hurtful, but still not know how to speak up in a group chat. They may understand that a friend shared something false, but hesitate to correct the friend because they do not want to appear rude, judgmental, or disloyal. They may feel sympathy for a victim, but lack strategies for offering support or repairing harm. In this sense, the gap between social awareness and relationship skills matters. The findings suggest that teenagers may begin to understand misinformation's human impact before they know how to act relationally in response to it.

For this reason, relationship skills should be treated as one of the most necessary but hardest-to-reach areas for SEL–MIL integration. If misinformation spreads through peer networks, then misinformation education should help teenagers practice communication within those networks. This requires more than telling students to 'speak up' or 'correct misinformation.' It requires repeated practice in respectful disagreement, trust-based correction, peer support, and repair. Useful guiding questions include: How can I ask a friend where this information came from without embarrassing them? How can I suggest checking a claim together? How can I correct misinformation without making someone

feel attacked? How can I support someone harmed by a rumor? How can I help stop misinformation in a group chat without escalating conflict? These prompts align with Probst's use of guided questions to support reflection, perspective-taking, and future action (Probst, 2017). Together, they shift misinformation education from individual judgment to relational communication.

Responsible Decision-Making: Recognizing Digital Impact

Responsible decision-making emerged in this study as one of the most important, but also most difficult, CASEL competencies for teenagers to articulate and apply in misinformation contexts. In the CASEL framework, responsible decision-making refers to the ability to make caring and constructive choices about personal behavior and social interactions across different situations (CASEL, 2020). More broadly, SEL research connects responsible decision-making to ethical judgment, social awareness, prosocial behavior, and constructive participation in social contexts (Durlak et al., 2011; Jagers et al., 2019; L. M. Jones & Mitchell, 2016). In misinformation education, this competency is not simply about choosing the "correct" answer or identifying whether information is true or false. Rather, it concerns how teenagers make choices when information may affect emotions, relationships, reputations, trust, and communities. Responsible decision-making therefore involves asking not only whether information is accurate, but also what one's action may do in a social situation.

In MIL terms, responsible decision-making connects to all four stages: access, evaluation, sharing, and creation. However, it is most fully activated at the share and create stages, when the question shifts from "Is this true?" to "What should I do with this, and what might happen if I do?" (Mihailidis & Viotty, 2017). At this point, teenagers should decide whether to share, ignore, question, correct, support someone affected, or create a response. Responsible decision-making worked in this study when teenagers could articulate the ethical and relational stakes of a digital choice: who might be harmed, what consequences might follow, and what kind of participant they wanted to be in their digital community. It was more difficult when the social environment made responsible action feel unrealistic, especially when humor, peer endorsement, or social risk was present.

The findings suggest that teenagers could often recognize misinformation as harmful, but they did not always have a clear framework for deciding what responsible action would look like in complex

social situations. Participants understood that misinformation could damage reputations, create confusion, hurt friendships, or break trust. However, when misinformation was funny, shared by a friend, already circulating in a group chat, or socially accepted within a peer group, the responsible choice became less obvious. Should they ignore it, avoid sharing it, correct the friend, support the victim, ask for evidence, or wait? This uncertainty is important because misinformation decisions rarely occur in neutral conditions. Research on misinformation shows that sharing behavior is shaped by attention, motivation, emotion, and social context, not only by knowledge or accuracy judgment (Ecker et al., 2022; Pennycook & Rand, 2019a, 2021). For teenagers, these decisions are further complicated by peer norms, belonging, and social visibility (Boyd, 2014; Nesi et al., 2018; L. Steinberg & Morris, 2001).

The baseline survey and qualitative findings together reveal a tension around responsible decision-making. On one hand, teenagers recognized responsible decision-making as highly important in misinformation contexts. They emphasized the need to check before sharing, think about consequences, avoid harmful spread, and consider how misinformation might affect someone's reputation or relationships. On the other hand, responsible decision-making was also one of the competencies they seemed to struggle with most, especially when imagining how they would act in real social situations. This tension is consistent with research on adolescent moral development and moral disengagement, which suggests that young people may understand ethical principles in general but still struggle to act on them when harm is minimized, responsibility is diffused, or peer approval is at stake (Bandura, 2001; Paciello et al., 2013). In this study, teenagers appeared to value responsible choices in principle, but needed more support translating those values into realistic forms of digital action under pressure, uncertainty, humor, or social risk.

This tension between ethical recognition and practical action also shows why responsible decision-making is closely connected to agency. Responsible digital action requires more than recognizing that a choice is ethical; it also requires a sense that one's choice can matter. Some teenagers described responsibility in terms of impact, trust, and consequence, suggesting an emerging awareness that what they share, ignore, correct, or support can shape how misinformation affects others.

However, this sense of agency was not always secure. Teenagers could know that they should avoid spreading harmful content, but still doubt whether they could challenge a friend, influence a group chat, or reduce harm once misinformation was already circulating. This is the awareness–agency gap as it operates at the level of decision-making: teenagers could identify the responsible choice without always feeling that choosing it was realistic or consequential (Bandura, 2001). Digital citizenship scholarship similarly emphasizes that responsible participation requires not only individual judgment, but also ethical action, civic agency, respectful communication, and awareness of one’s role in digital communities (Boyd, 2014; Mihailidis & Viotty, 2017; M. Ribble, 2015).

The SEL-based learning module supported responsible decision-making by helping teenagers move from recognizing harm to considering choices that might reduce it. Through debriefing, reflection, and community-oriented messages, participants emphasized checking before sharing, thinking about others, avoiding harmful spread, and being more careful with information that could affect someone’s reputation or relationships. This reflects the value of experiential and reflective learning, which emphasizes that experience becomes educational when learners interpret events, imagine misinformation impacts, and connect reflection to future action (Boud et al., 2013; Kolb, 2014). To support this process more explicitly, misinformation education should include guiding questions that help teenagers move from recognition to choice: What could happen if I share this? Who might be affected? What do I know, and what do I still need to check? Am I choosing based on evidence, emotion, pressure, or group expectations? What are my options besides sharing or staying silent? What choice would reduce harm while still respecting the people involved? These prompts align with Probst’s use of guided questions to support reflection, perspective-taking, and future-oriented action (Probst, 2017). Such questions make responsible decision-making more concrete by helping teenagers connect information behavior to impact, agency, and ethical responsibility.

Taken together, these findings suggest that responsible decision-making should be understood as an emerging capacity rather than a measured outcome in this study. The learning module did not prove that teenagers would make responsible choices in future misinformation situations. Instead, it showed that when teenagers were given structured opportunities to reflect on emotion, impact,

relationships, and consequences, they could begin to imagine more responsible forms of participation. This is an important contribution because many misinformation education approaches focus on whether students can detect false information, while this study highlights the need to help teenagers reason through what they should do after detection. Responsible decision-making, therefore, is not a standalone skill or guaranteed endpoint of SEL-based misinformation education. It is a socially situated capacity that develops when teenagers are supported in connecting choice, impact, agency, and ethical action in digital life.

Summary of CASEL Competencies in MIL.

Taken together, the five CASEL competencies show that SEL did not function as a uniform or equally weighted addition to misinformation education. Rather, each competency became meaningful at different points in the MIL process of accessing, evaluating, sharing, and creating information (Haider & Sundin, 2022; UNESCO, 2011). Conventional MIL approaches have emphasized evaluation (i.e., source checking, credibility assessment, and lateral reading) (McGrew et al., 2017; Wineburg & McGrew, 2019), but teenagers access misinformation through emotionally and socially meaningful encounters, evaluate it under the influence of trust, humor, peer norms, and platform cues, and share or create content within relationships that carry consequences for reputation, belonging, and trust (Boyd, 2014; Pennycook & Rand, 2021). SEL complements MIL by making visible the emotional, relational, and ethical conditions that shape whether MIL skills are actually used. Table 14 summarizes how each CASEL competency is reinterpreted in misinformation education, including its standard definition, reinterpretation in misinformation contexts, MIL stage relevance, and illustrative teenager language.

Table 14: *CASEL Competencies in Misinformation Education*

CASEL Competency	Standard Definition	Meaning in Misinformation Context	Teenagers' Everyday Language	Guiding Questions	MIL Relevance
Self-Awareness	Recognizing emotions, thoughts, values, and their influence on behavior	Noticing misinformation triggers, biases, and personal vulnerability	“I didn’t realize it could turn into misinformation or harm someone.” “Don’t let your emotions control you.”	What am I feeling? Why do I trust this? Why share or respond?	Access
Self-Management	Managing emotions, thoughts, and behaviors across situations	Pausing and managing emotions before sharing questionable information	“Think before you post.” “Once it’s online, it’s there forever.” “Slow down before posting.”	Did I check this? Why am I reacting? What if I wait?	Access– Share
Social Awareness	Understanding others’ perspectives and empathizing across contexts	Seeing who misinformation harms and how it affects emotions, reputations, trust, and relationships	“How would this victim feel?” “We all forget there are people online, too.” “Empathy is... forgiveness.”	Who is affected? How might they feel? Can I understand or forgive?	Evaluate– Share
Relationship Skills	Communicating, cooperating, resolving conflict, and seeking or offering help	Questioning or correcting misinformation within peer relationships and group settings	“If it’s a friend, maybe I would say something.” “They’ll listen to me.” “Use your words with care.”	How can I ask gently? Can we check together? How can I support them?	Create– Share

Responsible	Making caring and	Choosing responsible	“People trust what I	What if I share?	Access–
Decision-	constructive choices	digital actions that	share.”	Who is affected?	Share
Making	about behavior and	reduce harm, build	“My choice can make	What impact can I	
	social interactions	trust, and recognize	an impact.”	make?	
		one’s own impact	“Think about the		
			impacts your actions		
			have.”		

Note. Guiding questions were adapted from Probst’s reflective questioning approach (Probst, 2017).

Three competencies were especially prominent: self-awareness, social awareness, and responsible decision-making. Self-awareness was most active at the access stage, where emotional triggers, assumptions, and habitual reactions shaped whether teenagers paused or engaged further with particular content (Brady et al., 2017; Pennycook & Rand, 2021). Social awareness was the most central competency because it helped teenagers move beyond misinformation as false content and recognize its human impact on emotions, reputations, relationships, and trust (Noddings, 2010; Silke et al., 2021). Responsible decision-making became important at the share and create stages, where teenagers had to consider not only what information was accurate but what their actions might produce for the people and communities around them (Mihailidis & Viotty, 2017; M. Ribble, 2015). These three competencies were prominent because they addressed the key limitation of evaluation-centered MIL: they connected information judgment to emotional awareness, human consequence, and ethical agency.

By contrast, self-management and relationship skills were less prominent, but their limited visibility is analytically important rather than incidental. Self-management appeared through teenagers’ language of pausing, checking, and thinking before sharing, yet these behaviors became difficult when misinformation was funny, emotional, peer-endorsed, or already circulating in a group chat. This suggests that self-management should be understood as digitally situated self-regulation: it is the regulatory mechanism that creates space for evaluation between access and sharing, but it should operate under social pressure, not in the absence of it (Boyd, 2014; Nesi et al., 2018; Pennycook et

al., 2021). Relationship skills were even less explicit. Teenagers could recognize that misinformation harmed others but less often described how to question a friend, correct misinformation without humiliation, support a harmed peer, or repair trust after harm occurred. This gap points to the practical frontier of SEL–MIL integration: relationship skills are among the most necessary but hardest-to-reach competencies because they require practiced communication, social confidence, and trust-based correction within the very peer networks through which misinformation travels (Noddings, 2010; Silke et al., 2021; L. Steinberg & Morris, 2001). Across all five competencies, the pattern is consistent: SEL becomes educationally meaningful in misinformation contexts not as a set of abstract character traits, but as situated capacities activated by specific social, emotional, and relational conditions in teenagers’ digital lives.

6.4. Instructional Design Recommendations

This section translates the preceding discussion into five design recommendations for SEL–MIL learning experiences. These recommendations identify the main pedagogical implications of the empathy-centered SEL–MIL framework and show how misinformation education can move beyond detection alone. Rather than focusing only on whether information is true or false, they emphasize learning experiences that connect information evaluation with emotion, empathy, social responsibility, and agency. In this sense, the recommendations frame misinformation education as part of digital citizenship education: teenagers are not only learning to identify misleading content, but also learning to understand how their digital choices affect others and how they might participate more responsibly in online communities (Mihailidis & Viotty, 2017). Each recommendation is grounded in findings from both phases of the study and points toward practical ways educators can design learning experiences that are meaningful, reflective, and responsive to teenagers’ real digital lives.

The five recommendations emerged from an empirical study that used a game-based learning module as its experiential foundation. In this study, gameplay served a specific purpose: it provided a shared narrative, created emotional and social investment in misinformation scenarios, and generated a common experience for later reflection (Barab et al., 2010; Kolb, 2014). However, the recommendations themselves are not limited to games. Other experiential activities, such as role-

play, case-based discussion, simulation, or collaborative problem-solving, can serve a similar function when they immerse teenagers in a concrete misinformation situation. What matters is the integration of experiential activity and structured reflection. The experience created the conditions for engagement, while the debriefing helped teenagers interpret that experience, recognize its social and emotional dimensions, and connect it to future action (Boud et al., 2013; Crookall, 2010, 2014; Fanning & Gaba, 2007). The recommendations that follow should therefore be understood not as isolated teaching techniques, but as broader design commitments for creating SEL–MIL learning experiences that help teenagers engage misinformation as a human, relational, and ethical problem.

6.4.1. Recommendation #1: Begin with Emotional Experiences of Misinformation

The first design recommendation is that SEL–MIL learning experiences should begin with teenagers' emotional experiences of misinformation before moving into evaluation or analytical content. Traditional misinformation education often begins with informational content, such as definitions, examples to analyze, or checklists for evaluating sources. These approaches remain important, but the findings of this study suggest that they may not always be the most meaningful entry point for teenagers (Mihailidis & Viotty, 2017; Pennycook et al., 2021). Teenagers often encounter misinformation first through emotional reaction, social pressure, humor, curiosity, fear, or concern rather than through careful analysis (Brady et al., 2017; Vosoughi et al., 2018). By the time they begin evaluating content, an emotional response may already be shaping what they notice, believe, ignore, or share.

This recommendation is grounded in findings from both phases of the study. Educators argued that misinformation education needs to address teenagers' emotional reactions, impulsivity, and peer-mediated responses, rather than focusing only on their ability to evaluate sources. Teenagers' reflections supported this concern by showing that misinformation often spreads through fear, humor, excitement, anger, trust, and social pressure. These findings align with research showing that emotion strongly shapes online engagement and sharing (Brady et al., 2017, 2020), and that people may share false information when they are not attending to accuracy at the moment of sharing (Pennycook et al., 2021). Educational research also shows that emotion is closely connected to

reasoning, attention, and learning (Immordino-Yang & Damasio, 2007; Pekrun, 2006).

Additionally this recommendation is consistent with the broader rationale of the CASEL framework. CASEL emphasizes that students' emotions, thoughts, and social experiences are not separate from learning, but central to how they understand situations and make decisions (CASEL, 2015, 2020). In misinformation contexts, beginning with emotional experience creates an entry point for self-awareness by helping teenagers notice what they feel, why they react, and how those reactions may shape interpretation and action. It also lays the groundwork for self-management and responsible decision-making by slowing down immediate reaction and making later evaluation more personally meaningful. In this sense, the recommendation is not only a strategy for engagement. It is a CASEL-aligned way of ensuring that critical analysis begins from the emotional and social realities through which teenagers actually encounter misinformation.

In practice, beginning with teenagers' emotional experiences of misinformation means designing activities that help them surface and examine their initial reactions before asking whether something is true or false. This could include a short narrative, role-play scenario, visual prompt, AI-generated image, rumor-based case, or reflection question that asks students how a post makes them feel and why (Audiffred_Hinojosa et al., 2021; Sweetman, 2021). The goal is not to manipulate students emotionally, but to help them recognize how emotion shapes attention, interpretation, and action (Immordino-Yang & Damasio, 2007). Once this reflective pause is created, students can move into evaluation more responsibly by asking what evidence is available, who might be affected, and what they should do before sharing. In this sense, the emotional entry point is not a detour from critical thinking. Rather, it is a condition that makes critical thinking personally meaningful for teenagers navigating misinformation in relational and social contexts (Hartwig et al., 2024; Piha & Fasen, 2021).

6.4.2. Recommendation #2: Build Shared Engagement Through Social Gameplay

The second design recommendation is to build shared engagement through social gameplay. In this study, gameplay did not function as the final instructional goal or as a stand-alone intervention. Rather, it created a common emotional and social experience that allowed teenagers to encounter

misinformation together as a lived situation rather than as an abstract topic. Through collaborative play, participants were drawn into a shared narrative shaped by uncertainty, time pressure, peer interaction, and group problem-solving. This mattered because misinformation, in teenagers' everyday lives, often unfolds socially rather than individually. It moves through friends, humor, group chats, and peer response. Social gameplay therefore provided an experiential entry point that was better aligned with the relational nature of misinformation than isolated worksheets or purely analytic discussion.

This recommendation also addresses a limitation in many current misinformation game approaches. Recent misinformation games have made valuable contributions by helping players recognize manipulation techniques, practice prebunking, and strengthen resistance to false or misleading content. However, many of these approaches still rely on relatively individualised and detection-centered mechanics, such as true-or-false judgments, quiz-style challenges, short puzzle or verification tasks, or identifying deceptive techniques within isolated pieces of content (Basol et al., 2021; Contreras-Espinosa & Eguia-Gomez, 2023; Kiili et al., 2024; Roozenbeek & Van Der Linden, 2019). These designs are pedagogically useful, but they often position learners primarily as evaluators of content rather than as participants in a socially unfolding misinformation situation. As a result, they may give less attention to peer interaction, emotional investment, relational consequences, and shared meaning-making. In this study, social gameplay addressed that gap by immersing teenagers in a collaborative experience before reflection began. Rather than asking them only to judge information individually, it allowed them to experience uncertainty, interaction, and consequence together.

The findings also support the importance of the social dimension of gameplay. From a sociocultural perspective, literacy is not only an individual cognitive skill but a practice embedded in everyday social contexts, relationships, and meaning-making processes (Street, 1984). This perspective is useful for misinformation education because teenagers do not encounter misinformation as isolated individuals. They interpret, react to, and share information within peer groups, platform cultures, jokes, rumors, trust relationships, and social pressures. In this study, participants shared not only content, but also an experience of making decisions with others under pressure. They had to respond,

negotiate, and interpret information within a group, making the activity more consistent with the way misinformation often circulates in teenagers' everyday digital lives. Research on experiential and transformational play further suggests that such environments can deepen attention, investment, and meaning-making by situating learning in participatory action rather than passive reception (Barab et al., 2010; Kolb, 2014). In this sense, social gameplay was educationally useful not simply because it made learning entertaining, but because it positioned misinformation as an immediate, relational, and discussable problem.

Figure 26: *Social Gameplay During the Learning Module*



This recommendation is also consistent with the broader rationale of the CASEL framework. CASEL emphasizes that social and emotional learning develops through meaningful experiences in which emotions, relationships, and decision-making become visible in context (CASEL, 2015, 2020). In this study, social gameplay helped create those conditions. It gave teenagers a shared experience through which they could later reflect on reactions, motivations, peer influence, and possible responsibility. As a design recommendation, this means that SEL–MIL learning should not begin only with abstract instruction. It should first create a shared experiential situation that emotionally and socially engages learners, so that later reflection, empathy, and perspective-taking have something concrete to build from. Social gameplay is one way to create that shared ground before moving into deeper

interpretation through debriefing.

6.4.3. Recommendation #3: Use Reflective Debriefing to Foster Perspective-Taking

The third design recommendation is to use reflective debriefing as a structured space for perspective-taking. In this study, debriefing was not treated as a brief wrap-up after gameplay. Rather, it functioned as the central learning space where teenagers revisited the misinformation scenario, interpreted what had happened, and considered how the same event could be understood differently depending on one's role. This distinction matters because gameplay alone did not automatically produce social-emotional insight. Although the game created a shared experience, teenagers still needed time and structure to slow down the experience, name emotions, recognize motivations, and connect the misinformation scenario to relationships, harm, and responsibility. In this sense, reflective debriefing functioned as a bridge between experience and interpretation, helping participants move from simply completing the activity to making meaning from it (Boud et al., 2013; Crookall, 2024; Lederman, 1992).

This recommendation also responds to a persistent dilemma in game-based learning: the difficulty of balancing playfulness and educational purpose. Educational games are often expected to be both engaging and instructive, yet these goals can easily become imbalanced. When the game prioritizes entertainment, students may focus on winning, solving puzzles, or enjoying the activity without reflecting on its deeper meaning. Conversely, when the game prioritizes instruction too heavily, the experience can become what scholars and designers describe as the “chocolate-covered broccoli” problem, where playful elements merely disguise conventional teaching rather than creating meaningful learning (Habgood & Ainsworth, 2011; Hopkins, 2015). This tension is especially relevant in misinformation education because gameplay can make misinformation engaging and memorable, but engagement alone does not ensure that students interpret the emotional, social, or ethical significance of what happened. In this study, gameplay created the shared experience, while debriefing transformed that experience into learning by asking participants to revisit their roles, emotions, motivations, and responsibilities. In this sense, debriefing did not simply extend gameplay; it addressed one of game-based learning's core limitations by making the learning purpose explicit after

playful engagement had already been established (Crookall, 2010; Fanning & Gaba, 2007; Kolb, 2014).

A key feature of this debriefing approach was the use of a specific and bounded form of role-playing. In this study, role-playing did not refer to open-ended theatrical performance, free-form narrative play, or scripted drama. Instead, participants engaged in a scenario-based perspective-taking activity grounded in the shared misinformation scenario. Prior research suggests that role-play can support empathy, perspective-taking, and social-emotional reflection by allowing learners to temporarily inhabit another person's position and consider feelings, motivations, and consequences from that viewpoint (Dewi et al., 2019; Marathe & Sen, 2021; Vlaicu, 2014). Participants temporarily took on pre-defined roles, including producer, sharer, influencer, disinformation producer, or victim, and used scaffolded prompts to express what that person might feel, why they might act in a particular way, and how the situation might look different from that position. The reverse round then asked participants to move across roles and reconsider the same event from another social location, extending debriefing from simple recall toward structured emotional and ethical analysis (Fanning & Gaba, 2007).

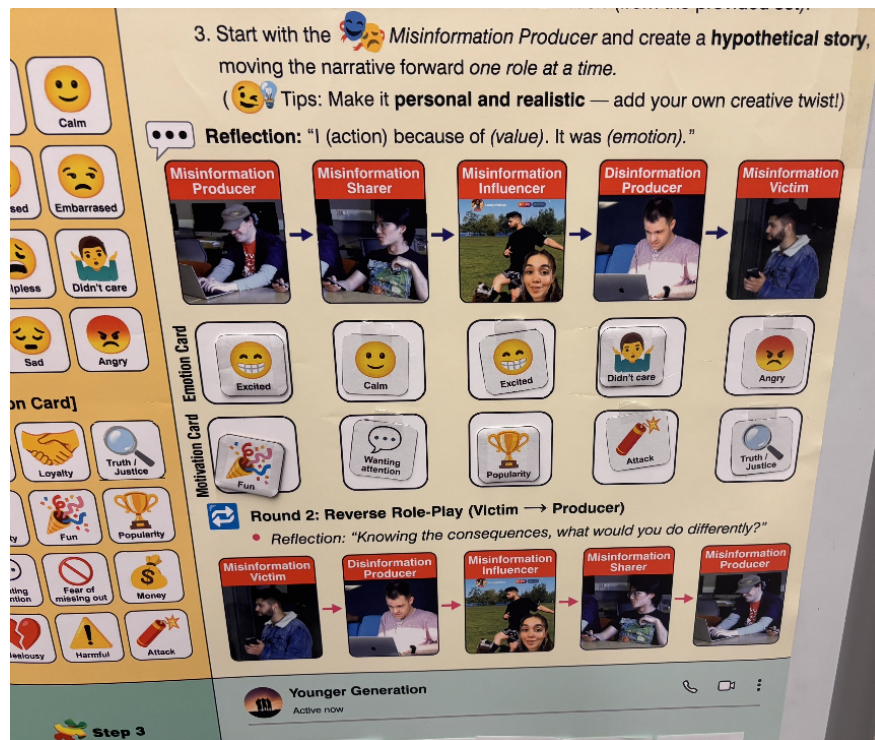
This design draws on role-based simulation and debriefing research, which emphasizes structured experiential activity followed by guided reflection (Crookall, 2010; Fanning & Gaba, 2007), as well as perspective-taking scholarship showing that adopting another person's viewpoint can support empathy and social understanding (Galinsky & Moskowitz, 2000; Galinsky et al., 2005). Its advantage is that it balances structure and imagination (Fanning & Gaba, 2007). Because the scenario and roles are already defined, participants do not need to invent a story from scratch, which reduces confusion and keeps attention on the learning issue. Yet because participants still choose emotions, motivations, and responses, the activity preserves enough openness for personal interpretation. This balance is useful for misinformation education because it allows teenagers to explore harm, responsibility, and complicity at a safe distance before directly reflecting on their own digital behavior.

In this study, the five roles (i.e., misinformation producer, sharer, influencer, disinformation pro-

ducer, and victim) were drawn directly from the *Chronoshift* game rather than invented during the debriefing. Emotion tokens and motivation tokens scaffolded the activity by asking participants to select from a set of emotional states and motivations and construct a response from that role. Educators in this study consistently recommended this level of scaffolding because completely unstructured role-play could lead to confusion, humor, or superficial performance rather than reflection (Nesi et al., 2018; L. Steinberg & Morris, 2001). Within this scaffolded structure, three reflective effects were visible in the teenager data. First, role-playing supported perspective shift, as participants described being placed in other people's perspectives and realizing how the victim would feel and how our choices affect others, even if we don't mean for them to. Second, the reverse round supported recognition of unintentional harm. Several teenagers reflected that the original actor may not have intended to hurt anyone; they were just making a joke or didn't realize it could turn into misinformation. Third, role-playing surfaced self-recognition that teenagers were unlikely to voice directly. One participant stated during the activity, I find myself the misinformation sharer sometimes. This disclosure matters because character embodiment created a protective frame through which teenagers could acknowledge their own possible involvement in misinformation without being directly accused (M. H. Davis, 1983; Gerace et al., 2013).

The playful quality of the activity was also important, but it required structure to convert engagement into reflection. Educators in this study observed that teenagers often disengage from formal debriefing formats such as lecture-style reflection, worksheet-based reflection, or question-and-answer discussion (Crookall, 2010; Lederman, 1992). By contrast, scenario-based role-playing created a playful and peer-familiar context that encouraged active participation. Teenagers who were quiet in researcher-led discussion became more open when they interacted through roles with peers they knew. This shift in participation was not merely a matter of social comfort; it functioned as a mechanism through which reflection became more accessible (Boyd, 2014; L. Steinberg & Morris, 2001). The playful context lowered the social cost of voicing uncomfortable recognitions about one's own susceptibility, complicity, or misjudgment, because those recognitions could be expressed through a character rather than through direct self-confession. Nevertheless, playfulness alone did not guarantee reflection. If role-playing is too open-ended, students may remain at the level of hu-

Figure 27: *Role-Playing Activity During the Learning Module*



mor or performance; if it is too scripted, they may simply provide the expected moral answer (Gee, 2003; Squire, 2013). Therefore, reflective debriefing should balance playful participation with structure: pre-defined roles, scaffolded emotional and motivational prompts, and a reverse round that makes perspective-taking concrete and reversible. In this way, SEL–MIL learning can move beyond gameplay or correct-answer checking toward participatory reflection on emotions, consequences, and responsibility (Boud et al., 2013; CASEL, 2015, 2020; Kolb, 2014).

6.4.4. Recommendation #4: Make the Human Consequences of Misinformation Visible

The fourth design recommendation is that educators should actively guide teenagers to represent the human harm of misinformation through visual and creative expression, not only through verbal discussion. In this study, teenagers created visual reflections, including drawings, diagrams, and sequential narratives, to represent how misinformation spreads and who is affected (Audiffred_Hinojosa et al., 2021; Sweetman, 2021). These visual productions revealed dimensions of empathy and social awareness that were not always as visible in verbal discussion alone. When

teenagers drew chain-reaction narratives, before-and-after figures, or social media posts paired with emotional responses, they were externalizing their understanding of misinformation harm in ways that made consequences concrete, relational, and personally meaningful.

This recommendation is grounded in research on empathy, harm perception, and creative expression as mechanisms for learning. Slovic (2007) argues that people often respond more strongly to harm when it is concrete and identifiable rather than abstract and statistical. Similarly, Hoffman (2000) suggests that empathic concern is more readily activated when another person's experience is imaginable and proximate. Visual and creative reflection activities have also been highlighted in SEL and debriefing literature as useful tools for helping learners express emotional and relational dimensions of experience that may be difficult to articulate through words alone (Audiffred_Hinojosa et al., 2021; Gill, 2014; Sweetman, 2021). The teenager data in this study support this pattern. Some of the richest expressions of empathy emerged not in discussion, but in visual artifacts that depicted the moment a rumor reached a victim, the spread of misinformation across a social network, or the emotional contrast between before and after a misinformation event.

Additionally, this recommendation is closely aligned with the broader rationale of the CASEL framework. CASEL emphasizes that students need meaningful opportunities to recognize others' experiences, connect emotion with social context, and reflect on how actions affect people and relationships (CASEL, 2015, 2020). In this study, visual and creative expression supported that process by making misinformation's human impact more visible and discussable. Rather than relying only on abstract explanation, these activities helped teenagers represent what misinformation does to a person, a relationship, or a community. In this sense, the recommendation is CASEL-relevant not simply because it is creative, but because it provides another pathway into social awareness and empathy. It helps students move from knowing that misinformation is harmful to seeing and expressing how that harm unfolds in human terms.

In practice, making the human consequences of misinformation visible means incorporating creative and nonverbal expression activities into misinformation education alongside discussion and written reflection. These activities are especially meaningful when they are connected to real-world sit-

uations that teenagers recognize, such as school rumors, group chats, peer sharing, AI-generated images, viral posts, or social media conflicts. For example, students might be asked to draw the chain of people affected by a misinformation scenario, create a before-and-after representation of a person targeted by a rumor or AI-generated image, map the emotional journey of a victim from the moment misinformation begins to spread, or illustrate a moment when a bystander chooses to act—or not act (Audiffred_Hinojosa et al., 2021). The visual modality matters because not all teenagers can or will articulate empathy in words. Providing a visual channel creates an additional pathway for empathic understanding, which can later feed into verbal discussion and action planning during debriefing (Fanning & Gaba, 2007; Gibbs, 1988). In this way, visual reflection supports teenagers in connecting misinformation education to everyday social experiences, rather than treating misinformation only as false content to be identified or corrected.

6.4.5. Recommendation #5: Empowering Teenagers' Agency Through Contribution

The fifth design recommendation is that SEL–MIL learning experiences should end by empowering teenagers to transform empathy into socially responsible action. A central challenge in misinformation education is that empathy can remain narrow: teenagers may feel concern when harm happens to a close friend, classmate, or familiar peer, but may not extend the same attention to strangers, distant audiences, or people outside their immediate social circle (Silke et al., 2021; L. Steinberg & Morris, 2001). In misinformation contexts, however, harm often travels beyond relational boundaries. A rumor, manipulated image, or misleading post may begin within a group chat, but its consequences can reach unknown viewers, future audiences, or vulnerable people whom the sharer may never meet. Therefore, SEL–MIL education should not only ask teenagers to understand how someone close to them might feel; it should also help them practice a more generalized form of care toward people who may be affected by misinformation beyond their own peer group (Jagers et al., 2019; Noddings, 2010).

In this study, the community message activity helped support this shift from relational empathy to broader social responsibility. Each session closed with teenagers writing advice for younger peers about navigating misinformation. This activity was small, achievable, and personally authored, but

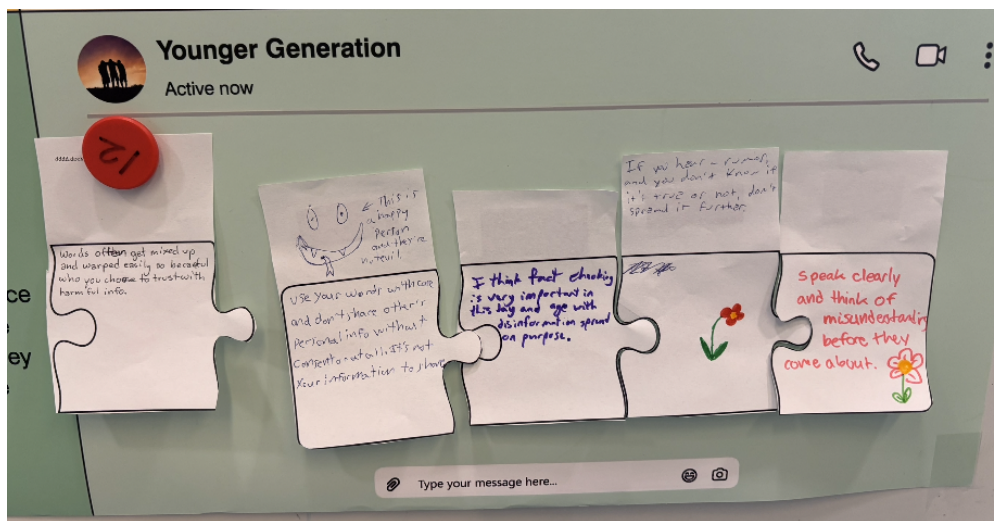
it carried an important design function: it positioned teenagers as contributors to a wider information community. Rather than asking participants only to reflect privately on what they learned, the activity invited them to speak to an audience beyond themselves. The “Younger Generation” framing was especially meaningful because it gave teenagers a concrete but socially expanded audience. They were not only responding to a specific victim in the game or to someone they personally knew; they were imagining others who might struggle with similar digital situations in the future. In this sense, the activity created a bridge between empathy and action: teenagers translated concern for others into guidance, caution, and support (Mihailidis & Viotty, 2017; Westheimer & Kahne, 2004).

This recommendation responds directly to the question of how empathy can become action in misinformation education. Empathy becomes educationally meaningful when it moves through three connected steps: recognizing that misinformation can harm someone, understanding that the harmed person may not be socially close or visible, and identifying a possible action that can reduce or prevent that harm (Noddings, 2010; Silke et al., 2021). In the learning module, this movement was supported through role-play, reverse role-play, and community message writing. Role-play helped teenagers inhabit different positions within the misinformation scenario, including producer, sharer, influencer, and victim. Reverse role-play then helped them reconsider the same event from the perspective of those affected. However, the final community message activity extended this reflection further by asking participants to act as advisors. This shift matters because it moved teenagers from perspective-taking to contribution. They were no longer only asking, “How would this person feel?” but also, “What should others understand, and what can I say or do to help?”

This distinction emphasizes that empathy alone does not guarantee responsible digital behavior. Teenagers may understand that misinformation hurts others and still hesitate to intervene, especially when the situation involves peer pressure, humor, social risk, or uncertainty. Responsibility involves recognizing that one’s choices have consequences for others, while agency involves believing that one is capable of acting on that recognition (Bandura, 2001; Lepron et al., 2015). Both are necessary if misinformation education is to move beyond awareness toward action. When teenagers do not feel capable of acting, empathy may stop at feeling concern rather than becoming responsible action.

Teenagers may feel bad for someone harmed by misinformation, but still believe that they cannot meaningfully respond. The community message activity addressed this gap by turning empathy into a concrete contribution: writing advice for a real or imagined audience. As shown in Figure 28, the message board for the “Younger Generation” made this contribution visible by positioning teenagers as people who could warn, guide, and support others facing similar digital challenges.

Figure 28: *Empowering Contribution Activity During the Learning Module*



This recommendation is also closely aligned with the broader rationale of the CASEL framework. CASEL emphasizes that social and emotional learning should support not only individual reflection, but also caring and constructive participation in social life (CASEL, 2015, 2020). In this study, contribution became the mechanism through which responsible decision-making and social awareness were expressed as action. Teenagers were asked not only to think about misinformation, but to respond as people whose voices could matter to others. This is why the recommendation is CASEL-relevant: it creates a learning condition in which empathy, responsibility, and agency are not left as abstract values, but are practiced through a concrete, socially meaningful act. The operational meaning of empowering teenagers’ agency through contribution is therefore twofold. First, it helps teenagers understand that empathy in misinformation education should extend beyond close relationships to include strangers, younger peers, and broader digital communities who may be affected by online harm. Second, it gives teenagers a practical way to act on that expanded empathy.

Through contribution, teenagers can begin to see themselves not only as learners who identify misinformation, but as responsible digital actors who can pause, question, correct, support, warn, and guide others. In this way, SEL–MIL learning can move from relational empathy to broader social responsibility, and from social responsibility to empowered action (Jagers et al., 2019; Mihailidis & Viotty, 2017; Westheimer & Kahne, 2004).

6.4.6. Summary of the Five Instructional Design Recommendations

Taken together, the five instructional design recommendations shift SEL–MIL learning from content evaluation alone toward more human-centered and responsible digital participation. Rather than functioning as a fixed sequence, these recommendations identify key design considerations for creating misinformation learning experiences that are emotionally meaningful, socially grounded, and action-oriented. Beginning with emotional relevance helps teenagers recognize how misinformation first reaches them through feelings, humor, curiosity, fear, or social pressure (Immordino-Yang & Damasio, 2007; Pekrun, 2006). Structured and participatory debriefing then creates the reflective space in which those experiences can be interpreted, shared, and connected to broader meaning (Boud et al., 2013; Crookall, 2014). Role-play supports perspective-taking and empathic reflection by helping teenagers explore how different actors may experience the same misinformation event differently (Basol et al., 2021; Roozenbeek & Van Der Linden, 2019). Visual and creative reflection makes harm more concrete by helping teenagers represent emotional and relational consequences that may be difficult to express verbally (Audiffred_Hinojosa et al., 2021; Slovic, 2007). Finally, contribution-oriented closing activities help teenagers experience agency by positioning them as responsible participants whose voices and choices can matter to others (Bandura, 2001; Jagers et al., 2021).

As summarized in Table 15, these recommendations translate the empathy-centered SEL–MIL framework into practical guidance for learning design. The goal is not only to help teenagers identify misinformation, although that remains important. It is also to support them in recognizing emotional triggers, reflecting on social consequences, taking others’ perspectives, making harm visible, and imagining more responsible forms of participation in digital life (CASEL, 2015; Mihailidis

Table 15: *Five Instructional Design Recommendations for SEL–MIL Learning*

Recommendation	Core Purpose	Study Activity and Possible Adaptations	SEL–MIL Contribution
1. Begin with emotional experiences of misinformation	Start from how misinformation feels before asking students to evaluate or verify it.	Narrative scenario used in this study; possible adaptations include rumor-based cases, AI-generated image prompts, emotional reaction questions, or short reflections.	Self-awareness helps teenagers notice emotional triggers; self-management pauses before reacting or sharing.
2. Build shared engagement through social gameplay	Create a common social experience that makes misinformation feel immediate and relational.	Collaborative escape-room gameplay used in this study; possible adaptations include simulations, role-based challenges, or group problem-solving activities.	Social awareness and relationship skills show how misinformation circulates through peer trust, discussion, and group decision-making.
3. Use reflective debriefing to foster perspective-taking	Turn shared experience into interpretation by revisiting the situation from multiple viewpoints.	Structured debriefing and role-play used in this study; possible adaptations include reverse role-play, emotion and motivation prompts, guided discussion, or debriefing boards.	Social awareness and empathy help teenagers consider how different people may experience the same misinformation event.
4. Make the human consequences of misinformation visible	Help teenagers represent misinformation harm as social and emotional, not only factual.	Visual reflection used in this study; possible adaptations include harm maps, before-and-after drawings, chain-reaction diagrams, or victim/bystander-perspective posters.	Social awareness and empathy make misinformation harm concrete, relational, and easier to discuss.
5. Empower teenagers' agency through contribution	End with a concrete act that helps teenagers see themselves as capable digital contributors.	Community message activity used in this study; possible adaptations include peer advice cards, public service announcements, group agreements, short video messages, letters, or action plans.	Responsible decision-making and agency move teenagers from awareness toward visible, socially meaningful participation.

& Viotty, 2017). In this way, the five recommendations show how misinformation education can move beyond the question of whether information is true or false toward broader questions of who is affected, why it matters, and how teenagers might respond as ethical and socially responsible participants in their information communities.

6.5. Toward Responsible Digital Citizenship

This final section discusses how the findings extend misinformation education toward a more responsible and empathy-centered understanding of digital citizenship. Across the study, teenagers did not describe misinformation only as a problem of false content, weak verification, or individual misunderstanding; rather, they described it as something embedded in peer relationships, platform environments, AI-generated media, emotional reactions, humor, reputation, and everyday social choices. These findings suggest that misinformation education should not only teach young people how to identify false information, but also help them understand how their digital actions affect others and what it means to participate responsibly in online communities. Building on this insight, this section first explains why SEL is needed now in misinformation education by reframing the focus from individual evaluation skills toward empathy, responsibility, relational judgment, and accountable participation. It then discusses how teenagers' perspectives expand the meaning of digital citizenship in misinformation contexts and examines emerging challenges, particularly AI-driven misinformation, the dehumanizing effects of digital mediation, and the difficulty of translating awareness into responsible action. Through this discussion, the section positions empathy-centered misinformation education as a future direction for connecting critical evaluation with care, responsibility, and agency.

6.5.1. Why SEL Is Needed Now in Misinformation Education

A question worth confronting directly is why Social and Emotional Learning (SEL) has not been more fully integrated into misinformation education sooner. Media and Information Literacy (MIL) has existed as a formal educational field for decades, and scholars have long recognized that information practices are shaped by social, cultural, and emotional contexts (Haider & Sundin, 2022; Hobbs, 2010). If misinformation is partly a social-emotional problem, why did education not treat

it that way twenty years ago? The answer is not simply the discovery of a new pedagogical tool or a theoretical breakthrough. Rather, it lies in a historical threshold: digital life has increasingly become social life, and this transformation has changed the conditions under which misinformation is produced, circulated, and experienced.

For much of MIL's history, digital participation was treated primarily as a competency problem. Early MIL frameworks developed at a time when accessing, navigating, and evaluating digital media often required explicit instruction (Hobbs, 2010; Koltay, 2011). The central educational question was functional: could people use these tools effectively? In that context, cognitive and skill-based instruction made sense because the main barrier was often technical. As recently as 2014–2015, about 73% of American adolescents had access to a smartphone; by 2022, that figure had risen to 95% (Vogels et al., 2022). This rapid shift toward near-universal adoption is significant. When only some people participate in digital spaces, digital literacy can be understood largely as a competency gap. When nearly all adolescents are already immersed in digital spaces as part of everyday social life, that framing becomes insufficient. The central challenge has moved from technical access and skill toward human judgment, social responsibility, and care.

Misinformation has changed alongside this shift. In earlier media contexts, misinformation often circulated through channels that were more separate from everyday peer life, such as tabloids, chain emails, or television. MIL interventions that taught credibility evaluation could reasonably target the moment when misinformation was encountered. Today, however, misinformation moves through the same platforms, group chats, memes, short videos, and influencer networks that organize teenagers' social lives (Boyd, 2014; Wardle & Derakhshan, 2017). It spreads through humor, peer trust, identity-confirming content, emotional reaction, and the social pull of belonging and visibility (Van Bavel et al., 2021; Vosoughi et al., 2018). Research shows that emotionally arousing content is shared more widely than neutral information regardless of accuracy, and that sharing decisions are shaped not only by deliberate accuracy judgment but also by social and emotional context (Pennycook & Rand, 2019b; Schwarz & Jalbert, 2020; Vosoughi et al., 2018). Misinformation is therefore no longer something teenagers encounter only from outside their social world. It

increasingly moves through the inside of that world.

This helps explain why SEL has become more urgent in misinformation education now. Scholars have long argued that literacy and information behavior are socially situated (Haider & Sundin, 2022; Manca et al., 2021). However, earlier misinformation education could more easily focus on information skills because many learners encountered information through relatively formal or institutionally mediated channels, such as news media, schools, libraries, search engines, and official websites. In those contexts, teaching people how to evaluate sources, judge credibility, and access information effectively was a reasonable educational priority (Hobbs, 2010; Koltay, 2011; Livingstone, 2004; UNESCO, 2011).

Today, this context has changed. Teenagers often encounter misinformation inside peer-based digital spaces, including group chats, memes, short videos, influencer posts, and AI-generated images. Rather than treating misinformation as a separate content problem, this study understands misinformation as inseparable from the broader social conditions of digital life, particularly the platform environments through which adolescents negotiate identity, belonging, peer pressure, humor, trust, and responsibility (Boyd, 2014; Nesi & Prinstein, 2015; Van Bavel et al., 2021; Wardle & Derakhshan, 2017). In these spaces, misinformation is tied not only to accuracy, but also to humor, peer pressure, trust, belonging, reputation, and responsibility. This shift helps explain why SEL has become increasingly important for misinformation education.

The findings of this study support this argument directly. Educators across MIL, SEL, and counseling contexts consistently identified the emotional and relational dimensions of misinformation as areas least addressed by current instruction. Teenagers also demonstrated what this study calls the awareness–agency gap: they recognized misinformation as harmful and expressed genuine ethical concern, yet they often struggled to translate that concern into action. This gap is not simply a knowledge deficit. It reflects the difficulty of acting responsibly under emotional pressure, peer influence, social cost, and moral uncertainty. Knowing that something is harmful does not automatically produce the capacity to intervene, correct, or resist, especially when doing so may threaten social belonging or peer standing. What teenagers also need, this study finds, is self-management,

social awareness, relationship skills, and a sense of agency: competencies that SEL is designed to support (CASEL, 2015; Durlak et al., 2011).

This is where SEL becomes necessary. It does not replace MIL's cognitive foundation; instead, it addresses the human conditions under which that foundation is applied. Self-awareness helps teenagers recognize their own emotions, motivations, and biases when they encounter misinformation. Self-management helps them pause before sharing or reacting to questionable content. Social awareness helps them consider how misinformation may affect others, even when the harm is not immediately visible. Relationship skills help them question or correct misinformation within peer contexts without damaging trust. Responsible decision-making connects information evaluation to ethical action by asking not only whether something is true, but also who might be affected and what responsibility one holds as a participant in digital communities (CASEL, 2023; Durlak et al., 2011). These competencies matter because misinformation now travels through identity, belonging, humor, trust, and social pressure, not just through factual error (Boyd, 2014; Cortesi et al., 2020).

This study therefore argues that misinformation education should treat misinformation not only as a problem of information accuracy, but also as a problem of emotion, relationships, responsibility, and agency in digital life. It is a problem of how people relate to one another, understand themselves, and act within digital environments that reproduce and amplify the complexity of social life. SEL provides an educational framework for responding to these dimensions. It is needed now not because SEL itself is new, but because the conditions of digital life have made its relevance increasingly difficult to ignore (CASEL, 2023; Jagers et al., 2019).

6.5.2. The Meaning of Digital Citizenship Among Teenagers

Digital citizenship is commonly understood as the knowledge, skills, values, and dispositions needed to participate responsibly in digital environments. In educational policy and practice, this often includes online safety, privacy, appropriate behavior, critical use of information, ethical participation, and responsible communication. UNESCO (2024) frames digital citizenship education as preparing learners to access, critically engage with, create, use, and share information through digital technologies in ethical and responsible ways. Council of Europe (2022) similarly emphasizes

active participation in digital society and the exercise of rights and responsibilities online. These definitions are important because they move digital citizenship beyond technical competence. They suggest that being a digital citizen involves responsibility, participation, and ethical engagement.

However, the findings of this study suggest that digital citizenship in misinformation contexts needs to be understood more specifically as a practice of social-emotional responsibility. Existing digital citizenship frameworks rightly emphasize participation and responsible use (UNESCO Bangkok, 2017), but they do not always specify how young people should respond when information is uncertain, emotionally charged, socially pressured, or shaped by platforms and AI. The teenager findings extend this literature by showing that digital citizenship, in the context of misinformation, is not only about knowing how to behave online. It is about learning how to pause, interpret, care, and act when one's digital choices may affect other people.

This interpretation aligns with Choi's argument that digital citizenship should include ethics, participation, and critical engagement rather than being reduced to online safety or appropriate behavior (Choi et al., 2017). It also resonates with civic media literacy scholarship, which argues that media literacy should prepare people not only to analyze media but also to participate responsibly in public and digital life (Mihailidis, 2018; Mihailidis & Viotty, 2017). The findings of this study support these perspectives, but they also add a more explicitly social-emotional dimension. Teenagers did not frame responsible digital participation only as evaluating information correctly. They framed it as considering who might be harmed, whether one should share, how one should respond to others, and what kind of impact one's actions may have.

This is an important extension of digital citizenship scholarship because misinformation education has often been organized around a receiver-side framework: students are taught to identify false or misleading content that comes to them. However, in misinformation contexts, teenagers are not only receivers of information; they are also participants in its circulation. Ordinary actions such as liking, reposting, forwarding, joking, ignoring, or sharing without checking can influence others. This shifts the educational goal from protecting students from misinformation to helping them understand their own role in the information ecosystem. In this sense, the findings support

youth digital citizenship scholarship that positions young people as active digital participants rather than passive users to be protected or corrected (James, 2014; James et al., 2017).

This participant-centered interpretation also suggests that current media and information literacy should include teenagers' voices more directly. Teenagers are often discussed as targets of misinformation, vulnerable users, or immature digital participants, but they also hold important experiential knowledge about how misinformation actually circulates in peer contexts. Their reflections in this study revealed how humor, group chats, friendship, social pressure, AI-generated images, and fear of embarrassment shape real misinformation encounters. Including teenagers' voices does not mean treating their perspectives as complete or unproblematic. Rather, it means recognizing that effective misinformation education should be grounded in the lived social conditions in which young people make digital decisions.

This interpretation, grounded in teenagers' own perspectives, also helps complicate popular deficit narratives about young people and technology. Some teenagers referred to themselves through the language of "iPad kids," a term often used negatively in public discourse to describe children associated with early and frequent tablet or screen use (Kempen, 2025). In this study, however, this language should not be read simply as self-criticism or as evidence that teenagers lack responsibility. Rather, it reveals a contradiction that teenagers themselves seemed to recognize: they grew up inside digital systems that encouraged attention, entertainment, sharing, humor, and social connection, yet young people are often later criticized for those same habits. This point matters for digital citizenship because it shifts the educational response away from blaming teenagers and toward supporting them as developing digital citizens who need opportunities to critically examine the digital environments that shaped their habits, choices, and responsibilities.

The findings also complicate overly individualistic accounts of digital citizenship. Teenagers recognized responsibility, but they also recognized that their choices occur within environments they did not design. Social media platforms, recommendation algorithms, AI systems, peer norms, and family media habits all shape what young people see, how they react, and what kinds of action feel possible. This finding supports critiques of the "digital natives" framing, which caution against

assuming that young people automatically understand digital systems simply because they use them frequently (Bennett et al., 2008; Buckingham, 2008; Livingstone, 2008). It also suggests that digital citizenship education should not simply tell teenagers to “be responsible” without acknowledging the platform-shaped conditions that make responsible action difficult.

The contribution of this study, therefore, is to reframe digital citizenship for misinformation education as a combination of critical evaluation, relational care, social responsibility, and agency. Teenagers’ reflections point toward a future direction in which misinformation education asks not only whether students can identify false information, but whether they can understand their participation in digital information flows. This means helping teenagers ask: Who might be harmed? Why does my reaction matter? What responsibility do I have before sharing? How can I contribute to a healthier digital community? In this framing, digital citizenship is not simply rule-following or online safety. It is the capacity to participate in digital life with empathy, responsibility, and agency.

6.5.3. Challenges for Responsible Digital Citizenship

The findings also point to new challenges for responsible digital citizenship in AI-mediated environments. AI-driven misinformation has become an urgent digital citizenship concern, but the educational problem it raises is not only technical. Generative AI, deepfakes, voice cloning, and synthetic media have changed the conditions of misinformation production by increasing its speed, scale, realism, and accessibility. False or misleading content can now be produced more quickly, made to appear more believable, and circulated across platforms with less effort. Goldstein et al. (2023) argue that generative language models can lower the cost and increase the plausibility of misinformation production at scale. Similarly, research on deepfakes suggests that synthetic media can create uncertainty about what is real, even when audiences are not fully persuaded by the false content (Vaccari & Chadwick, 2020). In this sense, AI changes the misinformation challenge from simply identifying false content to navigating a more uncertain information environment.

Both educators and teenagers expressed concern that AI-generated images, deepfakes, voice cloning, and realistic synthetic content could make misinformation easier to produce, harder to identify, and

more damaging to trust. Their concern was not only that AI could create fake content, but that AI could make authenticity itself more fragile. Teenagers described AI-generated misinformation as part of the everyday digital environments they already inhabit, including social media, school contexts, peer sharing, entertainment, and online images or videos. They were not only asking, “Is this fake?” They were also asking, “How can I know?” and “What should I do if I am not sure?” This uncertainty suggests that AI-driven misinformation is not only a verification challenge, but also a social-emotional challenge involving doubt, trust, fear, and responsibility.

This finding shows why detection-centered misinformation education is limited. If the educational goal is only to help students identify AI-generated content, instruction will struggle to keep pace with technological change. Detection cues change, tools improve, and manipulated content becomes increasingly realistic. Students taught to recognize one generation of AI-generated content may not be prepared for the next. This does not mean detection is unnecessary; students still need strategies for evaluating sources, verifying claims, and recognizing manipulation. However, detection cannot be the whole educational response. As Vaccari and Chadwick (2020) suggest, synthetic media can produce generalized uncertainty, not only direct deception. In this context, students need judgment, reflection, and responsibility in addition to technical recognition skills.

A second challenge is that digital technology can make misinformation feel less human. Several educators suggested that teenagers often interact with misinformation through screens, devices, platforms, and feeds rather than through visible human relationships. One educator used a car metaphor to explain this problem: people can use a car every day without seeing or understanding what happens inside it. Similarly, teenagers may use social media, AI tools, and digital platforms constantly without seeing how these systems shape information, emotion, attention, and social consequences. This metaphor captures an important barrier for misinformation education. Digital technologies can make communication feel like a device-to-device interaction, even when real people are affected behind the screen.

This dehumanizing quality of digital technology matters because misinformation harm often depends on social distance. A rumor, manipulated image, AI-generated video, or misleading post

may be encountered as content rather than as an action involving another person's dignity, reputation, or emotional well-being. When interaction is mediated through devices, teenagers may not immediately see the person being harmed, the relationships being damaged, or the community trust being weakened. Research on online disinhibition similarly suggests that invisibility, asynchronicity, and social distance can reduce awareness of consequences in digital environments (Suler, 2004). In misinformation contexts, this means that teenagers may understand that something is false while still failing to recognize its human impact.

The combination of AI-generated misinformation and digital dehumanization creates a difficult educational challenge. AI makes false content more realistic and harder to verify, while digital mediation can make the people affected by misinformation less visible. Together, these conditions can weaken both certainty and empathy. Teenagers may feel unsure about whether content is real, and they may also feel distant from the person or community harmed by its circulation. This helps explain why misinformation education cannot focus only on technical detection. It also needs to help teenagers reconnect digital content to human consequence.

AI-driven misinformation therefore strengthens the case for SEL–MIL integration. Long and Magerko's concept of AI literacy is useful because it emphasizes that non-experts need to understand, evaluate, and critically engage with AI systems and outputs (Long & Magerko, 2020). However, this study suggests that AI literacy in misinformation contexts should also include social-emotional capacities. Teenagers need to understand not only how AI-generated content may be produced, but also how their own emotions, relationships, peer contexts, and choices shape what happens next. The human questions do not disappear as AI improves: Who might be harmed? Why does this matter? What emotions is this content trying to trigger? Should I share this? What responsibility do I have if I am uncertain? These questions align with AI ethics scholarship emphasizing that technical systems cannot replace human judgment about what is responsible, fair, or caring in context (Floridi, 2023).

The goal, however, is not to make teenagers responsible for solving the entire AI misinformation ecosystem. Such a framing would unfairly place the burden of platform, technological, and social problems on young people. Instead, the goal is to support teenagers as developing digital citizens

who can act with care within environments they did not design. AI-generated misinformation may be harder to detect, but this makes it even more important for teenagers to develop the capacity to pause, question, care, and respond responsibly. In this sense, SEL–MIL integration shifts education from simply “spotting the fake” toward cultivating the human capacities needed to navigate uncertainty with empathy, responsibility, and agency.

6.5.4. From Awareness to Responsible Digital Agency

This dissertation argues that misinformation education should move beyond technical detection and toward responsible digital agency. Critical evaluation, fact-checking, and source verification remain necessary, but they are not sufficient when teenagers encounter misinformation through humor, peer pressure, uncertainty, belonging, and fear of conflict. Prior media literacy and civic media literacy scholarship emphasizes that learners should be prepared not only to analyze media, but also to participate ethically in digital life (Hobbs, 2010; Mihailidis, 2018; Mihailidis & Viotty, 2017; UNESCO, 2024). Extending this argument, this study shows that teenagers need support in connecting awareness to agency. Empathy helps bridge this gap by making the human consequences of misinformation visible, while SEL supports the emotional, relational, and ethical capacities needed to act with care, judgment, and responsibility in digital spaces.

Building on this shift, an SEL-informed approach begins from the assumption that misinformation is not only an informational problem, but also a social, emotional, relational, and ethical problem. Teenagers encounter misinformation in everyday contexts shaped by humor, peer approval, group identity, emotional reaction, uncertainty, and social pressure. These conditions influence whether they pause, care, verify, ignore, share, or intervene. Research on adolescent development shows that peer influence, identity formation, and social comparison are especially salient during adolescence (Crone & Dahl, 2012; Silke et al., 2018; L. Steinberg & Morris, 2001). Research on adolescents’ digital lives similarly shows that young people’s online practices are shaped by visibility, peer norms, reputation, and mediated social interaction (Boyd, 2014; Livingstone & Third, 2017; West et al., 2020). For this reason, misinformation education should not treat teenagers as isolated information processors who simply need better evaluation strategies. It should support them as developing digital

citizens who are learning how to participate in online communities with empathy, responsibility, and agency.

SEL offers a practical and conceptual foundation for this shift. SEL scholarship emphasizes self-awareness, self-management, social awareness, relationship skills, and responsible decision-making as important capacities for youth development (CASEL, 2015, 2020; Durlak et al., 2011; S. M. Jones & Doolittle, 2017; Taylor et al., 2017). In misinformation education, these competencies help make visible the emotional, relational, and ethical processes that often remain hidden in skill-centered approaches: noticing emotional reactions, managing impulsive responses, recognizing harm, considering others' perspectives, navigating peer influence, repairing trust, and making responsible decisions. In this study, empathy was especially important because it helped teenagers connect misinformation to human consequences. When teenagers considered how misinformation might affect a victim, a peer group, a school community, or public trust, misinformation became less abstract and more relational.

The importance of empathy is also supported by broader empathy research. Cognitive empathy, or perspective-taking, helps individuals imagine another person's viewpoint, while affective empathy, or empathic concern, involves emotionally responding to another person's vulnerability or suffering (M. H. Davis, 1980, 1983; Hoffman, 2000). Perspective-taking research suggests that imagining another person's experience can reduce egocentric interpretations and support more prosocial responses (Galinsky & Moskowitz, 2000; Galinsky et al., 2005). In misinformation contexts, this distinction is useful because teenagers may know that misinformation is wrong without fully recognizing how it feels to be harmed by it. Empathy-centered misinformation education therefore helps bridge the gap between knowing that misinformation is harmful and caring enough to pause, question, support others, or avoid contributing to harm.

The broader implication is that empathy-centered misinformation education may speak to a wider educational problem: the gap between awareness and action. Research in climate change and environmental education has long identified a knowledge-action gap, in which awareness of a problem does not automatically lead to behavioral change (Kollmuss & Agyeman, 2002). Misinformation

education faces a similar challenge. Teenagers may understand that misinformation is harmful, yet still not feel personally connected, socially responsible, or sufficiently agentic to respond. The findings of this dissertation suggest that direct and indirect experiential activities, including role-play, reverse role-play, visual reflection, and structured debriefing, can help make consequences visible and move learners from awareness toward care. In this sense, empathy-centered misinformation education contributes to broader educational conversations about how learners translate awareness into emotionally meaningful and socially responsible action.

However, empathy-centered misinformation education should not place all responsibility on individual teenagers. Teenagers make decisions within environments shaped by platforms, algorithms, peer norms, AI systems, home media practices, and unequal access to guidance. Digital citizenship scholarship cautions against treating young people only as individual users who should behave properly online; instead, it emphasizes participation, rights, responsibilities, and the broader social conditions of digital life (Choi et al., 2017; James, 2014; James et al., 2017). Transformative SEL similarly emphasizes that young people's agency should be understood in relation to identity, belonging, social context, and structural conditions (Jagers et al., 2019, 2021). Therefore, empathy-centered misinformation education should help teenagers recognize their own role in misinformation circulation without making them solely responsible for solving systemic misinformation problems.

This approach also requires support for educators. Educators do not need to become AI engineers or technical specialists in order to teach misinformation meaningfully. They need enough technological awareness to understand how AI and platform systems are changing the information environment, but the central work of misinformation education is pedagogical, ethical, and relational. Educators need support in facilitating discussion, guiding reflection, helping students examine emotional reactions, and creating opportunities for students to consider harm, responsibility, participation, and agency. Prior work on SEL implementation shows that effective SEL requires intentional design, supportive learning environments, educator capacity, and integration into everyday educational practice (Durlak et al., 2011; S. M. Jones et al., 2017; Taylor et al., 2017). Similarly, misinformation education will be more sustainable when schools, libraries, and youth organizations provide time,

curricular space, professional development, and adaptable materials rather than treating misinformation as an optional add-on.

In this sense, the future of misinformation education should not be limited to helping teenagers become better detectors of false information. It should help them become more reflective, empathetic, and responsible participants in digital life. This means designing learning experiences where teenagers can pause before reacting, examine why content feels persuasive or shareable, imagine how others may be affected, discuss responsibility with peers, and practice more ethical forms of digital participation. Empathy-centered misinformation education does not replace critical evaluation or fact-checking. Instead, it expands misinformation education by connecting critical thinking with care, responsibility, and agency.

CHAPTER 7

CONCLUSION

7.1. Summary of the Study

This dissertation began with a foundational premise: misinformation is not only an informational problem, but also a social, emotional, and relational one. Teenagers encounter misinformation in digital environments where humor, impulse, peer approval, social pressure, relational obligation, uncertainty, and AI-generated content can shape how they react, share, ignore, or respond. For this reason, misinformation education that focuses only on cognitive skills, such as identifying false content, verifying sources, or tracing information origins, may leave important social-emotional dynamics unaddressed. This study was motivated by that gap and by the possibility that Social and Emotional Learning (SEL) could extend Media and Information Literacy (MIL) by helping teenagers connect information evaluation with empathy, ethical judgment, social responsibility, and emerging agency.

In this dissertation, SEL is not positioned as a replacement for MIL, but as a complementary framework that addresses what MIL alone may not fully capture. MIL provides essential cognitive tools for identifying, evaluating, and verifying information, while SEL supports the social-emotional capacities needed to apply those tools in everyday digital life. This distinction is especially important for teenagers, who often encounter misinformation not as isolated information to be checked, but as content embedded in peer relationships, emotional reactions, group identity, humor, and social pressure. Table 16 summarizes how MIL and SEL contribute different but complementary dimensions to misinformation education.

Table 16: *Social and Emotional Learning Complements Media and Information Literacy*

	Media and Information Literacy	Social and Emotional Learning
Primary Focus	Identifying, evaluating, and verifying information (Hobbs, 2017; UNESCO, 2011). For example, MIL asks, “Is this information accurate or false?” (Hobbs, 2017).	Understanding social and emotional contexts (CASEL, 2020; Weissberg & Cascarino, 2013), including how misinformation impacts peers and relationships. For example, SEL asks, “How do we recognize our responsibility and learn from mistakes or biases?”
Learning Approach	Individual-driven, skill-based instruction, such as fact-checking and source evaluation (Koltay, 2011). This approach is often result-oriented.	Emphasizes group-based activities, peer interaction, empathy, and perspective-taking to understand social consequences (Thierry et al., 2022). This approach is student-centered and mindset-oriented.
Cognitive vs. Socio-Emotional	Cognitive-focused, such as recognizing misinformation as a factual error (Middaugh, 2019).	Focuses on non-cognitive and socio-emotional skills (Zins et al., 2007), such as exploring why people share misinformation and how emotions shape information behavior.
Role	Often positions learners as receivers of information to be verified (Detlor et al., 2012).	Encourages active engagement by positioning adolescents as producers, sharers, and consumers who make responsible choices (Wagaman, 2011).

The study used an exploratory qualitative design organized around two participant groups. In the first phase, twenty educators, including SEL specialists, MIL educators, school counselors, librarians, and curriculum designers, participated in semi-structured interviews. These interviews examined how practitioners understood the social-emotional dimensions of teenage misinformation engagement, what instructional gaps they identified in current misinformation education, and what design considerations they suggested for integrating SEL and MIL. Educators emphasized that

teenagers often know basic misinformation detection strategies, but may not apply them when misinformation is emotionally compelling, socially rewarding, or embedded in peer relationships.

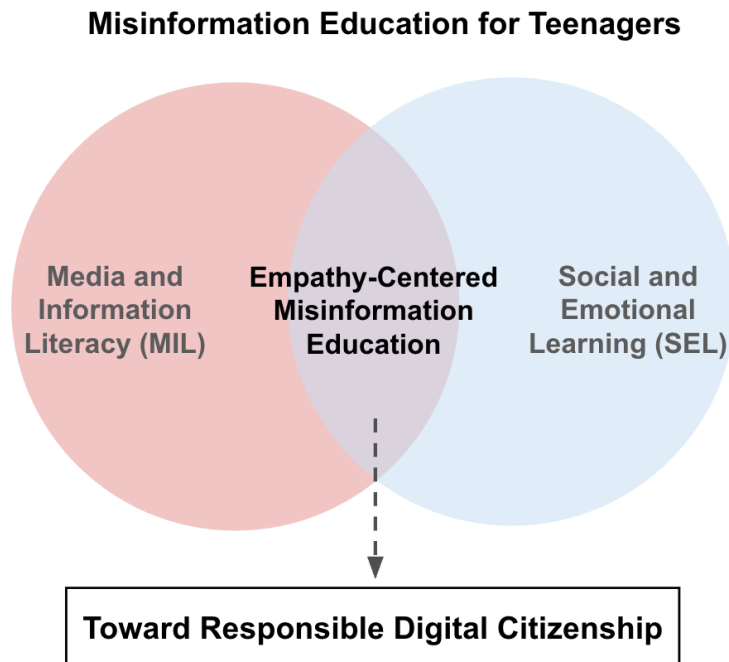
In the second phase, fifty-nine teenagers participated in thirteen focus group sessions. Each session engaged participants in an SEL-based misinformation learning module designed for this study. The module included gameplay with *Chronoshift*, followed by structured debriefing activities such as role-play, visual reflection, community message writing, and guided discussion. Data from focus group transcripts, individual reflections, visual artifacts, community messages, observations, and survey responses were analyzed to examine how teenagers interpreted misinformation through SEL-related experiences and competencies.

The CASEL framework, organized around five competencies of self-awareness, self-management, social awareness, relationship skills, and responsible decision-making, served as the conceptual foundation of the study. The findings showed that educators viewed misinformation as a social-emotional challenge for teenagers and emphasized the need for reflective, relational, experiential, and action-oriented approaches to misinformation education. Teenagers' responses further showed that misinformation was experienced not only as false information, but also as something connected to emotion, reputation, trust, peer relationships, family contexts, AI-generated content, visible and invisible harm, and social responsibility.

Taken together, the two phases of the study point toward an empathy-centered integration of SEL and MIL. In this framing, MIL contributes critical information practices such as accessing, evaluating, questioning, creating, and sharing information responsibly, while SEL contributes attention to emotion, empathy, relationships, perspective-taking, responsibility, and agency. Their integration supports a broader vision of misinformation education as a human-centered form of MIL: one that prepares teenagers not only to ask whether information is true or false, but also to consider who may be affected, why people participate in misinformation, and how they might respond more responsibly.

Across the dissertation, the findings suggest that SEL–MIL integration can help broaden misinfor-

Figure 29: *SEL–MIL Integration for Empathy-Centered Misinformation Education*



mation education beyond detection and verification. The study does not claim that SEL directly produces responsible digital behavior, nor does it offer a generalizable model for all teenagers or learning contexts. Rather, it provides an exploratory, qualitative account of how teenagers interpreted misinformation through emotional awareness, empathy, perspective-taking, social responsibility, and emerging agency. A central insight is that teenagers may recognize misinformation as harmful without always feeling capable of acting on that recognition. Therefore, misinformation education should support not only awareness of harm, but also pathways for contribution, such as warning, guiding, correcting, supporting, or advising others.

This dissertation therefore argues that SEL–MIL learning is most meaningful when it helps teenagers move from recognition to reflection, from empathy to responsibility, and from responsibility to possible action. Structured gameplay, debriefing, role-play, visual reflection, and community message writing served as learning conditions that made these shifts visible. At the same time, the study also highlights important critiques and limitations: SEL should not be treated as a universal solution, empathy should not be assumed to automatically produce action, and learning settings such

as schools and libraries shape how safely and deeply teenagers can engage in reflection. These limitations sharpen the study's contribution. Misinformation education for teenagers should not only teach them how to evaluate information, but also help them understand their roles as relational, ethical, and responsible participants in digital life.

7.2. Key Contributions

This study contributes to theory, learning design, and educational practice by advancing a human-centered approach to misinformation education for teenagers. Rather than treating misinformation only as a problem of detection, verification, or source evaluation, this dissertation shows that misinformation education should also address emotion, empathy, social responsibility, ethical judgment, and emerging agency. Across both phases of the study, the findings suggest that teenagers experience misinformation not only as inaccurate or misleading content, but also as something that affects people, relationships, trust, reputation, and participation in digital communities. The following sections summarize the study's main theoretical, design-oriented, and practical contributions.

7.2.1. Theoretical Contributions

This dissertation advances a human-centered framing of misinformation education by bringing SEL, MIL, and digital citizenship into conversation. Rather than treating misinformation only as a problem of false content, weak verification skills, or poor source evaluation, this dissertation conceptualizes teenage misinformation engagement as a social-emotional, relational, and civic issue. This theoretical contribution can be summarized in four parts: reframing teenage misinformation engagement as a social-emotional problem, extending the CASEL framework into misinformation education, theorizing empathy as both important and limited, and foregrounding agency as an emerging dimension of responsible digital participation.

First, this study contributes a reframing of teenage misinformation engagement as a social-emotional problem. Much misinformation education has been organized around informational and technical goals, such as identifying false content, evaluating sources, tracing origins, or recognizing manipulation. These goals remain important, but the findings of this study suggest that they do not fully explain how teenagers encounter, interpret, and respond to misinformation in everyday digital life.

Across educator interviews and teenager focus groups, misinformation appeared not only as false or misleading information, but also as something shaped by humor, peer pressure, emotional impulse, group belonging, family relationships, AI-mediated uncertainty, and concern for reputation. This reframing positions SEL not as an optional supplement to MIL, but as a necessary conceptual partner for understanding how misinformation operates in teenagers' social worlds.

Second, this study contributes an extension of the CASEL framework into the context of misinformation education. The CASEL framework identifies five core competencies: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making (CASEL, 2020). This study used CASEL as a sensitizing framework to examine how these competencies became meaningful in a specific digital and social context. The contribution is not simply that CASEL was applied to misinformation education, but that the study shows how the competencies take on new meanings when they are interpreted through teenagers' misinformation experiences. Self-awareness became connected to recognizing emotional triggers, overconfidence, and one's own possible role in misinformation circulation. Self-management became connected to pausing, withholding reaction, and managing the impulse to share under social pressure. Social awareness became connected to recognizing the human impact of misinformation. Relationship skills became connected to trust, correction, peer communication, and relational accountability. Responsible decision-making became connected to ethical choice under uncertainty, humor, and group norms. In this way, the study contributes to SEL theory by showing how CASEL can be reinterpreted in relation to teenagers' everyday digital participation.

Third, this study contributes a more nuanced theorization of empathy in misinformation education. Developmental and SEL scholarship often defines empathy as the capacity to understand and respond to others' perspectives and feelings (M. H. Davis, 1983; Hoffman, 2000). In this study, empathy functioned as an interpretive resource that helped teenagers understand misinformation as harm to real people rather than as inaccurate content alone. Teenagers used empathy to imagine victims' feelings, recognize the people behind online content, interpret why others might share misinformation, and connect digital actions to real-world consequences. This finding supports the

argument that empathy can deepen misinformation education by shifting attention from information accuracy alone to the people affected by misinformation.

However, the findings complicate any simple assumption that empathy naturally leads to responsible action. Teenagers' empathy was often relational, selective, and context-dependent. It appeared stronger when harm involved familiar, visible, or recognizable people, and weaker when misinformation was humorous, distant, socially rewarding, or disconnected from close relationships. This suggests that empathy is a valuable starting point, but not a sufficient condition for responsible action. In other words, it can help teenagers recognize harm and imagine others' experiences, but it does not automatically lead them to correct misinformation, intervene with peers, or change their own sharing behavior. Instead, empathy should be cultivated alongside reflection, responsibility, and agency. This contributes to misinformation education theory by showing that empathy is not the end point of SEL–MIL integration, but a bridge toward ethical judgment and possible action.

Fourth, this study contributes a theoretical understanding of agency as an emerging dimension of misinformation education. In this dissertation, agency is not treated as a measured behavioral outcome or as evidence that teenagers will act responsibly in future situations. Rather, agency appeared as an emerging sense that one's choices may matter in digital information environments. Across the findings, teenagers often recognized misinformation as harmful and could describe responsible choices, but they were less certain about whether they could or would act in real social situations. This pattern suggests that misinformation education should attend not only to awareness of harm, but also to teenagers' perceived capacity to respond, correct, resist, repair, or support others.

This interpretation aligns with scholarship that calls for greater attention to agency, power, and collective action in SEL, especially within Transformative SEL (Jagers et al., 2019, 2021). The contribution of this study is to show why agency is especially important in misinformation contexts. Teenagers may understand what responsible action looks like, but still feel constrained by peer pressure, uncertainty, humor, social reward, relational distance, or fear of conflict. Therefore, SEL–MIL learning should not stop at helping teenagers care about misinformation. It should also help them imagine realistic forms of action, including pausing before sharing, asking questions, supporting

someone harmed by misinformation, correcting misinformation carefully, or offering guidance to younger peers.

In sum, these theoretical contributions suggest that misinformation education for teenagers should be understood as a social-emotional and civic problem, not only an informational one. This dissertation does not propose a causal model or claim that SEL competencies directly produce responsible digital behavior. Rather, it offers a qualitative interpretation of how teenagers and educators made sense of misinformation through emotional, relational, ethical, and participatory dimensions. By bringing SEL, MIL, and digital citizenship into conversation, the study contributes a human-centered framing for misinformation education: one that recognizes teenagers as developing digital citizens whose learning involves not only knowing what is true, but also understanding who is affected, why it matters, and what forms of responsibility and agency may be possible.

7.2.2. Instructional Design Contributions

The second major contribution of this dissertation is design-oriented. Rather than offering only a set of isolated activities, this study contributes a broader design orientation for integrating SEL and MIL in teenager-centered misinformation learning. This design contribution can be summarized in four parts: shifting from detection-centered to human-centered learning design, repositioning debriefing as a participatory SEL learning space, using role-play as relational perspective-taking, and supporting agency through contribution.

First, this study contributes a shift from detection-centered design to human-centered learning design. Many misinformation education efforts focus on helping learners identify false content, verify sources, or recognize manipulation techniques (Roozenbeek et al., 2022; Wedlake et al., 2024). These goals remain important, but they do not fully address how teenagers encounter misinformation in everyday digital life, where humor, emotion, peer relationships, reputation, and uncertainty often shape their responses (Herrero-Diz et al., 2020; Middaugh, 2019). This study shows that misinformation learning can be designed around emotional entry points, relational meaning-making, empathic reflection, and opportunities for responsibility and agency. In this sense, the study contributes a model of SEL–MIL learning design that treats misinformation not only as content to

evaluate, but also as a human situation to interpret and respond to.

Second, this study contributes a repositioning of debriefing as a participatory SEL learning space rather than a brief follow-up discussion. Meaningful learning did not occur through gameplay alone. It emerged through structured reflection after gameplay, where teenagers were invited to examine emotions, perspectives, relationships, and possible consequences. This matters because game-based and experiential misinformation education often treats the activity itself as the main intervention (Crookall, 2010; Kolb, 2014). By contrast, this study shows that debriefing can function as the central site where SEL becomes visible and discussable (Boud et al., 2013; Crookall, 2014). Role-play, reverse role-play, visual reflection, and collaborative discussion did not simply review what happened in the game; they transformed the game experience into opportunities for empathy, perspective-taking, ethical reflection, and social awareness. This contribution shows that participatory debriefing is not an optional addition to SEL–MIL learning, but a core pedagogical structure for supporting deeper reflection.

Third, this study contributes a relational understanding of role-play in misinformation education. Role-play has often been used in educational settings to support perspective-taking or simulate social situations (Dewi et al., 2019). This dissertation extends that use by showing how role-play can make misinformation socially and emotionally intelligible. By temporarily inhabiting different positions within a shared misinformation scenario, teenagers were able to consider not only what happened, but how the situation might have felt to different people involved. The inclusion of reverse role-play was especially important because it encouraged participants to move beyond a single viewpoint and reconsider harm, responsibility, and empathy from another social position (Marathe & Sen, 2021). This suggests that role-play in misinformation education is not valuable only because it makes learning interactive. Its deeper value lies in creating conditions for relational and ethical interpretation.

Fourth, this study contributes a design approach for supporting agency through contribution. One of the important findings of this study was that teenagers often recognized misinformation as harmful, yet were less certain about how they could act meaningfully in response. The design response

developed in this study was not to ask teenagers to solve misinformation as an abstract social problem, but to provide a developmentally appropriate opportunity for contribution. By inviting participants to write messages to younger peers, the learning module positioned teenagers as people whose experiences, judgments, and advice could matter to others (Jagers et al., 2019). This activity helped move participants from private reflection toward socially meaningful authorship (Choi et al., 2017). It also showed that agency in SEL–MIL learning may be strengthened not only by asking teenagers what they learned, but by giving them a role through which they can guide, warn, or support others.

In sum, these design contributions show that SEL-integrated misinformation learning is most powerful when it is experiential, reflective, participatory, and socially meaningful. The contribution of this dissertation is therefore not simply the design of a game or a set of classroom activities, but a broader design orientation for the field. Misinformation learning for teenagers should foreground human impact, support empathic and relational reflection, and create manageable opportunities for responsible participation. This design orientation can help educators move beyond teaching teenagers only how to detect misinformation and toward helping them understand how misinformation affects people, how their own actions matter, and what forms of responsible digital participation may be possible.

7.2.3. Practical Contributions

The third major contribution of this dissertation is practical. The findings offer guidance for educators, curriculum designers, librarians, school counselors, youth workers, policymakers, and researchers who seek to support teenagers in navigating misinformation. More broadly, the study argues that misinformation education for teenagers should become more human-centered, relational, and developmentally responsive. Rather than treating misinformation only as a matter of detecting false content or evaluating sources, the findings suggest that effective practice should also address emotion, peer relationships, reputational harm, social responsibility, and the challenge of acting under uncertainty. This practical contribution can be summarized in four parts: grounding misinformation education in teenagers’ everyday experiences, integrating structured reflection into

instruction, supporting educators and institutions, and positioning teenagers as developing digital citizens.

First, this study contributes practical guidance for grounding misinformation education in situations teenagers recognize from their own lives. Teenagers in this study responded most meaningfully when misinformation was connected to rumors, peer sharing, group chats, school-based online accounts, family experiences, AI-generated images, and reputational harm. This suggests that misinformation education becomes more powerful when it uses familiar social contexts rather than abstract or distant examples alone (Wedlake et al., 2024). For educators and curriculum designers, this means using scenarios, stories, role-play, reflection prompts, and participatory activities that help students connect misinformation to the people, relationships, and communities they care about. In practice, misinformation education should move beyond asking only whether information is accurate and should also help students understand why misinformation matters in everyday social life.

Second, this study contributes practical guidance for integrating structured reflection into misinformation education. The findings showed that teenagers' experiences of misinformation were often tied to embarrassment, betrayal, anger, confusion, fear, humor, and peer pressure. If these emotional dynamics are ignored, students may learn detection strategies without learning how misinformation operates in the situations they actually face online. This study therefore suggests that misinformation education should include structured opportunities for emotional reflection, perspective-taking, and discussion of the social pressures that make responsible action difficult (Boud et al., 2013). For educators and curriculum designers, this shifts the focus from content delivery alone toward learning environments that support interpretation, ethical reflection, and social-emotional meaning-making.

Third, this study contributes practical guidance for supporting the institutions and adults who work with teenagers. Teachers, librarians, counselors, and youth workers cannot be expected to address misinformation, SEL, AI literacy, and digital citizenship without time, resources, and professional support. Educators in this study identified barriers such as limited instructional time, crowded curricula, inconsistent language around SEL, and the rapidly changing nature of digital technologies. The practical implication is that schools, libraries, and youth organizations need adaptable

materials, professional development, curricular legitimacy, and sufficient time for reflection-based learning (S. M. Jones et al., 2017). Without this support, SEL-based misinformation education is likely to remain dependent on individual educators' initiative rather than becoming a sustainable part of adolescent digital literacy education.

In sum, these practical contributions suggest that supporting teenagers in misinformation contexts requires more than better tools for detection. It requires educational experiences that connect misinformation to teenagers' lived experiences, create space for reflection, support the adults who facilitate this work, and help teenagers understand their responsibility and capacity to participate with care in digital life. This is the central practical contribution of the study: misinformation education should help teenagers not only evaluate information more critically, but also recognize how their actions affect others and how they might contribute more responsibly to their digital communities.

7.3. Critiques and Limitations

This dissertation argues that misinformation education for teenagers should be understood not only as a cognitive challenge, but also as a social-emotional one. By integrating Social and Emotional Learning (SEL) with Media and Information Literacy (MIL), the study shows how teenagers can reflect on emotion, empathy, responsibility, and agency when they encounter or share misinformation. However, this argument also requires careful critique. SEL should not be treated as a magical solution for misinformation, and the findings of this study should not be read as evidence that empathy or reflection automatically changes online behavior. Rather than presenting limitations only as a list of methodological weaknesses, this section examines the conceptual boundaries of SEL–MIL integration. Four critiques and limitations are central to this study: the risk of treating SEL as a complete solution to a structural misinformation problem, the fragility of empathy as a pathway to action, the age-specific nature of the study's focus on teenagers, and the dependence of SEL–MIL learning on particular learning settings.

The first critique concerns that CASEL competencies have limits when applied to misinformation education. Although the CASEL framework helped organize teenagers' misinformation experi-

ences around self-awareness, self-management, social awareness, relationship skills, and responsible decision-making (CASEL, 2020; Durlak et al., 2011), the findings suggest that these competencies did not appear equally or sequentially in misinformation contexts. Self-awareness, social awareness, and responsible decision-making were more visible because they directly connected to emotional triggers, perceived harm, and choices about whether to share or respond to misinformation. By contrast, self-management and relationship skills were less visible, not because they were unimportant, but because the learning module did not always create situations in which impulse regulation, conflict negotiation, or peer communication had to be fully practiced.

This suggests that CASEL cannot simply be transferred into misinformation education as a complete five-part model without adaptation. Misinformation contexts require attention not only to individual competencies, but also to external conditions such as algorithms, platform affordances, peer groups, influencer cultures, school norms, community trust, and policy environments (Boyd, 2014; Haider & Sundin, 2022; Nesi & Prinstein, 2015; Wardle & Derakhshan, 2017). Therefore, this study shows how teenagers made meaning of CASEL competencies within one designed learning module, but it cannot fully explain how these competencies operate across different platforms, social groups, and misinformation situations.

The second critique concerns the fragility of empathy in misinformation contexts. Aligned with CASEL's emphasis on social awareness, this study emphasized empathy as a way to help teenagers recognize the human consequences of misinformation. However, empathy should not be treated as an automatic or stable outcome of SEL-based learning. It can easily remain a wished-for feeling rather than a deeply internalized disposition (Bloom, 2017). Teenagers may express concern during a guided activity, especially when asked to imagine a victim's perspective, but this does not necessarily mean that empathy has increased in a durable way or will transfer to real online situations. Empathy may be especially difficult to sustain when misinformation is humorous, anonymous, peer-endorsed, politically charged, or directed toward strangers rather than close friends (Noddings, 2010; Silke et al., 2021; L. Steinberg & Morris, 2001). In this sense, the study shows how empathy can become visible within a structured learning experience, but it cannot claim that empathy became stable,

universal, or consistently actionable beyond that setting.

This limitation is also connected to the study's single-session design. Participants experienced *Chronoshift* and its associated debriefing activities in one session, without longitudinal follow-up. As a result, the study cannot determine whether participants' reflections persisted over time, influenced later digital behavior, or shaped how they responded to misinformation in everyday online contexts. A single module can create a meaningful moment of reflection, but it cannot demonstrate lasting SEL development, behavioral change, or durable responsible digital action. Therefore, this study does not claim that the module produced long-term empathy or consistent responsible action. Rather, it shows what became emotionally, socially, and ethically visible within the learning experience itself.

The third critique concerns the age-specific nature of this study. Because this dissertation focuses on teenagers, its findings should not be generalized too easily to younger children, college students, adults, parents, educators, or older adults. However, this focus is theoretically justified because adolescence is shaped by identity formation, emotional intensity, peer belonging, social visibility, and emerging moral agency (Nesi & Prinstein, 2015; L. D. Steinberg, 2014). These developmental features make teenagers an important group for studying misinformation as a social-emotional problem. In this study, teenagers did not understand misinformation only as news, false claims, or factual content; they encountered it through jokes, rumors, peer relationships, group chats, AI-generated images, social consequences, and everyday online sharing. Therefore, the argument is not that teenagers are uniquely vulnerable to misinformation or uniquely responsible for solving it, but that adolescence offers a particularly important context for examining how misinformation becomes tied to emotion, identity, peer norms, and responsibility.

Nevertheless, misinformation is not only a teenage problem. Other age groups also encounter and share misinformation, but the emotional and social mechanisms may differ across the life course (Lewandowsky et al., 2012; Roozenbeek et al., 2023; Wardle & Derakhshan, 2017). For teenagers, misinformation may be closely tied to peer approval, humor, social belonging, embarrassment, popularity, and participation in online culture (Herrero-Diz et al., 2020; Nesi & Prinstein, 2015; Sherman et al., 2016). For adults, it may be shaped more by political identity, confirmation bias,

community values, professional authority, or distrust of institutions (Pennycook & Rand, 2019a; Van Bavel et al., 2021). For older adults, it may involve health concerns, social isolation, changing platform cultures, or trust in family and familiar sources (Brashier & Schacter, 2020; Guess et al., 2019; Schwarz & Jalbert, 2020). Because this study did not compare age groups, it cannot determine whether SEL–MIL learning would work in the same way for children, college students, adults, or older adults. Future research should examine how CASEL competencies may need to be reinterpreted for different groups, such as self-awareness around peer pressure for teenagers, partisan identity for adults, or trust in familiar sources for older adults.

The fourth critique concerns the learning setting. This study suggests that SEL–MIL learning is most meaningful when teenagers can reflect with others in a socially situated environment, rather than only through individual online activities. This is because misinformation is experienced through relationships, peer norms, platform cultures, emotional reactions, and everyday social contexts (Haider & Sundin, 2022; Jenkins et al., 2006; Wedlake et al., 2024). School classrooms offer important opportunities for SEL–MIL integration because they provide continuity, familiar peer relationships, educator guidance, and repeated opportunities to connect misinformation education to adolescents’ everyday social lives. In school contexts, teenagers can reflect on peer pressure, humor, reputation, trust, and social accountability because these dynamics are already part of the classroom community. However, classrooms also create constraints. Students may feel pressure to give the expected moral answer, avoid honest vulnerability, or treat SEL reflection as another school task. Existing peer hierarchies may also limit who feels safe speaking openly. Therefore, school is promising because it offers continuity and relational familiarity, but it also requires careful facilitation so that SEL–MIL learning does not become performative, moralizing, or overly controlled by school expectations.

Public libraries and informal learning spaces offer a different set of possibilities and limitations. Libraries may provide a less evaluative and more community-based setting for discussing misinformation, especially across participants who may hold different beliefs or come from different backgrounds. This is especially relevant because libraries have long served as public spaces for

information learning, civic dialogue, and community-based media literacy programming (Tripodi et al., 2023; Wedlake et al., 2024; Young et al., 2020). Compared with schools, libraries may reduce the pressure of grades, discipline, and classroom performance, allowing participants to engage misinformation as a shared community concern rather than only as an academic topic. However, library-based SEL–MIL learning may lack sustained contact with the same participants, and librarians may not always be trained to facilitate emotionally sensitive SEL discussions. Therefore, libraries may be strong settings for community dialogue and low-stakes reflection (Sullivan, 2019; Wedlake et al., 2024; Young et al., 2020), but they may need additional facilitation support and repeated programming to sustain SEL development over time.

The question of whether participants know one another is also central to the setting limitation. Familiar peer groups can support deeper relational reflection because teenagers can connect misinformation to real social dynamics, shared histories, trust, humor, and peer pressure (Middaugh, 2019; L. D. Steinberg, 2014). However, familiar groups can also restrict reflection if participants fear judgment or embarrassment. Unfamiliar groups may make discussion feel safer in some ways because participants are less tied to existing peer reputations, but they may also limit the emotional depth of conversation. This creates a design tension for SEL–MIL learning: the setting should provide enough familiarity for meaningful social reflection, but enough safety and structure for participants to speak honestly. In addition, SEL–MIL learning should not remain limited to close friends or familiar peer groups. Through role-play, perspective-taking, and contribution-oriented activities, teenagers can be supported in extending empathy beyond immediate relationships toward strangers and broader communities who may also be harmed by misinformation (Jagers et al., 2021; Marathe & Sen, 2021; M. Ribble, 2015).

Taken together, these four critiques sharpen the contribution of the dissertation. SEL–MIL integration is not a universal solution to misinformation, nor does it guarantee lasting empathy or behavioral change after a single learning module. Instead, its value lies in making visible what cognitive misinformation education often misses: that misinformation is not only about knowing what is true, but also about caring who is affected, understanding why people share, recognizing

the limits of individual action, and deciding how to act responsibly within complex digital systems.

7.4. Future Research

This dissertation opens several directions for future research on SEL–MIL integration, misinformation education, and teenagers’ responsible digital participation. Future study should not only address what this dissertation could not examine, but also extend the conceptual and design possibilities that emerged from the findings. Because this study was exploratory and qualitative, it focused on how educators and teenagers made sense of misinformation through social-emotional, relational, and ethical dimensions. Building from these findings, future research can further develop this work in three main directions: examining longer-term outcomes, comparing SEL–MIL learning across contexts and learner groups, and designing stronger pathways from empathy to agency in the context of emerging digital technologies.

First, future research should examine the longer-term outcomes of SEL–MIL learning. This study focused on teenagers’ immediate reflections, interpretations, and responses during and after the learning module. The findings suggest that structured debriefing, role-play, visual reflection, and community message writing can support emotional awareness, empathy, social responsibility, and emerging agency. However, future studies are needed to examine whether these forms of reflection influence how teenagers respond to misinformation after the learning experience ends. Longitudinal research could investigate whether teenagers continue to pause before sharing, consider the possible impact on others, correct misinformation carefully, or support peers who are harmed by misinformation. Such research would help clarify whether SEL–MIL learning remains at the level of short-term reflection or whether it can contribute to more sustained forms of responsible digital participation.

Second, future research should examine how SEL–MIL learning works across different learning settings, age groups, and social contexts. This study was situated in a specific regional and educational context, and future studies could explore how the findings translate to younger adolescents, older high school students, college students, or adults. Age matters because emotional regulation, peer sensitivity, moral reasoning, and agency develop over time. Learning settings also matter. Schools may offer continuity, peer familiarity, and curricular structure, while libraries and community or-

ganizations may offer less evaluative and more informal spaces for discussion. Future comparative studies could examine how these settings shape teenagers' willingness to reflect, express emotion, discuss harm, practice perspective-taking, and imagine responsible action. Such work would help educators understand how SEL–MIL learning should be adapted rather than implemented as a fixed model.

Third, future research should further develop design approaches that help teenagers move from empathy to agency, especially in relation to AI-generated misinformation. One of the central findings of this dissertation is that teenagers may recognize misinformation as harmful without always feeling capable of acting on that recognition. Future design research should therefore explore how learning environments can provide realistic, developmentally appropriate pathways for contribution. This may include peer education projects, youth-created misinformation response guides, school or library campaigns, community message activities, or other forms of youth-led digital citizenship work. This direction is especially important as generative AI makes it easier for teenagers to create, remix, and circulate manipulated images, videos, voices, and texts. Future SEL–MIL research should examine how teenagers understand the ethical consequences of AI-generated content and how educational design can support not only technical awareness, but also empathy, responsibility, and meaningful action.

Taken together, these future directions suggest that SEL–MIL integration should continue to be studied as a developing, context-sensitive, and human-centered approach to misinformation education. Future research should not only ask whether teenagers can identify misinformation more accurately, but also how they understand its human consequences, how they negotiate responsibility within peer contexts, and how they can be supported in taking meaningful action. By extending this work across time, settings, populations, and emerging technologies, future studies can further strengthen misinformation education that prepares teenagers to participate in digital life with critical awareness, empathy, and care.

7.5. Closing Reflection

This dissertation began from a concern about the changing conditions of adolescent digital life. Teenagers are growing up in information environments where misinformation is increasingly easy to encounter, create, modify, and share. Social media platforms and AI technologies have expanded young people's opportunities for participation, expression, and connection, but they have also increased the speed and scale through which false or misleading content can circulate. A rumor shared for humor, an AI-generated image created as a joke, or a misleading post forwarded without verification can move beyond its original context and affect people in ways that are not immediately visible to the person who shared it. This concern shaped the central motivation of the study: misinformation education should support teenagers not only in recognizing false or misleading information, but also in understanding the social and ethical significance of their digital actions.

Across the dissertation, Media and Information Literacy (MIL) has been positioned as necessary but incomplete when used alone. Teenagers need skills for evaluating sources, questioning content, recognizing manipulation, and verifying information. However, the findings of this study suggest that these skills should be connected to the emotional and relational conditions in which misinformation is encountered and shared. Teenagers may understand misinformation as harmful in general, yet still struggle to connect that harm to their own everyday decisions, especially when misinformation appears through humor, peer interaction, social pressure, or entertainment. This gap between awareness and agency is where Social and Emotional Learning (SEL) becomes especially important. SEL does not replace MIL; rather, it extends MIL by connecting information practices to emotion, empathy, relationships, responsibility, and agency.

A central insight of this study is that teenagers should not be understood only as vulnerable users who need protection, nor as digitally fluent users who already possess the judgment needed to navigate online environments responsibly. Adolescents are still developing emotionally, socially, and ethically, but they are also capable of reflection, empathy, and meaningful contribution. When given structured opportunities to take another person's perspective, visualize harm, discuss social pressures, and offer guidance to younger peers, participants were able to engage misinformation

as more than a technical problem of accuracy. They began to interpret it as a human problem involving care, judgment, responsibility, and social consequence.

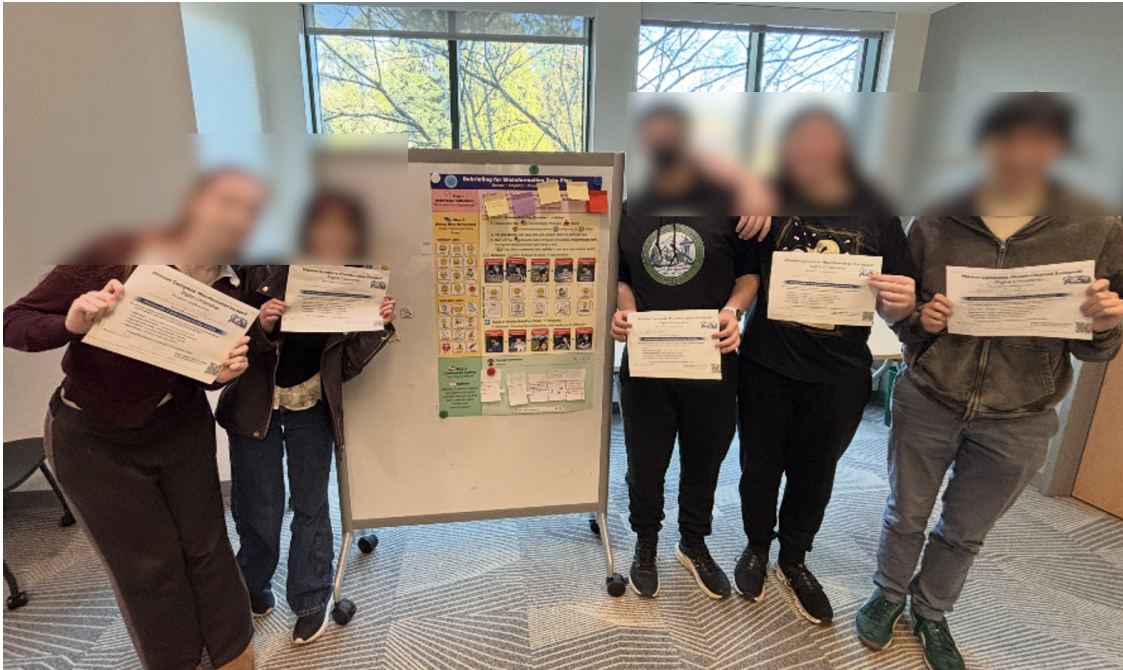
The study also shows that empathy and responsibility cannot be assumed as automatic outcomes of misinformation education. Teenagers may care deeply in some situations, but remain uncertain, amused, silent, or socially constrained in others. They may recognize what a responsible action would be, while still feeling unsure about whether they can act, particularly when peer relationships, humor, reputation, or fear of conflict are involved. This finding suggests that misinformation education should not simply instruct teenagers to be responsible. It should create learning conditions in which responsibility can be examined, practiced, and made actionable. Reflection, role-play, debriefing, visual representation, and contribution activities are valuable because they provide structured opportunities for teenagers to explore these tensions before encountering similar situations in real digital contexts.

Ultimately, this dissertation argues for a more human-centered approach to misinformation education. Teaching teenagers to ask whether information is true remains essential, but it should not be the only educational goal. Teenagers also need opportunities to ask who may be affected, why people believe or share misinformation, what emotions shape their own reactions, what responsibilities they have in digital spaces, and what actions are possible. These questions move misinformation education beyond detection and toward responsible digital citizenship. They position teenagers not only as consumers of information, but also as social participants whose choices can shape the emotional, ethical, and relational quality of digital communities.

As misinformation becomes more complex, particularly with the rise of AI-generated content, adolescents will need more than technical verification skills. They will need opportunities to develop empathy, reflective judgment, ethical awareness, and a sense of agency in relation to their digital actions. Supporting these capacities is not only a matter of strengthening misinformation education; it is also part of preparing young people to participate responsibly in a shared digital world. In this sense, the integration of SEL and MIL offers a meaningful approach to misinformation education: one that is not only concerned with whether teenagers can identify false information, but also with

how they understand its consequences, care about its impact, and act responsibly within the social and emotional realities of their digital lives.

Figure 30: *Teenagers Reflecting on Responsible Digital Participation*



BIBLIOGRAPHY

- Adams, Z., Osman, M., Bechlivanidis, C., & Meder, B. (2023). (why) is misinformation a problem? *Perspectives on Psychological Science*, 18(6), 1436–1463. <https://doi.org/10.1177/17456916221141344>
- Admiraal, W., Huizenga, J., Akkerman, S., & Dam, G. T. (2011). The concept of flow in collaborative game-based learning. *Computers in Human Behavior*, 27(3), 1185–1194. <https://doi.org/10.1016/j.chb.2010.12.013>
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Alotaibi, M. S. (2024). Game-based learning in early childhood education: A systematic review and meta-analysis. *Frontiers in Psychology*, 15, 1307881. <https://doi.org/10.3389/fpsyg.2024.1307881>
- Altay, S., Berriche, M., Heuer, H., Farkas, J., & Rathje, S. (2023). A survey of expert views on misinformation: Definitions, determinants, solutions, and future of the field. *Harvard Kennedy School Misinformation Review*, 4(4), 1–34. <https://doi.org/10.37016/mr-2020-119>
- Ang, B., Anwar, N. D., & Jayakumar, S. (2020). Disinformation & fake news: Meanings, present, future. In S. Jayakumar, B. Ang, & N. D. Anwar (Eds.), *Disinformation and fake news* (pp. 3–20). Palgrave Macmillan. https://doi.org/10.1007/978-981-15-5876-4_1
- Audiffred_Hinojosa, A., Pantoja_Bedolla, F., Castillo_Correa, T., & ernández_Aguilar, L. (2021). Best-self stories: Use of technology and storytelling through the creation of stop-motion videos to promote positive emotions and emotional intelligence through anticipation, savoring, and reminiscence, 278–286. <https://doi.org/10.17501/24246700.2021.7127>
- Bailey, J. (2008). First steps in qualitative data analysis: Transcribing. *Family Practice*, 25(2), 127–131. <https://doi.org/10.1093/fampra/cmn003>
- Baker, R. S., D'Mello, S. K., Rodrigo, M. T., & Graesser, A. C. (2010). Better to be frustrated than bored: The incidence, persistence, and impact of learners' cognitive–affective states during interactions with three different computer-based learning environments. *International*

- Journal of Human-Computer Studies*, 68(4), 223–241. <https://doi.org/10.1016/j.ijhcs.2009.12.003>
- Balinska-Ourdeva, V. (2015). 21st Century Learners. In A. A. Abdi, L. Shultz, & T. Pillay (Eds.), *Decolonizing Global Citizenship Education* (pp. 179–188). SensePublishers. https://doi.org/10.1007/978-94-6300-277-6_15
- Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology*, 52, 1–26. <https://doi.org/10.1146/annurev.psych.52.1.1>
- Bandura, A., Caprara, G. V., Barbaranelli, C., Gerbino, M., & Pastorelli, C. (2003). Role of affective self-regulatory efficacy in diverse spheres of psychosocial functioning. *Child Development*, 74(3), 769–782. <https://doi.org/10.1111/1467-8624.00567>
- Barab, S. A., Gresalfi, M., & Ingram-Goble, A. (2010). Transformational Play: Using Games to Position Person, Content, and Context. *Educational Researcher*, 39(7), 525–536. <https://doi.org/10.3102/0013189X10386593>
- Barley, R., & Russell, L. (2019). Participatory visual methods: Exploring young people’s identities, hopes and feelings. *Ethnography and Education*, 14(2), 223–241. <https://doi.org/10.1080/17457823.2018.1441041>
- Barlińska, J., Szuster, A., & Winiewski, M. (2013). Cyberbullying among adolescent bystanders: Role of the communication medium, form of violence, and empathy. *Journal of Community & Applied Social Psychology*, 23(1), 37–51. <https://doi.org/10.1002/casp.2137>
- Basol, M., Roozenbeek, J., Berriche, M., Uenal, F., McClanahan, W. P., & Linden, S. v. d. (2021). Towards psychological herd immunity: Cross-cultural evidence for two prebunking interventions against COVID-19 misinformation. *Big Data & Society*, 8(1), 205395172110138. <https://doi.org/10.1177/20539517211013868>
- BBC News. (2020, March 5). *Tiktok skull-breaker challenge danger warning*. Retrieved May 6, 2026, from <https://www.bbc.com/news/technology-51742854>
- Bennett, S., Maton, K., & Kervin, L. (2008). The “digital natives” debate: A critical review of the evidence. *British Journal of Educational Technology*, 39(5), 775–786. <https://doi.org/10.1111/j.1467-8535.2007.00793.x>

- Bertella, G., Lupini, S., Rossi Romanelli, C., & Font, X. (2021). Workshop methodology design: Innovation-oriented participatory processes for sustainability. *Annals of Tourism Research*, 89, 103251. <https://doi.org/10.1016/j.annals.2021.103251>
- Birks, M., Chapman, Y., & Francis, K. (2008). Memoing in qualitative research: Probing data and processes. *Journal of Research in Nursing*, 13(1), 68–75. <https://doi.org/10.1177/1744987107081254>
- Blakemore, S.-J. (2018). *Inventing ourselves: The secret life of the teenage brain*. PublicAffairs. <https://www.hachettebookgroup.com/titles/sarah-jayne-blakemore/inventing-ourselves/9781541742741/>
- Bloom, P. (2017). Empathy and its discontents. *Trends in Cognitive Sciences*, 21(1), 24–31. <https://doi.org/10.1016/j.tics.2016.11.004>
- Blumer, H. (1954). What is wrong with social theory? *American Sociological Review*, 19(1), 3–10. <https://doi.org/10.2307/2088165>
- Boltz, L. O., Henriksen, D., & Mishra, P. (2015). Rethinking Technology & Creativity in the 21st Century: Empathy through Gaming - Perspective Taking in a Complex World. *TechTrends*, 59(6), 3–8. <https://doi.org/10.1007/s11528-015-0895-1>
- Boud, D., Keogh, R., & Walker, D. (2013). *Reflection: Turning Experience into Learning*. Taylor; Francis. <https://doi.org/10.4324/9781315059051>
- Bowen, G. A. (2006). Grounded theory and sensitizing concepts. *International Journal of Qualitative Methods*, 5(3), 12–23. <https://doi.org/10.1177/160940690600500304>
- Boyd, D. (2014). *It's complicated: The social lives of networked teens*. Yale University Press. Retrieved September 26, 2024, from <https://journals.openedition.org/lectures/17628>
- Brady, W. J., Crockett, M. J., & Van Bavel, J. J. (2020). The MAD model of moral contagion: The role of motivation, attention, and design in the spread of moralized content online. *Perspectives on Psychological Science*, 15(4), 978–1010. <https://doi.org/10.1177/1745691620917336>
- Brady, W. J., Wills, J. A., Jost, J. T., Tucker, J. A., & Van Bavel, J. J. (2017). Emotion shapes the diffusion of moralized content in social networks. *Proceedings of the National Academy of Sciences*, 114(28), 7313–7318. <https://doi.org/10.1073/pnas.1618923114>

- Brandau, M., Dille, T., Schaumleffel, C., & Himawan, L. (2022). Digital citizenship among Appalachian middle schoolers: The common sense digital citizenship curriculum. *Health Education Journal*, 81(2), 157–169. <https://doi.org/10.1177/00178969211056429>
- Brashier, N. M., & Schacter, D. L. (2020). Aging in an era of fake news. *Current Directions in Psychological Science*, 29(3), 316–323. <https://doi.org/10.1177/0963721420915872>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. *Qualitative Research in Sport, Exercise and Health*, 11(4), 589–597. <https://doi.org/10.1080/2159676X.2019.1628806>
- Braun, V., Clarke, V., Boulton, E., Davey, L., & McEvoy, C. (2021). The online survey as a qualitative research tool. *International Journal of Social Research Methodology*, 24(6), 641–654. <https://doi.org/10.1080/13645579.2020.1805550>
- Brodsky, J. E., Brooks, P. J., Scimeca, D., Todorova, R., Galati, P., Batson, M., Grosso, R., Matthews, M., Miller, V., & Caulfield, M. (2021). Improving college students' fact-checking strategies through lateral reading instruction in a general education civics course. *Cognitive Research: Principles and Implications*, 6(1), 23. <https://doi.org/10.1186/s41235-021-00291-4>
- Brown, B. B. (2004). Adolescents' relationships with peers. In R. M. Lerner & L. Steinberg (Eds.), *Handbook of adolescent psychology* (2nd ed., pp. 363–394). John Wiley & Sons. <https://doi.org/10.1002/9780471726746.ch12>
- Buckingham, D. (2003). *Media education: Literacy, learning and contemporary culture*. Polity Press. https://books.google.com/books/about/Media_Education.html?id=mGOxvIdkTscC
- Buckingham, D. (Ed.). (2008). *Youth, identity, and digital media*. MIT Press. <https://mitpress.mit.edu/9780262524834/youth-identity-and-digital-media/>
- Carroll, K. (2019). Social-Emotional Learning: Helping Teens Navigate "All of the Things" | Student Success. Retrieved March 24, 2025, from <https://www.carnegie.org/our-work/article/social-emotional-learning-helping-teens-navigate-all-the-things/>

- CASEL. (2015). Effective Social and Emotional Learning Programs—Middle and High School Edition. <https://secondaryguide.casel.org/casel-secondary-guide-beta.html>
- CASEL. (2020). What Is the CASEL Framework? - CASEL. Retrieved October 1, 2024, from <https://casel.org/fundamentals-of-sel/what-is-the-casel-framework/>
- CASEL. (2021). Advancing Social and Emotional Learning (SEL) to Create Supportive Learning Environments. Retrieved April 6, 2025, from <https://casel.org/sel-guidance-2020-election/>
- CASEL. (2023). Personal SEL Reflection. Retrieved April 25, 2026, from <https://schoolguide.casel.org/resource/adult-sel-self-assessment/>
- Cassidy, W., Faucher, C., & Jackson, M. (2013). Cyberbullying among youth: A comprehensive review of current international research and its implications and application to policy and practice. *School Psychology International*, 34(6), 575–612. <https://doi.org/10.1177/0143034313479697>
- CBS New York. (2020, February 19). *'skull breaker challenge' circulating on tiktok is sending kids to the hospital*. Retrieved May 6, 2026, from <https://www.cbsnews.com/newyork/news/tiktok-skull-breaker-challenge/>
- Chen, C. (2021). *Problematic Internet use, social-emotional learning competencies, and bullying victimization among Chinese adolescents*. University of California, Santa Barbara. Retrieved March 24, 2025, from <https://escholarship.org/uc/item/4nb4403f>
- Cho, Y., Coward, C., Lackner, J., Windleharth, T. W., & Lee, J. H. (2023). The use of an escape room as an immersive learning environment for building resilience to misinformation. *Journal of Librarianship and Information Science*, 09610006231208027. <https://doi.org/10.1177/09610006231208027>
- Choi, M., Glassman, M., & Cristol, D. (2017). What it means to be a citizen in the internet age: Development of a reliable and valid digital citizenship scale. *Computers & Education*, 107, 100–112. <https://doi.org/10.1016/j.compedu.2017.01.002>
- Clark, L. S. (2011). Parental mediation theory for the digital age. *Communication Theory*, 21(4), 323–343. <https://doi.org/10.1111/j.1468-2885.2011.01391.x>

- Contreras-Espinosa, R. S., & Eguia-Gomez, J. L. (2023). Evaluating Video Games as Tools for Education on Fake News and Misinformation. *Computers*, 12(9), 188. <https://doi.org/10.3390/computers12090188>
- Corbu, N., Oprea, D.-A., & Frunzaru, V. (2022). Romanian adolescents, fake news, and the third-person effect: A cross-sectional study. *Journal of Children and Media*, 16(3), 387–405. <https://doi.org/10.1080/17482798.2021.1992460>
- Cortesi, S. C., Hasse, A., Lombana, A., Kim, S., & Gasser, U. (2020). Youth and Digital Citizenship+ (Plus): Understanding Skills for a Digital World. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3557518>
- Council of Europe. (2022). Digital citizenship education. <https://www.coe.int/en/web/education/digital-citizenship-education>
- Creswell, J. W. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (4th ed). Pearson. https://books.google.com/books/about/Educational_Research.html?id=4PywcQAACAAJ
- Creswell, J. W. (2013). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed). SAGE Publications, Inc. <https://study.sagepub.com/creswellrd4e>
- Creswell, J. W., & Clark, V. L. P. (2017). *Designing and conducting mixed methods research*. Sage publications. Retrieved March 29, 2025, from <https://collegepublishing.sagepub.com/products/designing-and-conducting-mixed-methods-research-3-241842>
- Creswell, J. W., & Creswell, J. D. (2018). Research Design: Qualitative, Quantitative, and Mixed Methods Approaches. <https://us.sagepub.com/en-us/nam/research-design/book255675>
- Creswell, J. W., & Poth, C. N. (2018). *Qualitative Inquiry & Research Design* (Fourth edition). SAGE. <https://collegepublishing.sagepub.com/products/qualitative-inquiry-and-research-design-4-246896>
- Crone, E. A., & Dahl, R. E. (2012). Understanding adolescence as a period of social-affective engagement and goal flexibility. *Nature Reviews Neuroscience*, 13(9), 636–650. <https://doi.org/10.1038/nrn3313>

- Crookall, D. (2010). Serious Games, Debriefing, and Simulation/Gaming as a Discipline. *Simulation & Gaming*, 41(6), 898–920. <https://doi.org/10.1177/1046878110390784>
- Crookall, D. (2014). Engaging (in) Gameplay and (in) Debriefing. *Simulation & Gaming*, 45(4-5), 416–427. <https://doi.org/10.1177/1046878114559879>
- Crookall, D. (2023). Debriefing: A Practical Guide [Series Title: Springer Texts in Education]. In M. L. Angelini & R. Muñiz (Eds.), *Simulation for Participatory Education* (pp. 115–214). Springer International Publishing. https://doi.org/10.1007/978-3-031-21011-2_6
- Crookall, D. (2024). How to debrief geo-simulation/games: Some ideas and actions to make your debriefing more effective. <https://doi.org/10.5194/egusphere-egu24-2605>
- Daily Mail. (2016). *Ridiculous teenage trust fall challenge sweeps the web*. <https://www.dailymail.com/lifestyle/article-3554305/Ridiculous-teenage-trust-fall-challenge-sweeps-web.html>
- Dallacqua, A. K., Sheahan, A., & Davis, A. N. (2022). Teaching the comic *Yummy* to engage adolescent empathy, critical reflection, and community awareness. *Journal of Moral Education*, 51(3), 404–421. <https://doi.org/10.1080/03057240.2021.1890554>
- Darling-Hammond, L., Flook, L., Cook-Harvey, C., Barron, B., & Osher, D. (2020). Implications for educational practice of the science of learning and development. *Applied Developmental Science*, 24(2), 97–140. <https://doi.org/10.1080/10888691.2018.1537791>
- Das, J., & Ghosh, S. (2021). Importance of social-emotional learning on aggression and empathy among adolescents. *INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH*, 45–47. <https://doi.org/10.36106/ijsr/1334384>
- Davis, K. (2023). *Technology's Child: Digital media's role in the ages and stages of growing up*. MIT Press. <https://doi.org/10.7551/mitpress/13406.001.0001>
- Davis, M. H. (1980). A multidimensional approach to individual differences in empathy. Retrieved September 1, 2025, from https://www.uv.es/friasnav/Davis_1980.pdf
- Davis, M. H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology*, 44(1), 113–126. <https://doi.org/10.1037/0022-3514.44.1.113>

- De Freitas, S. (2006). Learning in Immersive worlds: A review of game-based learning, 73. <https://pure.coventry.ac.uk/ws/portalfiles/portal/4017131/learning%2Bin%2Bimmersive%2Bworlds.pdf>
- Del Vicario, M., Bessi, A., Zollo, F., Petroni, F., Scala, A., Caldarelli, G., Stanley, H. E., & Quattrociocchi, W. (2016). The spreading of misinformation online. *Proceedings of the National Academy of Sciences of the United States of America*, 113(3), 554–559. <https://doi.org/10.1073/pnas.1517441113>
- Denham, S. A. (2018). *Keeping SEL developmental: The importance of a developmental lens for fostering and assessing SEL competencies* (tech. rep.). Collaborative for Academic, Social, and Emotional Learning (CASEL). Chicago, IL. <https://casel.s3.us-east-2.amazonaws.com/CASEL-Resources-Keeping-SEL-Developmental.pdf>
- DePaoli, J. L., Atwell, M. N., & Bridgeland, J. (2017). Ready to Lead: A National Principal Survey on How Social and Emotional Learning Can Prepare Children and Transform Schools. A Report for CASEL. *Civic Enterprises*. Retrieved March 24, 2025, from <https://eric.ed.gov/?id=ED579088>
- Detlor, B., Booker, L., Serenko, A., & Julien, H. (2012). Student perceptions of information literacy instruction: The importance of active learning. *Education for Information*, 29(2), 147–161. <https://doi.org/10.3233/EFI-2012-0924>
- Dewi, Y. T., Pratisti, W. D., & Prasetyaningrum, J. (2019). The Effect of Roleplay to Increase Empathy Toward Students with Disruptive Classroom Behavior. <https://proceedings.ums.ac.id/iseth/article/view/1334>
- Dhiman, D. B. (2023). The rise and impact of misinformation and fake news on digital youth: A critical review. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.4438362>
- Dhingra, R., & Parashar, D. B. (2022). Social media and social emotional learning: Adolescents' perspective. <https://journalppw.com/index.php/jpsp/article/view/6954>
- Dowling, K., Simpkin, A. J., & Barry, M. M. (2019). A Cluster Randomized-Controlled Trial of the MindOut Social and Emotional Learning Program for Disadvantaged Post-Primary School

- Students. *Journal of Youth and Adolescence*, 48(7), 1245–1263. <https://doi.org/10.1007/s10964-019-00987-3>
- Ducharme, J. (2018). Here’s how common the tide pod challenge really is. Retrieved September 11, 2024, from <https://time.com/5104225/tide-pod-challenge/>
- Duraiappah, A. K. (2019). 21st century skills: The need for social and emotional learning. Retrieved March 26, 2025, from <https://www.sidalc.net/search/Record/dig-unesdoc-ark:-48223-pf0000372227/Description>
- Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The Impact of Enhancing Students’ Social and Emotional Learning: A Meta-Analysis of School-Based Universal Interventions. *Child Development*, 82(1), 405–432. <https://doi.org/10.1111/j.1467-8624.2010.01564.x>
- Durlak, J. A., Weissberg, R. P., & Pachan, M. (2010). A Meta-Analysis of After-School Programs That Seek to Promote Personal and Social Skills in Children and Adolescents. *American Journal of Community Psychology*, 45(3-4), 294–309. <https://doi.org/10.1007/s10464-010-9300-6>
- Ecker, U. K. H., Lewandowsky, S., Cook, J., Schmid, P., Fazio, L. K., Brashier, N., Kendeou, P., Vraga, E. K., & Amazeen, M. A. (2022). The psychological drivers of misinformation belief and its resistance to correction. *Nature Reviews Psychology*, 1(1), 13–29. <https://doi.org/10.1038/s44159-021-00006-y>
- Eisenberg, N., Fabes, R. A., & Spinrad, T. L. (2006). Prosocial development. In W. Damon, R. M. Lerner, & N. Eisenberg (Eds.), *Handbook of child psychology: Social, emotional, and personality development* (6th ed., pp. 646–718, Vol. 3). John Wiley & Sons. <https://doi.org/10.1002/9780470147658.chpsy0311>
- Elias, M., Zins, J. E., & Weissberg, R. P. (1997). *Promoting social and emotional learning: Guidelines for educators*. Ascd. Retrieved March 24, 2025, from <https://www.ascd.org/books/promoting-social-and-emotional-learning>
- Elkind, D. (1967). Egocentrism in Adolescence. *CHILD DEVELOPMENT*. <https://doi.org/10.2307/1127100>

- Emerson, R. M., Fretz, R. I., & Shaw, L. L. (2011). *Writing Ethnographic Fieldnotes, Second Edition*. University of Chicago Press. <https://doi.org/10.7208/chicago/9780226206868.001.0001>
- Encheva, M., Tammara, A. M., & Kumanova, A. (2020). Games to Improve Students Information Literacy Skills. *International Information & Library Review*, 52(2), 130–138. <https://doi.org/10.1080/10572317.2020.1746024>
- Erikson, E. H. (1968). *Identity: Youth and crisis*. W. W. Norton. https://books.google.com/books/about/Identity_Youth_and_Crisis.html?id=v3XWH2PDLewC
- Eva, N., & Shea, E. (2018). Marketing Libraries in an Era of “Fake News”. 57(3), 4. <https://doi.org/10.5860/rusq.57.3.6599>
- Fanning, R. M., & Gaba, D. M. (2007). The Role of Debriefing in Simulation-Based Learning. *Simulation in Healthcare: The Journal of the Society for Simulation in Healthcare*, 2(2), 115–125. <https://doi.org/10.1097/SIH.0b013e3180315539>
- Figueira, Á., & Oliveira, L. (2017). The current state of fake news: Challenges and opportunities. *Procedia Computer Science*, 121, 817–825. <https://doi.org/10.1016/j.procs.2017.11.106>
- Finkelhor, D., Walsh, K., Jones, L., Mitchell, K., & Collier, A. (2021). Youth Internet Safety Education: Aligning Programs With the Evidence Base. *Trauma, Violence, & Abuse*, 22(5), 1233–1247. <https://doi.org/10.1177/1524838020916257>
- Floridi, L. (2023, August). *The Ethics of Artificial Intelligence: Principles, Challenges, and Opportunities*. Oxford University Press. <https://doi.org/10.1093/oso/9780198883098.001.0001>
- Freeman, B., & Hawkins, R. (2017). Randomized Impact Evaluation Findings.
- Galinsky, A. D., Ku, G., & Wang, C. S. (2005). Perspective-taking and self-other overlap: Fostering social bonds and facilitating social coordination. *Group Processes & Intergroup Relations*, 8(2), 109–124. <https://doi.org/10.1177/1368430205051060>
- Galinsky, A. D., & Moskowitz, G. B. (2000). Perspective-taking: Decreasing stereotype expression, stereotype accessibility, and in-group favoritism. *Journal of Personality and Social Psychology*, 78(4), 708–724. <https://doi.org/10.1037/0022-3514.78.4.708>

- Garris, R., Ahlers, R., & Driskell, J. E. (2002). Games, Motivation, and Learning: A Research and Practice Model. *Simulation & Gaming*, 33(4), 441–467. <https://doi.org/10.1177/1046878102238607>
- Gauntlett, D. (2005). Using Creative Visual Research Methods to Understand Media Audiences. *MedienPädagogik: Zeitschrift für Theorie und Praxis der Medienbildung*, 9, 1–32. <https://doi.org/10.21240/mpaed/09/2005.03.29.X>
- Gee, J. P. (2003). *What video games have to teach us about learning and literacy*. Palgrave Macmillan. https://books.google.com/books/about/What_Video_Games_Have_to_Teach_Us_about.html?id=ADgZf3Yqp1QC
- Gee, J. P. (2005). Learning by Design: Good Video Games as Learning Machines, 12. <https://doi.org/10.2304/elea.2005.2.1.5>
- Geertz, C. (1973). *The interpretation of cultures: Selected essays*. Basic Books. https://books.google.com/books/about/The_Interpretation_Of_Cultures.html?id=BZ1BmKEHti0C
- Gentry, W., Weber, T., Center for Creative Leadership, Golnaz, S., & Teachers College. (2016, February). *Empathy in the workplace: A tool for effective leadership* (tech. rep.). Center for Creative Leadership. <https://doi.org/10.35613/ccl.2016.1070>
- Gerace, A., Day, A., Casey, S., & Mohr, P. (2013). An Exploratory Investigation of the Process of Perspective Taking in Interpersonal Situations. *Journal of Relationships Research*, 4, e6. <https://doi.org/10.1017/jrr.2013.6>
- Gibbs, G. (1988). Learning by doing: A guide to teaching. *Further Education Unit*.
- Gill, G. S. (2014). The Nature of Reflective Practice and Emotional Intelligence in Tutorial Settings. *Journal of Education and Learning*, 3(1), p86. <https://doi.org/10.5539/jel.v3n1p86>
- Gimbert, B. G., Miller, D., Herman, E., Breedlove, M., & Molina, C. E. (2023). Social Emotional Learning in Schools: The Importance of Educator Competence. *Journal of Research on Leadership Education*, 18(1), 3–39. <https://doi.org/10.1177/19427751211014920>
- Gini, G., Albiero, P., Benelli, B., & Altoè, G. (2007). Does empathy predict adolescents' bullying and defending behavior? *Aggressive Behavior*, 33(5), 467–476. <https://doi.org/10.1002/ab.20204>

- Goldberg, D. (2017). Responding to “fake news”: Is there an alternative to law and regulation? <https://www.swlaw.edu/sites/default/files/2018-05/417%20Goldberg.pdf>
- Goldstein, J. A., Sastry, G., Musser, M., DiResta, R., Gentzel, M., & Sedova, K. (2023). Generative Language Models and Automated Influence Operations: Emerging Threats and Potential Mitigations.
- Goleman, D. (2005). *Emotional intelligence: Why it can matter more than IQ*. Bantam. Retrieved September 10, 2025, from https://books.google.com/books/about/Emotional_Intelligence.html?id=9iQWqIBwl_AC
- Gottfried, J., Faverio, M., & Anderson, M. (2023, December). *Teens, social media and technology 2023* [Pew research center]. Retrieved September 16, 2024, from <https://www.pewresearch.org/internet/2023/12/11/teens-social-media-and-technology-2023/>
- Graham, A., Powell, M. A., & Taylor, N. (2015). Ethical Research Involving Children: Encouraging Reflexive Engagement in Research with Children and Young People. *Children & Society*, 29(5), 331–343. <https://doi.org/10.1111/chso.12089>
- Green, A. L., Ferrante, S., Boaz, T. L., Kutash, K., & Wheeldon-Reece, B. (2021). Social and emotional learning during early adolescence: Effectiveness of a classroom-based SEL program for middle school students. *Psychology in the Schools*, 58(6), 1056–1069. <https://doi.org/10.1002/pits.22487>
- Greenberg, M. T. (2023, March). *Evidence for social and emotional learning in schools* (tech. rep.). Learning Policy Institute. <https://doi.org/10.54300/928.269>
- Grizzle, A., Wilson, C., Tuazon, R., Cheung, C. K., Lau, J., Fischer, R., Gordon, D., Akyempong, K., Singh, J., & Carr, P. R. (2021). Media and information literate citizens: Think critically, click wisely! Retrieved October 1, 2024, from <https://zuscholars.zu.ac.ae/works/4562/>
- Guess, A., Nagler, J., & Tucker, J. (2019). Less than you think: Prevalence and predictors of fake news dissemination on Facebook. *Science Advances*, 5(1), eaau4586. <https://doi.org/10.1126/sciadv.aau4586>

- Habgood, M. P. J., & Ainsworth, S. E. (2011). Motivating children to learn effectively: Exploring the value of intrinsic integration in educational games. *The Journal of the Learning Sciences*, 20(2), 169–206. <https://doi.org/10.1080/10508406.2010.508029>
- Haider, J., & Sundin, O. (2022). *Paradoxes of media and information literacy: The crisis of information*. Routledge. <https://doi.org/10.4324/9781003163237>
- Hameleers, M., Powell, T. E., Van Der Meer, T. G. L. A., & Bos, L. (2020). A picture paints a thousand lies? the effects and mechanisms of multimodal disinformation and rebuttals disseminated via social media. *Political Communication*, 37(2), 281–301. <https://doi.org/10.1080/10584609.2019.1674979>
- Harlan, M. A., Bruce, C., & Lupton, M. (2014). Creating and sharing: Teens’ information practices in digital communities. *Information Research*, 19. Retrieved March 26, 2025, from <https://researchonline.jcu.edu.au/55413/>
- Hartwig, K., Biselli, T., Schneider, F., & Reuter, C. (2024). From Adolescents’ Eyes: Assessing an Indicator-Based Intervention to Combat Misinformation on TikTok. *Proceedings of the CHI Conference on Human Factors in Computing Systems*, 1–20. <https://doi.org/10.1145/3613904.3642264>
- Herrero-Diz, P., Conde-Jiménez, J., & Reyes De Cózar, S. (2020). Teens’ motivations to spread fake news on WhatsApp. *Social Media + Society*, 6(3), 205630512094287. <https://doi.org/10.1177/2056305120942879>
- Hobbs, R. (2010). *Digital and media literacy: A plan of action*. The Aspen Institute.
- Hobbs, R. (2017). *Create to learn: Introduction to digital literacy*. Wiley. <https://doi.org/10.1002/9781394260201>
- Hobbs, R., & Jensen, A. (2009). The Past, Present, and Future of Media Literacy Education. *Journal of Media Literacy Education*. <https://doi.org/10.23860/jmle-1-1-1>
- Hoffman, M. L. (2000). *Empathy and moral development: Implications for caring and justice*. Cambridge University Press. <https://doi.org/10.1017/CBO9780511805851>
- Hollenstein, T., & Faulkner, K. (2024). Adolescent digital emotion regulation. *Journal of Research on Adolescence*, 34(4), 1341–1351. <https://doi.org/10.1111/jora.13009>

- Hopkins, I. (2015). ‘chocolate-covered broccoli’? games and the teaching of literature. *Changing English*, 22(2), 222–236. <https://doi.org/10.1080/1358684X.2015.1022508>
- Howard, P. N., Neudert, L.-M., Prakash, N., & Vosloo, S. (2021). Digital misinformation / disinformation and children. <https://www.unicef.org/innocenti/media/856/file/UNICEF-Global-Insight-Digital-Mis-Disinformation-and-Children-2021.pdf>
- Hromek, R., & Roffey, S. (2009). Promoting Social and Emotional Learning With Games: “It’s Fun and We Learn Things”. *Simulation & Gaming*, 40(5), 626–644. <https://doi.org/10.1177/1046878109333793>
- Immordino-Yang, M. H., & Damasio, A. (2007). We feel, therefore we learn: The relevance of affective and social neuroscience to education. *Mind, Brain, and Education*, 1(1), 3–10. <https://doi.org/10.1111/j.1751-228X.2007.00004.x>
- INCIBE & OSI. (2019). Protección del menor ante las fake news [protection of minors against fake news]. Retrieved March 21, 2025, from <https://mundodigital.net/proteccion-del-menor-ante-las-fake-news>
- Israel, M., & Hay, I. (2009). *Research ethics for social scientists: Between ethical conduct and regulatory compliance* (Repr). Sage Publ. <https://methods.sagepub.com/book/mono/research-ethics-for-social-scientists>
- Jagers, R. J., Rivas-Drake, D., & Williams, B. (2019). Transformative Social and Emotional Learning (SEL): Toward SEL in Service of Educational Equity and Excellence. *Educational Psychologist*, 54(3), 162–184. <https://doi.org/10.1080/00461520.2019.1623032>
- Jagers, R. J., Skoog-Hoffman, A., Barthelus, B., & Schlund, J. (2021). Transformative social emotional learning: In pursuit of educational equity and excellence. *American Educator*, 45(2), 12–17. https://www.aft.org/ae/summer2021/jagers_skoog-hoffman_barthelus_schlund
- James, C. (2014). *Disconnected: Youth, new media, and the ethics gap*. MIT Press. <https://doi.org/10.7551/mitpress/9688.001.0001>
- James, C., Weinstein, E., & Mendoza, K. (2017). *Teaching digital citizens in today’s world: Research and insights behind the common sense k–12 digital citizenship curriculum*. Common Sense Media. <https://pz.harvard.edu/resources/teaching-digital-citizens-in-todays-world>

- Jenkins, H., Clinton, K., Purushotma, R., Robison, A. J., & Weigel, M. (2006). *Confronting the challenges of participatory culture: Media education for the 21st century* (tech. rep.). John D. and Catherine T. MacArthur Foundation. https://www.macfound.org/media/article_pdfs/jenkins_white_paper.pdf
- Jeyanthi, M. (2022). Social media and identity formation: The influence of self-presentation and social comparison. *Mind and Society*, 11(2), 138–144. <https://doi.org/10.56011/mind-mri-112-202216>
- Jones, D. E., Greenberg, M., & Crowley, M. (2015). Early social-emotional functioning and public health: The relationship between kindergarten social competence and future wellness. *American Journal of Public Health*, 105(11), 2283–2290. <https://doi.org/10.2105/AJPH.2015.302630>
- Jones, L. M., & Mitchell, K. J. (2016). Defining and measuring youth digital citizenship. *New Media & Society*, 18(9), 2063–2079. <https://doi.org/10.1177/1461444815577797>
- Jones, S. M., Brush, K., Bailey, R., Brion-Meisels, G., McIntyre, J., Kahn, J., Nelson, B., & Stickle, L. (2017). *Navigating SEL from the inside out: Looking inside and across 25 leading SEL programs* (tech. rep.). Harvard Graduate School of Education. Cambridge, MA. <https://www.wallacefoundation.org/knowledge-center/pages/navigating-social-and-emotional-learning-from-the-inside-out.aspx>
- Jones, S. M., & Doolittle, E. J. (2017). Social and Emotional Learning: Introducing the Issue.
- Kahne, J., & Bowyer, B. (2019). Can media literacy education increase digital engagement in politics? *Learning, Media and Technology*, 44(2), 211–224. <https://doi.org/10.1080/17439884.2019.1601108>
- Kapantai, E., Christopoulou, A., Berberidis, C., & Peristeras, V. (2021). A systematic literature review on disinformation: Toward a unified taxonomical framework. *New Media & Society*, 23(5), 1301–1326. <https://doi.org/10.1177/1461444820959296>
- Kempen, A. (2025). Are you raising ipad kids? *Servamus Community-Based Safety and Security Magazine*, 118(5), 33–35. https://doi.org/10.10520/ejc-servamus_v118_n5_a9

- Kiili, K., Siuko, J., & Ninaus, M. (2024). Tackling misinformation with games: A systematic literature review. *Interactive Learning Environments*, 1–16. <https://doi.org/10.1080/10494820.2023.2299999>
- Kolb, D. A. (2014). *Experiential learning: Experience as the source of learning and development*. FT press. Retrieved March 21, 2025, from https://www.google.com/books/edition/Experiential_Learning/o6DfBQAAQBAJ
- Kollmuss, A., & Agyeman, J. (2002). Mind the gap: Why do people act environmentally and what are the barriers to pro-environmental behavior? *Environmental Education Research*, 8(3), 239–260. <https://doi.org/10.1080/13504620220145401>
- Koltay, T. (2011). The media and the literacies: Media literacy, information literacy, digital literacy. *Media, Culture & Society*, 33(2), 211–221. <https://doi.org/10.1177/0163443710393382>
- Kops, M., Schittenhelm, C., & Wachs, S. (2025). Young people and false information: A scoping review of responses, influential factors, consequences, and prevention programs. *Computers in Human Behavior*, 108650. <https://doi.org/10.1016/j.chb.2025.108650>
- Kowalski, R. M., Giumetti, G. W., Schroeder, A. N., & Lattanner, M. R. (2014). Bullying in the digital age: A critical review and meta-analysis of cyberbullying research among youth. *Psychological Bulletin*, 140(4), 1073–1137. <https://doi.org/10.1037/a0035618>
- Krueger, R. A. (2014). *Focus groups: A practical guide for applied research*. Sage publications. Retrieved March 21, 2025, from https://books.google.com/books/about/Focus_Groups.html?id=tXpZDwAAQBAJ
- Larkin, J. P. (2017). Ignorance Isn't Strength: The Need for Secondary Education to Address Fake News. https://digitalcommons.brockport.edu/ehd_theses/875
- Lederman, L. C. (1992). Debriefing: Toward a Systematic Assessment of Theory and Practice. *Simulation & Gaming*, 23(2), 145–160. <https://doi.org/10.1177/1046878192232003>
- Lenhart, A. (2015, April 9). *Teens, social media & technology overview 2015* [Pew research center]. Retrieved January 20, 2025, from <https://www.pewresearch.org/internet/2015/04/09/teens-social-media-technology-2015/>

- Lepron, E., Causse, M., & Farrer, C. (2015). Responsibility and the sense of agency enhance empathy for pain. *Proceedings of the Royal Society B: Biological Sciences*, 282(1799), 20142288. <https://doi.org/10.1098/rspb.2014.2288>
- Lewandowsky, S., Ecker, U. K. H., Seifert, C. M., Schwarz, N., & Cook, J. (2012). Misinformation and its correction: Continued influence and successful debiasing. *Psychological Science in the Public Interest*, 13(3), 106–131. <https://doi.org/10.1177/1529100612451018>
- Lima, G., Han, J., & Cha, M. (2022). Others Are to Blame: Whom People Consider Responsible for Online Misinformation. *Proceedings of the ACM on Human-Computer Interaction*, 6(CSCW1), 1–25. <https://doi.org/10.1145/3512953>
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. sage. Retrieved March 21, 2025, from <https://us.sagepub.com/en-us/nam/naturalistic-inquiry/book842>
- Literat, I. (2013). “A Pencil for your Thoughts”: Participatory Drawing as a Visual Research Method with Children and Youth. *International Journal of Qualitative Methods*, 12(1), 84–98. <https://doi.org/10.1177/160940691301200143>
- Livingstone, S. (2004). Media literacy and the challenge of new information and communication technologies. *The Communication Review*, 7(1), 3–14. <https://doi.org/10.1080/10714420490280152>
- Livingstone, S. (2008). Taking risky opportunities in youthful content creation: Teenagers’ use of social networking sites for intimacy, privacy and self-expression. *New Media & Society*, 10(3), 393–411. <https://doi.org/10.1177/1461444808089415>
- Livingstone, S., & Third, A. (2017). Children and young people’s rights in the digital age: An emerging agenda. *New Media & Society*, 19(5), 657–670. <https://doi.org/10.1177/1461444816686318>
- Long, D., & Magerko, B. (2020). What is AI Literacy? Competencies and Design Considerations. *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems*, 1–16. <https://doi.org/10.1145/3313831.3376727>
- Loos, E., Ivan, L., & Leu, D. (2018). “Save the Pacific Northwest tree octopus”: A hoax revisited. Or: How vulnerable are school children to fake news? *Information and Learning Science*, 119(9/10), 514–528. <https://doi.org/10.1108/ILS-04-2018-0031>

- Madden, A. (2000). A definition of information. *Aslib Proceedings*, 52(9), 343–349. <https://doi.org/10.1108/EUM0000000007027>
- Mahmoud, A. (2024, June). The Short-Term Effect of Interactive Drama and Reflective Writing on Adolescents' Social-Emotional Learning Core Competencies: A Five-Week Intervention. <https://doi.org/10.21203/rs.3.rs-4461803/v1>
- Mahoney, J. L., Weissberg, R. P., Greenberg, M. T., Dusenbury, L., Jagers, R. J., Niemi, K., Schlinger, M., Schlund, J., Shriver, T. P., VanAusdal, K., & Yoder, N. (2021). Systemic social and emotional learning: Promoting educational success for all preschool to high school students. *American Psychologist*, 76(7), 1128–1142. <https://doi.org/10.1037/amp0000701>
- Mallan, K. M., Singh, P., & Giardina, N. (2010). The challenges of participatory research with 'tech-savvy' youth. *Journal of Youth Studies*, 13(2), 255–272. <https://doi.org/10.1080/13676260903295059>
- Manca, S., Bocconi, S., & Gleason, B. (2021). "Think globally, act locally": A glocal approach to the development of social media literacy. *Computers & Education*, 160, 104025. <https://doi.org/10.1016/j.compedu.2020.104025>
- Marathe, A., & Sen, A. (2021). Empathetic reflection: Reflecting with emotion. *Reflective Practice*, 22(4), 566–574. <https://doi.org/10.1080/14623943.2021.1927693>
- Markidou, T. (2019). 'Tell me your story!' – Making the 'Other' Visible through the Development of Collaborative Visual Narratives. *International Journal of Art & Design Education*, 38(4), 902–915. <https://doi.org/10.1111/jade.12278>
- Marwick, A. E., & Boyd, D. (2014). Networked privacy: How teenagers negotiate context in social media. *New Media & Society*, 16(7), 1051–1067. <https://doi.org/10.1177/1461444814543995>
- McDonald, N., Schoenebeck, S., & Forte, A. (2019). Reliability and Inter-rater Reliability in Qualitative Research: Norms and Guidelines for CSCW and HCI Practice. *Proceedings of the ACM on Human-Computer Interaction*, 3(CSCW), 1–23. <https://doi.org/10.1145/3359174>
- McDougall, J. (2019). Media literacy versus fake news: Critical thinking, resilience and civic engagement. *Medijske studije*, 10(19), 29–45. <https://doi.org/10.20901/ms.10.19.2>

- McGonigal, J. (2011). *Reality is broken: Why games make us better and how they can change the world*. Penguin. Retrieved March 24, 2025, from <https://www.penguinrandomhouse.com/books/305501/reality-is-broken-by-jane-mcgonigal/>
- McGrew, S., Breakstone, J., Ortega, T., Smith, M., & Wineburg, S. (2018). Can students evaluate online sources? learning from assessments of civic online reasoning. *Theory & Research in Social Education*, 46(2), 165–193. <https://doi.org/10.1080/00933104.2017.1416320>
- McGrew, S., Ortega, T., Breakstone, J., & Wineburg, S. (2017). The challenge that’s bigger than fake news: Civic reasoning in a social media environment. *American Educator*, 41(3), 4–9, 39. https://www.aft.org/ae/fall2017/mcgrew_ortega_breakstone_wineburg
- McNelly, T. A., & Harvey, J. (2021). Media literacy instruction in today’s classrooms: A study of teachers’ knowledge, confidence, and integration. *Journal of Media Literacy Education*, 13(1), 108–130. <https://doi.org/10.23860/JMLE-2021-13-1-10>
- Middaugh, E. (2019). Teens, social media, and fake news. *Unpacking fake news: An educator’s guide to navigating the media with students*, 8, 42–58. Retrieved March 9, 2025, from <https://www.tcpress.com/unpacking-fake-news-9780807761144>
- Mihailidis, P. (2018). *Civic media literacies: Re-imagining engagement for civic intentionality*. Routledge. <https://doi.org/10.4324/9781315526058>
- Mihailidis, P., & Viotty, S. (2017). Spreadable Spectacle in Digital Culture: Civic Expression, Fake News, and the Role of Media Literacies in “Post-Fact” Society. *American Behavioral Scientist*, 61(4), 441–454. <https://doi.org/10.1177/0002764217701217>
- Miller, M. (2019). *Fake news: Separating truth from fiction*. Twenty-First Century Books™. Retrieved March 21, 2025, from <https://www.millerwriter.com/book/fake-news-separating-truth-from-fiction/>
- Miller, W. R., Baca, J. C., Matthews, D. B., & Wilbourne, P. L. (2011). Personal Values Card Sort. https://motivationalinterviewing.org/sites/default/files/valuescardsort_0.pdf
- Moensted, M. L. (2022). Shame, Anger and the Lived Experience of School Disengagement for Marginalised Students: A Recognition Theory Approach. *YOUNG*, 30(5), 525–542. <https://doi.org/10.1177/11033088221094459>

- Moore, B., & Gregory, R. (2024). Decision making as a pedagogy for social emotional learning. *Social and Emotional Learning: Research, Practice, and Policy*, 3, 100034. <https://doi.org/10.1016/j.sel.2024.100034>
- Morales, R. (2007). *Empowering Your Pupils Through Role-Play* (0th ed.). Routledge. <https://doi.org/10.4324/9780203935767>
- Moran-Ellis, J., Alexander, V. D., Cronin, A., Dickinson, M., Fielding, J., Sleney, J., & Thomas, H. (2006). Triangulation and integration: Processes, claims and implications. *Qualitative Research*, 6(1), 45–59. <https://doi.org/10.1177/1468794106058870>
- Morgan, D. L. (1997). *Focus groups as qualitative research* (Vol. 16). Sage. <https://doi.org/10.4135/9781412984287>
- Morrow, V. (2012). The Ethics of Social Research with Children and Families in Young Lives: Practical Experiences. In J. Boyden & M. Bourdillon (Eds.), *Childhood Poverty* (pp. 24–42). Palgrave Macmillan UK. https://doi.org/10.1057/9780230362796_3
- Moyer, M. W. (2022, February 1). *Schoolkids are falling victim to disinformation and conspiracy fantasies* [Scientific american]. Retrieved August 30, 2024, from <https://www.scientificamerican.com/article/schoolkids-are-falling-victim-to-disinformation-and-conspiracy-fantasies/>
- Murthy, V. (2023). Social media and youth mental health: The US surgeon general’s advisory; 2023. *available at: Link to the cited article.(accessed 28 January 2025)*. Retrieved April 10, 2026, from <https://nowcomment.com/documents/348326>
- Nelson, K. (2021). The Impact of Blending Digital Citizenship Lessons with Positive Behavior Interventions and Support in Elementary Students’ Online Learning. <https://kijnelsoncohort20.weebly.com/792.html>
- Nesi, J., Choukas-Bradley, S., & Prinstein, M. J. (2018). Transformation of adolescent peer relations in the social media context: Part 1—a theoretical framework and application to dyadic peer relationships. *Clinical Child and Family Psychology Review*, 21(3), 267–294. <https://doi.org/10.1007/s10567-018-0261-x>

- Nesi, J., & Prinstein, M. J. (2015). Using social media for social comparison and feedback-seeking: Gender and popularity moderate associations with depressive symptoms. *Journal of Abnormal Child Psychology*, 43(8), 1427–1438. <https://doi.org/10.1007/s10802-015-0020-0>
- Newman, N. (2019). Reuters institute digital news report 2019. <https://doi.org/10.60625/risj-qzg6-ge29>
- Nock, M. K., Wedig, M. M., Holmberg, E. B., & Hooley, J. M. (2008). The Emotion Reactivity Scale: Development, Evaluation, and Relation to Self-Injurious Thoughts and Behaviors. *Behavior Therapy*, 39(2), 107–116. <https://doi.org/10.1016/j.beth.2007.05.005>
- Noddings, N. (2010). Moral education and caring. *Theory and Research in Education*, 8(2), 145–151. <https://doi.org/10.1177/1477878510368617>
- Notley, T., Dezuanni, M., Zhong, H. F., & Howden, S. (2017). News and Australian children: How young people access, perceive and are affected by the news. Retrieved March 24, 2025, from <https://eprints.qut.edu.au/116092/>
- Nowell, L. S., Norris, J. M., White, D. E., & Moules, N. J. (2017). Thematic Analysis: Striving to Meet the Trustworthiness Criteria. *International Journal of Qualitative Methods*, 16(1), 1609406917733847. <https://doi.org/10.1177/1609406917733847>
- Nygren, T., & Guath, M. (2019). Swedish teenagers' difficulties and abilities to determine digital news credibility. *Nordicom Review*, 40(1), 23–42. <https://doi.org/10.2478/nor-2019-0002>
- O'Leary, D. Q. (2021). Examining the social and emotional competencies of iowa teachers and their beliefs about social and emotional learning. <https://www.proquest.com/dissertations-theses/examining-social-emotional-competencies-iowa/docview/2566235609/se-2>
- Osher, D., Kidron, Y., Brackett, M., Dymnicki, A., Jones, S., & Weissberg, R. P. (2016). Advancing the science and practice of social and emotional learning: Looking back and moving forward. *Review of Research in Education*, 40(1), 644–681. <https://doi.org/10.3102/0091732X16673595>
- Paciello, M., Fida, R., Cerniglia, L., Tramontano, C., & Cole, E. (2013). High cost helping scenario: The role of empathy, prosocial reasoning and moral disengagement on helping behavior.

- Personality and Individual Differences*, 55(1), 3–7. <https://doi.org/10.1016/j.paid.2012.11.004>
- Papapicco, C., Lamanna, I., & D’Errico, F. (2022). Adolescents’ vulnerability to fake news and to racial hoaxes: A qualitative analysis on italian sample. *Multimodal Technologies and Interaction*, 6(3), 20. <https://doi.org/10.3390/mti6030020>
- Patton, M. Q. (2002). *Qualitative research and evaluation methods* (Vol. 3). Sage. Retrieved March 29, 2025, from https://books.google.com/books/about/Qualitative_Research_Evaluation_Methods.html?id=FjBw2oi8El4C
- Payton, J., Weissberg, R. P., Durlak, J. A., Dymnicki, A. B., Taylor, R. D., Schellinger, K. B., & Pachan, M. (2008). *The positive impact of social and emotional learning for kindergarten to eighth-grade students: Findings from three scientific reviews* (tech. rep.). Collaborative for Academic, Social, and Emotional Learning. Chicago, IL. <https://files.eric.ed.gov/fulltext/ED505370.pdf>
- Pekrun, R. (2006). The control-value theory of achievement emotions: Assumptions, corollaries, and implications for educational research and practice. *Educational Psychology Review*, 18(4), 315–341. <https://doi.org/10.1007/s10648-006-9029-9>
- Pennycook, G., Epstein, Z., Mosleh, M., Arechar, A. A., Eckles, D., & Rand, D. G. (2021). Shifting attention to accuracy can reduce misinformation online. *Nature*, 592, 590–595. <https://doi.org/10.1038/s41586-021-03344-2>
- Pennycook, G., & Rand, D. G. (2019a). Fighting misinformation on social media using crowdsourced judgments of news source quality. *Proceedings of the National Academy of Sciences*, 116(7), 2521–2526. <https://doi.org/10.1073/pnas.1806781116>
- Pennycook, G., & Rand, D. G. (2019b). Lazy, not biased: Susceptibility to partisan fake news is better explained by lack of reasoning than by motivated reasoning. *Cognition*, 188, 39–50. <https://doi.org/10.1016/j.cognition.2018.06.011>
- Pennycook, G., & Rand, D. G. (2021). The Psychology of Fake News. *Trends in Cognitive Sciences*, 25(5), 388–402. <https://doi.org/10.1016/j.tics.2021.02.007>

- Perach, R., Joyner, L., Stevens, M., & Stubbersfield, J. M. (2023). Why do people share political information and misinformation online? developing and validating a scale for sharing motives. *Social Media + Society*, 9(3). <https://doi.org/10.1177/20563051231192032>
- Pfeffer, J., & Sutton, R. I. (2000). *The knowing-doing gap: How smart companies turn knowledge into action*. Harvard Business School Press.
- Piccerillo, L., & Digennaro, S. (2025). Adolescent social media use and emotional intelligence: A systematic review. *Adolescent Research Review*. <https://doi.org/10.1007/s40894-024-00245-z>
- Piha, S., & Fasen, S. (2021). Social Emotional Learning, Teens and Afterschool Programs. https://www.temescalassociates.com/uploads/1/1/0/6/110631901/paper-_social_emotional_learning_teens_and_afterschool_programs.pdf
- Popat, A., & Tarrant, C. (2023). Exploring adolescents' perspectives on social media and mental health and well-being – A qualitative literature review. *Clinical Child Psychology and Psychiatry*, 28(1), 323–337. <https://doi.org/10.1177/13591045221092884>
- Prensky, M. (2001). Digital natives, digital immigrants. <https://doi.org/10.1108/10748120110424816>
- Probst, D. (2017). Social media literacy as an iep intervention for social and emotional learning. *Journal of Media Literacy Education*, 9(2), 45–57. <https://doi.org/10.23860/JMLE-2019-09-02-04>
- Provenzo, E. F. (2006). Critical issues in education: An anthology of readings. https://books.google.com/books/about/Critical_Issues_in_Education.html?id=vWM8L0FEGb4C
- Ribble, M. (2015). *Digital citizenship in schools: Nine elements all students should know* (3rd ed.). International Society for Technology in Education. https://books.google.com/books/about/Digital_Citizenship_in_Schools.html?id=z6WpCgAAQBAJ
- Ribble, M. S., Bailey, G. D., & Ross, T. W. (2004). Digital citizenship: Addressing appropriate technology behavior. *Learning & Leading with technology*, 32(1), 6. Retrieved March 23, 2025, from <https://eric.ed.gov/?id=EJ695788>

- Roozenbeek, J., Culloty, E., & Suiter, J. (2023). Countering misinformation: Evidence, knowledge gaps, and implications of current interventions. *European Psychologist*, 28(3), 189–205. <https://doi.org/10.1027/1016-9040/a000492>
- Roozenbeek, J., & Van Der Linden, S. (2019). Fake news game confers psychological resistance against online misinformation. *Palgrave Communications*, 5(1), 65. <https://doi.org/10.1057/s41599-019-0279-9>
- Roozenbeek, J., van der Linden, S., Goldberg, B., Rathje, S., & Lewandowsky, S. (2022). Psychological inoculation improves resilience against misinformation on social media. *Science Advances*, 8(34), eabo6254. <https://doi.org/10.1126/sciadv.abo6254>
- Salas, E., & Cannon-Bowers, J. A. (2001). The Science of Training: A Decade of Progress. *Annual Review of Psychology*, 52(1), 471–499. <https://doi.org/10.1146/annurev.psych.52.1.471>
- Saldaña, J. (2013). *The coding manual for qualitative researchers* (2. ed). SAGE Publ.
- Sanders, E. B.-N., & Stappers, P. J. (2008). Co-creation and the new landscapes of design. *CoDesign*, 4(1), 5–18. <https://doi.org/10.1080/15710880701875068>
- Saunders, L. (2024). Information literacy now: Examining where we are to understand where we are going. *Journal of Information Literacy*, 18(1). <https://doi.org/10.11645/18.1.560>
- Sawhney, N., Graver, C., & Breitkopf, E. (2018). Audio journaling for self-reflection and assessment among teens in participatory media programs. *Proceedings of the 17th ACM Conference on Interaction Design and Children*, 93–105. <https://doi.org/10.1145/3202185.3202752>
- Schwarz, N., & Jalbert, M. (2020). When (fake) news feels true: Intuitions of truth and the acceptance and correction of misinformation. In R. Greifeneder, M. E. Jaffé, E. J. Newman, & N. Schwarz (Eds.), *The psychology of fake news: Accepting, sharing, and correcting misinformation* (pp. 73–89). Routledge. <https://doi.org/10.4324/9780429295379-7>
- Seitz, P., Eisenegger, M., & Bergman, M. M. (Eds.). (2023, December). *Fighting Fake Facts*. MDPI. <https://doi.org/10.3390/books978-3-0365-1347-8>
- Selnes, F. N. (2024). Adolescents' experiences and (re)action towards fake news on social media: Perspectives from norway. *Humanities and Social Sciences Communications*, 11(1), 1694. <https://doi.org/10.1057/s41599-024-04237-1>

- Sharma, D. L. R., Bidari, S., Bidari, D., Neupane, S., & Sapkota, R. (2023). Exploring the Mixed Methods Research Design: Types, Purposes, Strengths, Challenges, and Criticisms. *Global Academic Journal of Linguistics and Literature*, 5(1), 3–12. <https://doi.org/10.36348/gajll.2023.v05i01.002>
- Sheeran, P. (2002). Intention–behavior relations: A conceptual and empirical review. *European Review of Social Psychology*, 12(1), 1–36. <https://doi.org/10.1080/147927721430000003>
- Shen, L. (2010). On a Scale of State Empathy During Message Processing. *Western Journal of Communication*, 74(5), 504–524. <https://doi.org/10.1080/10570314.2010.512278>
- Sherman, L. E., Payton, A. A., Hernandez, L. M., Greenfield, P. M., & Dapretto, M. (2016). The power of the like in adolescence: Effects of peer influence on neural and behavioral responses to social media. *Psychological Science*, 27(7), 1027–1035. <https://doi.org/10.1177/0956797616645673>
- Silke, C., Brady, B., Boylan, C., & Dolan, P. (2018). Factors influencing the development of empathy and pro-social behaviour among adolescents: A systematic review. *Children and Youth Services Review*, 94, 421–436. <https://doi.org/10.1016/j.childyouth.2018.07.027>
- Silke, C., Brady, B., Boylan, C., & Dolan, P. (2021). Empathy, Social Responsibility, and Civic Behavior Among Irish Adolescents: A Socio-Contextual Approach. *The Journal of Early Adolescence*, 41(7), 996–1019. <https://doi.org/10.1177/0272431620977658>
- Silke, C., Davitt, E., Flynn, N., Shaw, A., Brady, B., Murray, C., & Dolan, P. (2024). Activating Social Empathy: An evaluation of a school-based social and emotional learning programme. *Social and Emotional Learning: Research, Practice, and Policy*, 3, 100021. <https://doi.org/10.1016/j.sel.2023.100021>
- Singer, N. (2024). Teen girls confront an epidemic of deepfake nudes in schools. *The New York Times*. Retrieved March 21, 2025, from <https://www.nytimes.com/2024/04/08/technology/deepfake-ai-nudes-westfield-high-school.html>
- Slovák, P., & Fitzpatrick, G. (2015). Teaching and Developing Social and Emotional Skills with Technology. *ACM Transactions on Computer-Human Interaction*, 22(4), 1–34. <https://doi.org/10.1145/2744195>

- Slovic, P. (2007). “if i look at the mass i will never act”: Psychic numbing and genocide. *Judgment and Decision Making*, 2(2), 79–95. <https://doi.org/10.1017/S1930297500000061>
- Small, D. A., Loewenstein, G., & Slovic, P. (2007). Sympathy and callousness: The impact of deliberative thought on donations to identifiable and statistical victims. *Organizational Behavior and Human Decision Processes*, 102(2), 143–153. <https://doi.org/10.1016/j.obhdp.2006.01.005>
- Smeenk, W. (2019). Navigating empathy: Empathic formation in co-design. Retrieved March 21, 2025, from https://research.tue.nl/files/140457587/20191202_Smeenk.pdf
- Spratt, H. E., & Agosto, D. E. (2017). Fighting fake news: Because we all deserve the truth: Programming ideas for teaching teens media literacy. *Young Adult Library Services*, 15(4). Retrieved March 19, 2025, from <https://yalsjournal.ala.org/vol-15-no-4-summer-2017/page-1>
- Squire, K. (2013). Video Games and Learning: Teaching and Participatory Culture in the Digital Age. https://www.tpress.com/products/video-games-and-learning_9780807751985
- Steinberg, L. (2008). A social neuroscience perspective on adolescent risk-taking. *Developmental Review*, 28(1), 78–106. <https://doi.org/10.1016/j.dr.2007.08.002>
- Steinberg, L., & Morris, A. S. (2001). Adolescent Development. *Annual Review of Psychology*, 52(1), 83–110. <https://doi.org/10.1146/annurev.psych.52.1.83>
- Steinberg, L. D. (2014). *Age of opportunity: Lessons from the new science of adolescence*. Houghton Mifflin Harcourt. Retrieved March 26, 2025, from https://books.google.com/books/about/Age_of_Opportunity.html?id=sppdBAAQBAJ
- Stern, C. (2018, November). Does this new Tide detergent look like box wine to you? [Section: Femail]. Retrieved January 21, 2025, from <https://www.dailymail.co.uk/femail/article-6381549/Twitter-users-think-new-Tide-detergent-looks-like-box-wine-you.html>
- Street, B. V. (1984). *Literacy in theory and practice*. Cambridge University Press.
- Sui, Y. (2024, September). The rise of deepfakes: Teens subjected to ai-generated pornography [Accessed May 27, 2026]. <https://highschool.latimes.com/news/the-rise-of-deepfakes/>
- Suler, J. (2004). The online disinhibition effect. *CyberPsychology & Behavior*, 7(3), 321–326. <https://doi.org/10.1089/1094931041291295>

- Sullivan, M. C. (2019). Why librarians can't fight fake news. *Journal of Librarianship and Information Science*, 51(4), 1146–1156. <https://doi.org/10.1177/0961000618764258>
- Sweetman, N. (2021). "I Thought It Was My Fault Just for Being Born". A Review of an SEL Programme for Teenage Victims of Domestic Violence. *Education Sciences*, 11(12), 784. <https://doi.org/10.3390/educsci11120784>
- Talwar, S., Dhir, A., Kaur, P., Zafar, N., & Alrasheedy, M. (2019). Why do people share fake news? associations between the dark side of social media use and fake news sharing behavior. *Journal of Retailing and Consumer Services*, 51, 72–82. <https://doi.org/10.1016/j.jretconser.2019.05.026>
- Tapal, A., Oren, E., Dar, R., & Eitam, B. (2017). The Sense of Agency Scale: A Measure of Consciously Perceived Control over One's Mind, Body, and the Immediate Environment. *Frontiers in Psychology*, 8, 1552. <https://doi.org/10.3389/fpsyg.2017.01552>
- Taylor, R. D., Oberle, E., Durlak, J. A., & Weissberg, R. P. (2017). Promoting Positive Youth Development Through School-Based Social and Emotional Learning Interventions: A Meta-Analysis of Follow-Up Effects. *Child Development*, 88(4), 1156–1171. <https://doi.org/10.1111/cdev.12864>
- Terry, C., & Cain, J. (2016). The emerging issue of digital empathy. *American Journal of Pharmaceutical Education*, 80(4), 58. <https://doi.org/10.5688/ajpe80458>
- The Washington Post. (2020, March 4). *The tiktok 'skull-breaker challenge' landed a teen in the hospital*. Retrieved May 6, 2026, from <https://www.washingtonpost.com/nation/2020/03/04/tiktok-challenge-skull-breaker/>
- Thierry, K. L., Vincent, R. L., & Norris, K. S. (2022). A Mindfulness-Based Curriculum Improves Young Children's Relationship Skills and Social Awareness. *Mindfulness*, 13(3), 730–741. <https://doi.org/10.1007/s12671-022-01830-w>
- Todd, A. R., Bodenhausen, G. V., Richeson, J. A., & Galinsky, A. D. (2011). Perspective taking combats automatic expressions of racial bias. *Journal of Personality and Social Psychology*, 100(6), 1027–1042. <https://doi.org/10.1037/a0022308>

- Tripodi, F. B., Young, J. C., Drexel, E., DeJong, S., & Coward, C. (2023). Libraries combating disinformation: From the front line to the long game. *The Library Quarterly*, 93(1), 77–101. <https://doi.org/10.1086/722491>
- UNESCO. (2011). *Media and information literacy curriculum for teachers*. United Nations Educational, Scientific; Cultural Organization. <https://unesdoc.unesco.org/ark:/48223/pf0000192971>
- UNESCO. (2024). *Global citizenship education in a digital age: Teacher guidelines* (tech. rep.). United Nations Educational, Scientific and Cultural Organization. Paris. <https://unesdoc.unesco.org/ark:/48223/pf0000388939>
- UNESCO Bangkok. (2017). *Conference on digital citizenship education in asia-pacific: Outcome document* (tech. rep.). UNESCO Bangkok. https://teams.unesco.org/ORG/fu/bangkok/public_events/Shared%20Documents/EISD/2017/Oct2017%20-%20KFIT%203%20Launch%20-%20Dig%20Citizenship/DKAP-conference-outcome-mar2017.pdf
- Vaccari, C., & Chadwick, A. (2020). Deepfakes and Disinformation: Exploring the Impact of Synthetic Political Video on Deception, Uncertainty, and Trust in News. *Social Media + Society*, 6(1), 2056305120903408. <https://doi.org/10.1177/2056305120903408>
- Van Bavel, J. J., Harris, E. A., Pärnamets, P., Rathje, S., Doell, K. C., & Tucker, J. A. (2021). Political psychology in the digital (mis)information age: A model of news belief and sharing. *Social Issues and Policy Review*, 15(1), 84–113. <https://doi.org/10.1111/sipr.12077>
- Vijaykumar, S., Jin, Y., Rogerson, D., Lu, X., Sharma, S., Maughan, A., Fadel, B., de Oliveira Costa, M. S., Pagliari, C., & Morris, D. (2021). How shades of truth and age affect responses to COVID-19 (Mis)information: Randomized survey experiment among WhatsApp users in UK and Brazil. *Humanities and Social Sciences Communications*, 8(1), 88. <https://doi.org/10.1057/s41599-021-00752-7>
- Vlaicu, C. (2014). The importance of role play for children’s development of socio-emotional competencies. *Logos Universality Mentality Education Novelty, Section: Social Sciences*, 3(1), 157–167. <https://doi.org/10.18662/lumenss.2014.0301.14>

- Vogels, E. A., Gelles-Watnick, R., & Massarat, N. (2022). *Teens, social media and technology 2022*. Pew Research Center. Washington, DC. <https://www.pewresearch.org/internet/2022/08/10/teens-social-media-and-technology-2022/>
- Vosoughi, S., Roy, D., & Aral, S. (2018). The spread of true and false news online. *Science*, 359(6380), 1146–1151. <https://doi.org/10.1126/science.aap9559>
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes* (Vol. 86). Harvard university press. <https://doi.org/10.2307/j.ctvjf9vz4>
- Wagaman, M. A. (2011). Social Empathy as a Framework for Adolescent Empowerment. *Journal of Social Service Research*, 37(3), 278–293. <https://doi.org/10.1080/01488376.2011.564045>
- Wald, A. (2014). Triangulation and Validity of Network Data. In B. Hollstein & S. Domínguez (Eds.), *Mixed Methods Social Networks Research: Design and Applications* (pp. 65–89). Cambridge University Press. <https://doi.org/10.1017/CBO9781139227193.005>
- Wardle, C. (2023). Misunderstanding misinformation. *Issues in Science and Technology*, 39(3), 38–40. <https://doi.org/10.58875/ZAUD1691>
- Wardle, C., & Derakhshan, H. (2017). *Information disorder: Toward an interdisciplinary framework for research and policymaking* (Vol. 27). Council of Europe Strasbourg. Retrieved September 25, 2024, from <http://tverezo.info/wp-content/uploads/2017/11/PREMS-162317-GBR-2018-Report-desinformation-A4-BAT.pdf>
- Watson, A. (2024, June 13). *Teenager questioned after explicit AI deepfakes of dozens of schoolgirls shared online* [CNN]. Retrieved March 21, 2025, from <https://www.cnn.com/2024/06/13/australia/australia-boy-arrested-deepfakes-schoolgirls-intl-hnk/index.html>
- Wedlake, S., Coward, C., & Lee, J. H. (2024). How games can support misinformation education: A sociocultural perspective. *Journal of the Association for Information Science and Technology*, 75(13), 1480–1497. <https://doi.org/10.1002/asi.24954>
- Weikmann, T., & Lecheler, S. (2023). Visual disinformation in a digital age: A literature synthesis and research agenda. *New Media & Society*, 25(12), 3696–3713. <https://doi.org/10.1177/14614448221141648>

- Weissberg, R. P., & Cascarino, J. (2013). Academic Learning + Social-Emotional Learning = National Priority. *Phi Delta Kappan*, 95(2), 8–13. <https://doi.org/10.1177/003172171309500203>
- Weissberg, R. P., Durlak, J. A., Domitrovich, C. E., & Gullotta, T. P. (2015). Social and emotional learning: Past, present, and future. Retrieved March 14, 2025, from <https://www.guilford.com/books/Handbook-of-Social-and-Emotional-Learning/Durlak-Domitrovich-Weissberg-Gullotta/9781462527915>
- Wentzel, K. R., & Ramani, G. (Eds.). (2016). *Handbook of social influences in school contexts: Social-emotional, motivation, and cognitive outcomes*. Routledge, Taylor & Francis Group. <https://doi.org/10.4324/9781315769929>
- West, M. R., Pier, L., Fricke, H., Hough, H., Loeb, S., Meyer, R. H., & Rice, A. B. (2020). *Trends in student social-emotional learning: Evidence from the first large-scale panel student survey* (tech. rep.). Policy Analysis for California Education. <https://doi.org/10.3102/0162373720912236>
- Westheimer, J., & Kahne, J. (2004). What kind of citizen? the politics of educating for democracy. *American Educational Research Journal*, 41(2), 237–269. <https://doi.org/10.3102/00028312041002237>
- Williamson, A. A., Modecki, K. L., & Guerra, N. G. (2015). SEL programs in high school. Retrieved March 24, 2025, from <https://psycnet.apa.org/record/2015-24776-012>
- Wineburg, S., & McGrew, S. (2016). *Evaluating information: The cornerstone of civic online reasoning* (Working paper). Stanford History Education Group, Robert R. McCormick Foundation. Retrieved March 21, 2025, from <https://apo.org.au/node/70888>
- Wineburg, S., & McGrew, S. (2019). Lateral reading and the nature of expertise: Reading less and learning more when evaluating digital information. *Teachers College Record*, 121(11), 1–40. <https://doi.org/10.1177/016146811912101102>
- Wray-Lake, L., & Syvertsen, A. K. (2011). The developmental roots of social responsibility in childhood and adolescence. *New Directions for Child and Adolescent Development*, 2011(134), 11–25. <https://doi.org/10.1002/cd.308>

- Wray-Lake, L., Syvertsen, A. K., & Flanagan, C. A. (2016). Developmental change in social responsibility during adolescence: An ecological perspective. *Developmental Psychology*, 52(1), 130–142. <https://doi.org/10.1037/dev0000067>
- Yang, C., Chen, C., Lin, X., & Chan, M.-K. (2021). School-wide social emotional learning and cyberbullying victimization among middle and high school students: Moderating role of school climate. *School Psychology*, 36(2), 75–85. <https://doi.org/10.1037/spq0000423>
- Yates, L. (2004, April). *What Does Good Education Research Look Like? Conducting Educational Research*. Open University Press. Retrieved April 20, 2026, from https://books.google.com/books/about/What_Does_Good_Education_Research_Look_L.html?id=UvqUzQEACAAJ
- Yeager, D. S. (2017). Social and Emotional Learning Programs for Adolescents. *The Future of Children*, 27(1), 73–94. <https://doi.org/10.1353/foc.2017.0004>
- Yonas, M. A., Burke, J. G., & Miller, E. (2013). Visual voices: A participatory method for engaging adolescents in research and knowledge transfer. *Clinical and Translational Science*, 6(1), 72–77. <https://doi.org/10.1111/cts.12028>
- Young, J. C., Boyd, B., Yefimova, K., Wedlake, S., Coward, C., & Hapel, R. (2020). The role of libraries in misinformation programming: A research agenda. *Journal of Librarianship and Information Science*, 53(4), 539–550. <https://doi.org/10.1177/0961000620966650>
- Zannettou, S., Sirivianos, M., Blackburn, J., & Kourtellis, N. (2019). The web of false information: Rumors, fake news, hoaxes, clickbait, and various other shenanigans. *Journal of Data and Information Quality*, 11(3), 1–37. <https://doi.org/10.1145/3309699>
- Zins, J. E., Bloodworth, M. R., Weissberg, R. P., & Walberg, H. J. (2007). The Scientific Base Linking Social and Emotional Learning to School Success. *Journal of Educational and Psychological Consultation*, 17(2-3), 191–210. <https://doi.org/10.1080/10474410701413145>
- Zozaya-Durazo, L. D., Sádaba-Chalezquer, C., & Feijoo-Fernández, B. (2024). “fake or not, i’m sharing it”: Teen perception about disinformation in social networks. *Young Consumers*, 25(4), 425–438. <https://doi.org/10.1108/YC-06-2022-1552>

Zych, I., Baldry, A. C., Farrington, D. P., & Llorent, V. J. (2019). Are children involved in cyberbullying low on empathy? A systematic review and meta-analysis of research on empathy versus different cyberbullying roles. *Aggression and Violent Behavior, 45*, 83–97. <https://doi.org/10.1016/j.avb.2018.03.004>

APPENDIX A

INCIDENTS OF MISINFORMATION AMONG TEENAGERS

Incident (Year)	Brief Explanation	Related News Articles
AI-Generated Deepfake Sexual Images (2023–Present)	A recent form of synthetic-media harm in which AI tools are used to create fabricated nude or sexually explicit images of teenagers. Even when fake, these images can harm adolescents’ privacy, reputation, peer relationships, and emotional well-being.	• Los Angeles Times High School Insider: “The Rise of Deepfakes: Teens Subjected to AI-Generated Pornography.” https://highschool.latimes.com/news/the-rise-of-deepfakes/
TikTok Skull-Breaker Challenge (2019–2020)	A viral challenge in which two people tricked a third person into jumping and then kicked the person’s legs out. The case illustrates peer influence, imitation, injury risk, and hospitalization.	• The Washington Post: “The TikTok ‘skull-breaker challenge’ landed a teen in the hospital.” https://www.washingtonpost.com/nation/2020/03/04/tiktok-challenge-skull-breaker/ • CBS New York: “Skull Breaker Challenge Circulating On TikTok Is Sending Kids To The Hospital.” https://www.cbsnews.com/newyork/news/tiktok-skull-breaker-challenge/ • BBC News: “TikTok skull-breaker challenge danger warning.” https://www.bbc.com/news/technology-51742854

Momo Challenge
(2018–2019)

An internet hoax and rumor involving claims that young people were encouraged to engage in self-harm or suicide-related behavior. The case illustrates fear, rumor, parental anxiety, and media amplification.

- The Guardian: “Viral ‘Momo challenge’ is a malicious hoax, say charities.”
<https://www.theguardian.com/technology/2019/feb/28/viral-momo-challenge-is-a-malicious-hoax-say-charities>
- PolitiFact: “No, the ‘Momo challenge’ isn’t real.”
<https://www.politifact.com/factchecks/2019/mar/05/facebook-posts/no-momo-challenge-isnt-real-its-just-another-inter/>
- BBC News: “Momo challenge: The anatomy of a hoax.”
<https://www.bbc.com/news/technology-47393510>

Tide Pod Challenge
(2017–2018)

A viral online trend in which teenagers imitated biting or ingesting laundry detergent pods. The case shows how humor, visibility, imitation, and risk-taking can produce real-world harm.

- TIME: “Here’s How Common the Tide Pod Challenge Really Is.”
<https://time.com/5104225/tide-pod-challenge/>
 - CBS News: “Teens are eating laundry detergent for the Tide Pod Challenge.”
<https://www.cbsnews.com/news/tide-pod-challenge-ingesting-detergent-risks/>
 - Harvard Health Publishing: “Why teenagers eat Tide Pods.”
<https://www.health.harvard.edu/blog/why-teenagers-eat-tide-pods-2018013013241>
-

Trust Challenge (2016)	A viral challenge in which teenagers filmed trust-fall style pranks or risky peer interactions. The case illustrates peer pressure, social approval, imitation, and physical risk.	• Daily Mail: “Ridiculous teenage trust fall challenge sweeps the web.” https://www.dailymail.com/lifestyle/article-3554305/Ridiculous-teenage-trust-fall-challenge-sweeps-web.html
------------------------	---	---

APPENDIX B

SEARCHING MISINFORMATION GAMES

#	Title	Description	Objective	Genre	Audience	Mode	Debriefing
1	Chronoshift	AI-generated joke causes real-life harm in a student election; players travel back in time to fix misinformation.	Teach collaborative fact-checking and debunking	Puzzle / Escape Room	Teens/Adults	Group	Yes
2	Misinformation Escape Room	Investigate claims about a brain-enhancing supplement in water supply.	Collaborative fact-checking skills	Puzzle / Escape Room	Teens/Adults	Group	Yes
3	Galaxy Escape Room	Investigate rumors about a K-pop group under time pressure.	Problem-solving and critical thinking	Puzzle / Escape Room	Teens/Adults	Group	Yes
4	Starbound Secrets	Minecraft-based experience showing misinformation “rabbit hole” effect.	Awareness of information-seeking pitfalls	Sandbox	Pre-teens	Group	Yes
5	Escape the Fake	AR game solving fake news puzzles in dystopian future.	Practice verification and recognition of misinformation	AR	Age 12–18	Individual	Yes
6	Agent of Influence	A strategic simulation in which players act as covert influencers using disinformation to achieve political or social goals.	Demonstrate the tactics and ethical concerns of modern information warfare	Strategy / Simulation	Teens/Adults	Individual	Yes
7	Find the Fake	An interactive quiz that helps players identify misinformation through real-life scenarios and online content.	Encourage critical thinking and fact-checking habits	Quiz	11+	Individual	No
8	A Social Media Simulator	An open-source simulator designed to study how people interact with information on social media platforms.	Explore how participants interact with and spread information online	Simulation	Teens/Adults	Individual	No
9	Bad News	Players take on the role of a fake news creator to learn the tactics used to spread misinformation.	Show how manipulative tactics are used to spread misleading information	Strategy	Teens/Adults	Individual	No
10	Spot the Troll	An online quiz that challenges players to identify fake or orchestrated social media accounts.	Enhance users’ ability to spot suspicious online behavior	Quiz	Teens/Adults	Individual	No
11	Breaking Harmony Square	A misinformation game in which players post false information to get likes and influence others.	Expose common disinformation techniques and their effects	Simulation	Teens/Adults	Individual	No
12	Factitious	An interactive game where players decide whether short news excerpts are real or fake.	Train quick judgment of news credibility	Quiz	Teens/Adults	Individual	No
13	Fakey	A social media simulation where players decide whether to like, share, or fact-check content.	Demonstrate the consequences of sharing unverified content	Simulation	Teens/Adults	Individual	No
14	Libertas Veritas	A narrative game in which players uncover hidden truths while navigating freedom of speech and misinformation.	Highlight how misinformation can undermine freedom and justice	Narrative / Adventure	Teens/Adults	Individual	No
15	Cranky Uncle Game	A humorous online game teaching players to recognize logical fallacies and denialist tactics.	Build resilience against misinformation	Trivia	Teens/Adults	Individual	No
16	Choose Your Own Fake News	Players create and spread their own fake news stories and observe the impact on public opinion.	Reveal how misinformation is crafted and spreads	Interactive Fiction	Teens/Adults	Individual	No
17	Fake It to Make It	A simulation in which players act as fake news creators to earn money through misinformation.	Reveal the financial incentives behind fake news	Simulation	Teens/Adults	Individual	No

#	Title	Description	Objective	Genre	Audience	Mode	Debriefing
18	Go Viral	A quick game placing players in the role of a disinformation creator using emotional and divisive tactics.	Reveal the psychological mechanisms behind viral misinformation	Simulation	Teens/Adults	Individual	No
19	Break the Fake Quiz	A set of online quizzes that challenge players to identify real and fake stories.	Strengthen fact-checking and critical thinking skills	Quiz	Teens/Adults	Individual	No
20	Which Face Is Real?	An online game helping users distinguish between real and AI-generated faces.	Raise awareness of AI-generated images and digital deception	Quiz	Teens/Adults	Individual	No
21	The Fake News Game	A simulation challenging players to identify and analyze misinformation in news-like scenarios.	Foster critical thinking and recognition of deceptive information	Simulation	Teens/Adults	Individual	No
22	DeepFakes, Can You Spot Them?	An interactive game asking players to identify which images or videos are real or AI manipulated.	Boost awareness of deepfake technology and detection cues	Quiz	Teens/Adults	Individual	No
23	Floor 13: Deep State	A point-and-click strategy game where players use disinformation and surveillance to manipulate public opinion.	Examine ethical dilemmas of propaganda and disinformation	Strategy	Teens/Adults	Individual	No
24	Headliner: NoviNews	A narrative simulation where players act as editor of a fictional news outlet and shape public opinion.	Demonstrate how editorial decisions influence society	Simulation	Teens/Adults	Individual	No
25	Julia: A Science Journey	A narrative adventure following a high school student confronting misinformation during the COVID-19 pandemic.	Emphasize science literacy and debunk pandemic misinformation	Adventure	Teens/Adults	Individual	No
26	Cat Park	A short web game where players spread rumors about a fictional cat park and then learn to counter them.	Show how emotional and divisive tactics spread misinformation	Simulation	Teens/Adults	Individual	No
27	The Republic Times	A simulation where players edit a state-controlled newspaper while balancing ethics and political pressure.	Explore propaganda, censorship, and moral tension in media	Simulation	Teens/Adults	Individual	No
28	Newsfeed Defenders	Players moderate a fictional news site by evaluating credibility and filtering dubious posts.	Train users to spot misinformation and apply critical thinking	Simulation	Teens/Adults	Individual	No
29	PolitiTruth	A swipe-based game where players judge whether political quotes and claims are truthful.	Improve political literacy and fact-checking awareness	Quiz	Teens/Adults	Individual	No
30	Reality Check: The Game	An online experience where players authenticate social media posts using clues.	Equip users with practical skills to evaluate online content	Quiz	Teens/Adults	Individual	No
31	YO-MEDIA: Data Defenders	A digital tower defense game in which players protect data servers from AI misinformation attacks.	Promote media literacy and critical thinking in crisis contexts	Strategy	Teens/Adults	Individual	No
32	Baby Faith	A chatbot-based experience exploring emotional recognition in online interactions.	Encourage reflection on emotional triggers in online content	Interactive Chatbot	Teens/Adults	Individual	No
33	The New York Times Simulator	A satirical news game where players act as editor and balance readership with political pressures.	Critique media coverage, editorial bias, and ethical dilemmas	Simulation	Teens/Adults	Individual	No
34	Lamboozled	A media literacy game where players create and promote misleading content to gain followers and money.	Show how sensationalism and emotional manipulation spread online	Simulation	Teens/Adults	Group	No

#	Title	Description	Objective	Genre	Audience	Mode	Debriefing
35	Fake News	An interactive board game where players act as disinformation creators using sensational headlines and manipulation.	Highlight how easily people can be misled by fake news tactics	Board Game	Teens/Adults	Group	No
36	Liar Liar	A party-style game in which players deceive others or try to identify lies.	Promote deception detection and strategic lying	Party	Teens/Adults	Group	No
37	Liar Liar: The Game of Truths and Lies	A party game in which players tell truths or lies while others try to identify the liar.	Encourage social deduction and show the difficulty of spotting lies	Board Game	Teens/Adults	Group	No
38	Black Boxes out of Cardboard	A game initiative designed to make algorithmic systems and their social influence more understandable.	Highlight transparency and bias issues in algorithms	Board Game	Teens/Adults	Group	No
39	ForYou: A Game About Algorithms	A card-based game explaining how recommendation algorithms use data and shape online experiences.	Educate youth on personalization, privacy, and algorithmic influence	Card-based	Teens/Adults	Group	No
40	Google: Be Internet Awesome World with Roblox	A Roblox-based experience teaching children about phishing, passwords, and kindness online.	Instruct children on digital safety and online responsibility	Sandbox	Pre-teens	Group	No
41	Bo\$\$BabyKoin Escape Game	Players investigate a hype-driven digital currency scheme after a friend's family is persuaded to invest.	Warn about financial scams and manipulated media in investment decisions	Puzzle / Escape Room	Teens/Adults	Group	No

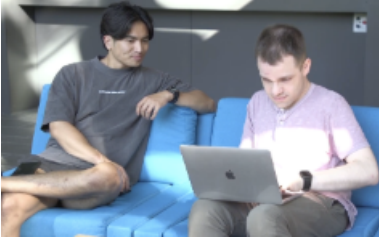
APPENDIX C

MISINFORMATION GAMEPLAY

C.1. Video Scenario

The following table presents the narrative progression of the misinformation gameplay scenario used in the learning module.

Situation	Brief Description	Screenshot
1. Lucas's Election Campaign	Lucas is running for student council president and promoting himself.	
2. Alex's AI Experiment	Alex enjoys experimenting with AI tools and decides to create a manipulated image for fun.	
3. Sharing the Fake Image	Alex shows Amara an AI-generated image of Lucas kicking a bulldog instead of a soccer ball. Amara shares it in their group chat without thinking.	
4. Spread of Misinformation	The image goes viral when an influencer shares it, convincing many people that it is real.	

5. Creating Disinformation	After seeing the post, another student deliberately edits the image further, making it more convincing and damaging.	
6. Consequences for Lucas	Due to the misinformation, Lucas loses the election and faces damage to his reputation.	
7. A Moment of Reflection	The school librarian reminds Alex that everyone makes mistakes and asks whether he would choose differently if given a second chance.	
8. Time Rewind	Alex is transported back 10 days before the election, giving him the opportunity to make a new choice.	
9. Making the Right Choice	This time, Alex decides not to create or share the fake image, preventing the spread of misinformation.	

C.2. Misinformation Game Puzzles

Puzzle	Goal	Description	Average Time	Hints / Guidance	Answer
Puzzle 1: Chat Group	To identify which two members of the friend group are lying about sharing the image.	Players analyze short statements from a 12-person friends' chat group to determine which two members are lying about whether they shared the image of Lucas outside the group. Each statement is either entirely honest or belongs to one of the two liars.	5 min	Players often identify Miles first. A useful hint is to note that another person is accusing someone the players do not believe is lying, suggesting dishonesty. Javad's statement is a good place to begin.	MILES and SETH
Puzzle 2: Influencer	To figure out the influencer's real name so that she can be contacted.	Players use the website URL for the plant guide shown in the chat thread to identify the scientific names of the houseplants in the influencer screenshot. The first initials of those scientific names spell out her real name.	5–10 min	This puzzle is usually solved without much support. If needed, facilitators can ask whether players have seen anything in the picture somewhere else.	OLIVE
Puzzle 3: School Newspaper	To figure out the password of the school newspaper editor in order to delete content.	Players match emojis found around the room to categories listed in a school newspaper feature about the new editor. Using the numbers associated with each emoji, they select specific letters from the editor's responses. These letters spell the password.	5–15 min	First, make sure players found the emoji clues. Then prompt them to think about how the numbers connect to the interview responses. A helpful clue is that repeated numbers show the numbers are not used to determine order.	OPENUP
Puzzle 4: Soccer Player Image	To figure out the name of the rival team's coach in order to get his assistance.	Players identify which parts of an altered image were replaced with a dog so they can reconstruct the original image of the player kicking a ball. Letters on the correct image parts spell the coach's name.	8 min	Remind players that not all image pieces will be used. If needed, facilitators may confirm whether some selected parts are correct or incorrect.	ADRIEN
Puzzle 5: Final Algorithm	To determine which letter clusters to eliminate, leaving a final answer phrase.	Players use the algorithm rules together with their previous answer sheet to cross off letter clusters in a grid. Once the correct clusters are removed, the remaining letters reveal the final phrase.	5–15 min	Players may need clarification that they must use their earlier puzzle answers to decide which rules apply and which should be ignored.	PANDORAS BOX

C.3. Puzzle images

Puzzle 1: Chat Group

Can you help Amara figure out which two members shared the joke image of Lucas outside the group chat?

If any part of a member's message is true, their whole message is true!

If someone is dishonest, they are one of the two people who shared the image.

WebbieChat x +

<

AMARA

We really need to know who shared the joke photo of Lucas. obviously it wasn't me, Lucas, or Alex!

MILES

I'm telling you, it was Vincent and Liam!

LIAM

That's not true! I didn't share it with anyone, and I don't think Vincent did either.

VINCENT

Liam is correct--I also did not share it with anyone.

SETH

I didn't share it with anyone, but I saw Ashe post it somewhere.

JAVAD

I know who it was, but I'm not going to rat them out. I'll just say there are two members of our group whose names start with M, and one of them shared it.

ASHE

Liam didn't share it, and neither did I, but I saw someone else with four letters in their name sharing it in another group!

MATTEO

I didn't post it, but you should listen to Javad.

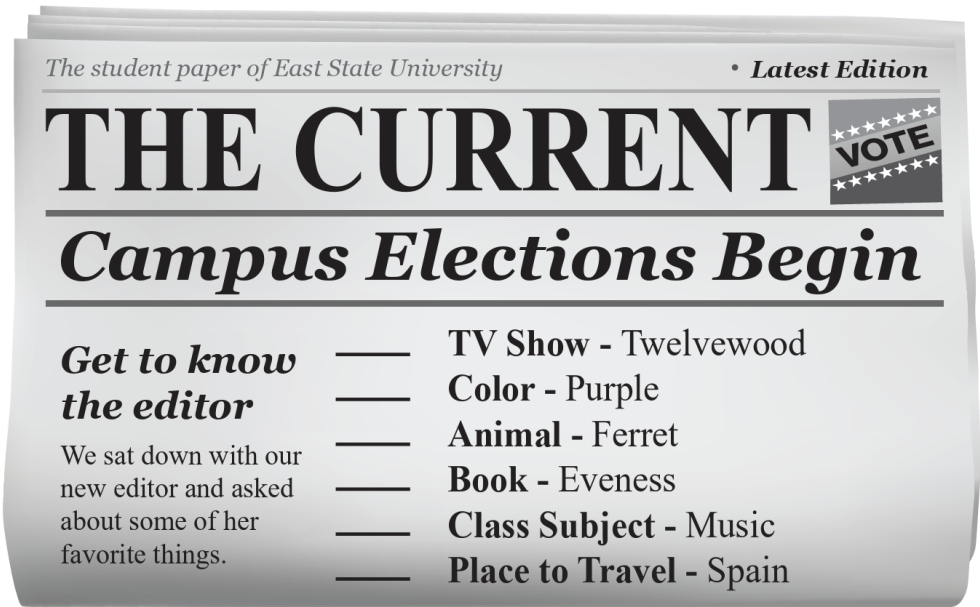
DION

Ashe doesn't mean me, though; I didn't do it!

Puzzle 2: Influencer



Puzzle 3: School Newspaper



 3	 3	 3	 1
 1	 4	 4	 2
 4	 3	 2	 2
 1	 5	 7	 9

Puzzle 4: Soccer Player Image

The AI image generator that Alex used creates an image by mixing together portions of other existing images. If we can find the parts of the original image that were altered to include the dog, we can figure out the name of the other team's coach, and let him know that his players are planning to make damaging deepfake media about Lucas, and maybe he can put a stop to their trolling behavior.



Puzzle 5: Final Algorithm

Each cluster of letters below represents a social media post on a feed.
Hide some of the posts according to the rules sheet by crossing them out.

PAN	IRR	NTRO	TRIB	BAR	ORO
COR	TE	RUN	ART	VIT	PLY
PRO	DOR	EBB	EX	PIH	MPL
RUL	CONO	GON	ARE	DTR	OX
BE	REP	DRY	ASB	OPP	MIES
VERT	SUN	DET	LTI	NTH	LAT

Social media algorithms can be pretty obscure to the users.
We've managed to track down a list of rules for hiding certain posts.
All of the posts in this example have been assigned a letter cluster.
Can you follow the rules, **using your PUZZLE ANSWER WORD sheet**,
to hide some of the posts from users' feeds?
You can cross out the posts that have been hidden by the algorithm!

<i>If any PUZZLE ANSWER WORD...</i>	<i>Hide all posts whose letter cluster...</i>
contains the letter X	is two letters long
contains the letter J	is three letters long
contains the letter V	is four letters long
contains the letter Q	contains the letter X
contains the letter E	contains the letter E
contains the letter D	repeats any letters
contains the letter Z	is in a box below a 4-letter cluster
contains the letter U	is in a box above a 2-letter cluster
begins with a vowel	ends with a vowel
ends with the letter R	is in the first row
ends with the letter H	is in the second row
ends with the letter T	is in the third row
ends with the letter Y	is in the fourth row
ends with the letter L	is in the fifth row
ends with the letter N	is in the sixth row
is an anagram for VALID	is in the first column
is an anagram for UPPER	is in the second column
is an anagram for SMILE	is in the third column
is an anagram for THOSE	is in the fourth column
is an anagram for RAINED	is in the fifth column
is an anagram for RIDGE	is in the sixth column

Note: An ANAGRAM is a word or phrase formed by
rearranging all the letters of a different word or phrase.

APPENDIX D

PHASE I. EDUCATOR INTERVIEWS STUDY MATERIALS

D.1. Institutional Review Board (IRB) Approval

The following figures present the IRB approval documents for the educator interview study.



UNIVERSITY of WASHINGTON

HUMAN SUBJECTS DIVISION

DETERMINATION OF EXEMPT STATUS

November 21, 2024

Dear Johnny Cho:

On 11/21/2024, the University of Washington Human Subjects Division (HSD) reviewed the following application:

Type of Review:	Initial Study
Title of Study:	Integrating Social and Emotional Learning (SEL) into Media and Information Literacy (MIL): Insights from SEL Instructors
Investigator:	Johnny Cho
IRB ID:	STUDY00021652
Funding:	None Funding Title(s): Pass-through institution(s):

Exempt Status

HSD determined that your proposed activity is human subjects research that qualifies for exempt status (Category 2). This determination may or may not be based on the Limited IRB Review process.

- This determination is valid for the duration of your research.
- This means that your research is exempt from the federal human subjects regulations, including the requirement for IRB approval and continuing review.
- Depending on the nature of your study, you may need to obtain other approvals or permissions to conduct your research. For example, you might need to apply for access to data or specimens (e.g., to obtain UW student data). Or you might need to obtain permission from facilities managers to approach possible subjects or conduct research procedures in the facilities (e.g., Seattle School District; the Harborview Emergency Department).
- HSD does not make determinations on behalf of other institutions. If other institutions are involved in the research, they may need to make their own determination or they may decide to be guided by our determination.
- Your study has a Certificate of Confidentiality (CoC) because you have federal funding or because you have applied for and received one from a federal agency. See this [Information Sheet](#) for a description of the CoC protections and responsibilities.
- If you obtain federal funding or other support for this research, inform HSD immediately.

Only certain types of changes to exempt research require that you submit a modification in Zipline. For information about what changes require a Modification, refer to the guidance on [Exempt Research](#). If you are unsure if your proposed changes require a modification, contact your [HSD team](#) before preparing the modification.

4333 Brooklyn Ave. NE, Box 359470 Seattle, WA 98195-9470

main 206.543.0098 fax 206.543.9218 hsdinfo@uw.edu www.washington.edu/research/hsd

Implemented 07/27/2023-- Version 1.5 - Page 1 of 2

HSD does not review or approve consent plans and consent materials for exempt research. Researchers are still responsible for providing subjects with information about the research prior to their agreement to participate. Refer to the guidance on [Exempt Research](#) for details about what information should be provided. You may wish to use the optional [Exempt Consent Template](#) as a guide.

Thank you for your commitment to ethical and responsible research. We wish you great success!

Sincerely,

Theresa Naluai-Cecchini
IRB Administrator, Committee J
206.543.3494
tnaluai@uw.edu
hsdteamj@uw.edu

D.2. Recruitment Flyer

We Need Your Expertise



Are you an educator with experience in Social and Emotional Learning (SEL) or Media and Information Literacy (MIL)?

We are recruiting educators for interview.

Who We're Looking For

- Educators, counselors, librarians, or curriculum designers
- With experience working with teens (ages 13–17)
- Background in SEL, MIL, digital citizenship, or related fields
- Willing to participate in a one-hour interview

What to ask

- Explore the perception of SEL and MIL for youth education
- Feedback or suggestions on a game-based learning module

Incentive

Compensation: \$25 Amazon gift card

How to Participate?

[[Google Form](#)]

https://bit.ly/SELandMIL_Educator_Interview

We will contact you to schedule the interview at your convenience.

For more information, please contact [Yeonhee Cho] at [yhcho@uw.edu]

D.3. Screening Survey

Educator Interviews on SEL and Misinformation Education

Teenagers today often encounter misinformation in emotionally charged digital spaces shaped by peers, rapid reactions, and social media dynamics. While Media and Information Literacy (MIL) often emphasizes fact-checking and source evaluation, less attention has been given to the social and emotional dimensions of how teenagers experience misinformation.

I am Yeonhee (Johnny) Cho, a Ph.D. candidate at the University of Washington Information School. This study is part of my dissertation on how Social and Emotional Learning (SEL) can strengthen misinformation education.

If you choose to participate, you will be invited to complete a 60-minute online interview. As appreciation for your time, you will receive a \$25 Amazon gift card. All responses will remain confidential.

For questions, please contact: yhcho@uw.edu

MIL = Media and Information Literacy; SEL = Social and Emotional Learning

Screening Survey Questions

1. Do you have experience working with teenagers (ages 13–17)?
 - Yes
 - No
2. If yes, how many years have you worked with teenagers?
3. Are you currently involved in Social and Emotional Learning (SEL) and/or Media and Information Literacy (MIL) instruction or related professional practice?
 - Primarily SEL
 - Primarily MIL
 - Both SEL and MIL
 - Neither (please specify)
4. Have you taught misinformation or media literacy topics to teenagers (ages 13–17)?
 - Yes, as a core part of my instruction
 - Yes, occasionally or as part of another course

- Not yet, but I plan to
 - No
5. Are you willing to participate in a 60-minute online interview (via Zoom) and possible brief follow-up questions via email?
- Yes
 - No
6. Please indicate your current role or position (e.g., teacher, school counselor, librarian, curriculum designer, researcher).
7. Please indicate your years of professional experience working in education or youth programs.
- Less than 1 year
 - 1–2 years
 - 3–4 years
 - 5–9 years
 - 10–14 years
 - 15+ years
8. Which setting best describes your primary teaching or professional environment?
- K–12 public school
 - K–12 private or independent school
 - Community organization or library
 - Higher education or research institution
 - Other: _____
9. Briefly describe your experience with SEL and/or MIL instruction, including any frameworks, curricula, or programs you have used.
10. What grade levels do you primarily work with?
- Middle school (Grades 6–8)
 - High school (Grades 9–12)
 - Other: _____

11. If selected, you will receive a \$25 Amazon gift card as appreciation for your time. Do you agree to participate under these terms?
- Yes
 - No
12. Please provide your name.
13. Please provide your preferred contact information for scheduling (email address).
14. (Optional) Please provide the name of your current educational institution or organization.
15. What are your general availability windows for a 60-minute online interview? (Select all that apply.)
- Weekdays (morning)
 - Weekdays (afternoon)
 - Weekdays (evening)
 - Weekends
 - Other: _____

D.4. Adult Consent Form

UNIVERSITY OF WASHINGTON

ADULT CONSENT FORM

Title of Study: Exploring Educator Perspectives: Integrating Social and Emotional Learning (SEL) and Media and Information Literacy (MIL) into Misinformation Education

Researcher:

Yeonhee Cho (Johnny), Ph.D. Candidate
The Information School, University of Washington – Seattle
yhcho@uw.edu

Researchers' Statement

You are invited to participate in a research study conducted by the University of Washington. This consent form explains the purpose of the study, what participation involves, any risks or benefits, and your rights as a participant. Please read it carefully and feel free to ask questions. Your participation is voluntary, and you may withdraw at any time. A copy of this form will be provided for your records.

PURPOSE OF THE STUDY

The purpose of this study is to understand how **educators with expertise in Social and Emotional Learning (SEL) and/or Media and Information Literacy (MIL)** perceive the integration of these approaches into misinformation education for adolescents. By gathering your insights, this research aims to identify opportunities, challenges, and strategies for designing learning modules that address both critical thinking and the social-emotional dimensions of misinformation.

STUDY PROCEDURES

If you choose to participate:

- You will take part in a **one-on-one online interview** lasting approximately **60 minutes**.
- The interview will focus on your professional experiences and perspectives related to SEL, MIL, and misinformation education.
- With your consent, the interview will be **audio recorded** to ensure accuracy in capturing your responses.
- A copy of this consent form will be emailed to you in PDF format. If you would prefer to receive a paper copy at no cost, please contact the researcher listed above.

RISKS, STRESS, OR DISCOMFORT

The risks associated with this study are minimal. You may feel uncomfortable discussing professional experiences or challenges in teaching misinformation. If this happens, you may skip any question or stop the interview at any time. Your comfort and well-being are our priority.

BENEFITS OF THE STUDY

There are no direct personal benefits to you for participating. However, your perspectives will contribute to research that explores how SEL and MIL can be combined to create more effective approaches to misinformation education. This may benefit educators, researchers, and students in the future.

As a token of appreciation, you will receive a **\$25 Amazon e-gift card** after your participation. Instructions for redeeming the e-gift card will be sent directly to your email.

CONFIDENTIALITY OF RESEARCH INFORMATION

Your responses will be kept confidential and stored securely. Audio recordings and transcripts will be used only for research purposes. If quotes are included in reports or publications, they will be anonymized so that you cannot be personally identified. All data will be stored on a password-protected server and deleted after five years.

VOLUNTARY PARTICIPATION

Participation is voluntary. You may decline to participate or withdraw at any time without penalty or loss of benefits.

Contact Information

If you have questions about the study, please contact:
Yeonhee Cho (Johnny), Ph.D. Candidate – yhcho@uw.edu

If you have questions about your rights as a research subject, please contact the **Human Subjects Division, University of Washington**, at (206) 543-0098.

SIGNATURES

Participant's Statement

This study has been explained to me. I volunteer to take part in this research. I have had a chance to ask questions.

Printed name of participant

Name _____

Signature _____

Date _____

D.5. Semi-Structured Interview Protocol

The following semi-structured interview protocol was used in Phase I to explore educators' perspectives on misinformation education, SEL, and the design of an SEL-based misinformation learning module.

Part 1: Background and Teaching Context

1. Can you briefly describe your current role and teaching context?
2. How are you involved with Social and Emotional Learning (SEL) and/or Media and Information Literacy (MIL)?
3. What age group(s) do you primarily work with, and how would you describe their emotional or digital learning needs?
4. What characteristics have you observed among this group?

Part 2: Perspectives on SEL and Misinformation

1. In your view, what social or emotional challenges do teenagers face when encountering misinformation online?
2. How do you define or understand SEL (or MIL) in your teaching practice?
3. What role do you think SEL could play in helping students engage more thoughtfully with misinformation?

CASEL Competency Prompt

Before moving into the next section, participants were briefly introduced to the five CASEL competencies: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making.

Questions by CASEL Competency

1. How important is self-awareness (recognizing emotions and biases) for teenagers when engaging with misinformation?
2. How might self-management (regulating emotional reactions) influence teenagers' digital behaviors around misinformation?
3. How does social awareness (empathy and understanding others) matter when teenagers encounter or share misinformation?
4. How important are relationship skills (communication and perspective-taking) for promoting healthy online dialogue about misinformation?
5. How do you view responsible decision-making in teenagers' choices to share or react to digital content?

6. Which SEL competencies seem most relevant in this context, and why?

Part 3: Pedagogical Practices and Integration

Depending on the participant's background, tailored questions were asked for SEL educators and MIL educators.

For SEL Educators

1. How do you incorporate SEL strategies into discussions about digital behavior or online misinformation?
2. Have you used or seen SEL strategies that help students reflect on how their actions affect others online?
3. What opportunities or concerns do you foresee when applying SEL principles to misinformation education?

For MIL Educators

1. How do you typically help students evaluate or respond to misinformation in your classroom?
2. Have you noticed emotional reactions—such as outrage, fear, or apathy—when students engage with misinformation? How do you address them?
3. What opportunities or challenges do you see in incorporating emotional or ethical reflection into MIL instruction?

Part 4: Module Design and Feedback

The following questions were asked after participants were shown the SEL-based misinformation learning module, including the *Chronoshift* game and the SEL-based debriefing activity.

1. Based on your experience, what strengths or gaps do you see in the learning module's ability to foster SEL competencies?
2. How effective do you think strategies such as role-play or reflective discussion could be in promoting empathy and responsible decision-making?
3. What would make a learning tool more emotionally engaging and adaptable across diverse student populations?

Part 5: Final Reflections

1. If you could offer one piece of advice for designing an SEL-informed misinformation learning intervention for teens, what would it be?
2. Is there anything else you would like to share that we have not yet discussed?

APPENDIX E

PHASE II. TEENAGERS' EXPERIENCES STUDY MATERIALS

E.1. Institutional Review Board (IRB) Approval

The following figures present the IRB approval documents for the teenager study.



UNIVERSITY of WASHINGTON
HUMAN SUBJECTS DIVISION

IRB APPROVAL OF APPLICATION

January 5, 2026

Dear Johnny Cho:

On 1/5/2026, University of Washington IRB Committee J reviewed the following application:

Type of Review:	Initial Study
Title of Study:	Exploring Teenagers' Experiences with a Misinformation Game and Structured Debriefing
Investigator:	Johnny Cho
IRB ID:	STUDY00024653
Funding:	None Funding Title(s): Pass-through institution(s):
IND, IDE, or HDE:	None

IRB Approval

Under FWA #00006878, the IRB approved your activity.

- Depending on the nature of your study, you may need to obtain other approvals or permissions to conduct your research. For example, you might need to apply for access to data or specimens (e.g., to obtain UW student data). Or, you might need to obtain permission from facilities managers to approach possible subjects or conduct research procedures in the facilities (e.g., Seattle School District; the Harborview Emergency Department).
- You are required to (1) obtain IRB approval before making any changes (modifications) to your research, and (2) provide the IRB with any Reportable New Information such as breaches of confidentiality or unanticipated problems.
- Your application qualified for expedited review ("minimal risk"; 6 and 7).
- Under the Revised Common Rule this IRB approval is valid until study completion. In other words, there is no expiration date and you are not required to submit Continuing Review Reports to maintain your approval.
- This approval applies only to the activities described in your application (including any references to specific grant sections). It does not include other activities that may be described in your grant or contract.
- Before enrolling non-English speaking subjects, the IRB must receive all translated consent materials that will be provided to subjects in written or electronic form.

Determinations, waivers, and regulations

The IRB made the determinations and waivers listed in the table below. Note that any granted waivers of consent or parent permission do not override a subject's refusal to provide broad consent.

4333 Brooklyn Ave. NE, Box 359470 Seattle, WA 98195-9470
main 206.543.0098 fax 206.543.9218 hsdinfo@uw.edu www.washington.edu/research/hsd
Implemented 12/23/2024 – Version 3.4 - Page 1 of 2

Requirement	Determination or Waiver
Risk Level	Minimal Risk
FDA Regulated Study	No
Consent	Waived for screening
Documentation of consent	Waived
Involvement of children	Approved
Parental permission	Permission of only one parent is required
Documentation of parental permission	Waived
Assent	Assent is required

Location of documents

Use the consent, parental permission, and assent forms that were approved and stamped by the IRB. They can be downloaded from the Final column under the **Documents tab** in Zipline.

Thank you for your commitment to ethical and responsible research. We wish you great success!

Sincerely,

Lindsey Westlake, Senior Administrator
206-897-1748 | scaggil@uw.edu

E.2. Recruitment Flyer

Research Seminar & Teen Study

 **Play an Escape Room Game**
Learn about information & media literacy

Who can join?

- Teens ages 13–17
- Come with a group of 5 friends (if not, we can make group for you)
- Comfortable playing games & chatting in a small group
- No experience needed

What will you do?

2 hour total

- 1 hour: Play the escape room game
- 1 hour: Group discussion & reflection



When?

- Depending on your scheduel
- Saturaday or Sunday

Where?

 University of Washington,
South Allen Library

Thank you gift

- \$30 Amazon gift card
- Snacks provided

Sign up

Submit the Pre-survey
<https://bit.ly/teensandmisinformationstudy>



Contact

Johnny Cho
Email: yhcho@uw.edu

E.3. Screening Survey (Teen Recruitment)

Teen Misinformation Study (For Recruitment)

This short survey was used to determine eligibility for participation in the study. Participants were teenagers aged 13–17. If eligible, parental consent was obtained prior to participation.

Participants received the following incentives: a \$30 Amazon gift card, school volunteer service hours, and snacks during the session.

For questions or concerns, participants were instructed to contact the researcher (Yeonhee “Johnny” Cho) at yhcho@uw.edu.

Survey Questions

1. **Email address**

2. **Name**

3. **Age**

- 13
- 14
- 15
- 16
- 17
- Other: _____

4. **Do you plan to participate with a group of friends (up to 5 teens total)?**

- Yes, I already have a group
- I’m interested, but not sure yet

5. **If you know your friends’ email addresses, you may list them below.**

(We will send them study information.)

6. **When are you available for an interview? Please list 2–3 possible dates and times?**

7. **Parent or Guardian Email Address**

(We will send the consent form and study details to your parent or guardian.)

8. **Anything else you would like us to know (optional)**

(e.g., preferred session time)

E.4. Consent Forms

Parent Consent Form

UNIVERSITY OF WASHINGTON **PARENT/GUARDIAN CONSENT FORM**

Researcher:

Yeonhee Cho (Johnny), Ph.D. Candidate
The Information School, University of Washington – Seattle
yhcho@uw.edu

Researchers' statement

You are invited to allow your child to participate in a research study conducted by a researcher at the University of Washington. This consent form provides information to help you decide whether you wish to permit your child's participation. Please read this form carefully and ask any questions you may have about the study's purpose, procedures, risks, benefits, or your child's rights as a research participant. Your decision about your child's participation is entirely voluntary. If you agree, you will receive a copy of this consent form for your records. If you would like additional information at any time, please contact the researcher at yhcho@uw.edu.

PURPOSE OF THE STUDY

The purpose of this study is to understand how teenagers perceive misinformation and how they reflect on its social and emotional impacts through game-based learning and structured debriefing. The study aims to include teenagers' perspectives in the design of educational interventions that support critical thinking, empathy, and responsible decision-making related to misinformation.

STUDY PROCEDURES

If you consent to your child's participation, your child will take part in one 2-hour session conducted in person. The session will include:

- Approximately 1 hour: Playing a misinformation-focused educational game.
- Approximately 1 hour:
 - Participating in a guided debriefing and a small-group research interview discussing:
 - Their experiences during the game
 - Their thoughts and feelings about misinformation
 - Their reflections on learning, decision-making, and social impact

Activities may include discussion, reflection prompts, and collaborative conversation. No prior experience with games or misinformation education is required. A copy of this consent form will be provided to you electronically as a PDF. If you prefer a paper copy at no cost, please contact the researcher.

RISKS, STRESS, OR DISCOMFORT

Your child may experience minor discomfort discussing misinformation topics or sharing their thoughts during the sessions. Participation is entirely voluntary, and your child can skip any activity they are uncomfortable with or withdraw from the study at any time. To ensure your child's privacy and safety, we will:

- Use only first names or pseudonyms during recordings.
- Secure all study data, including recordings, on University of Washington servers.
- Limit access to study data to the research team and authorized personnel.

Audio, video recordings, photographs, and quotes of the sessions will be taken only for research purposes. If images may be used, they will be blurred or obscured.

BENEFITS OF THE STUDY

Your child may benefit from participating in the study by:

- Learning to critically evaluate misinformation;
- Enhancing teamwork and communication skills;
- Understanding diverse perspectives from peers;
- Contributing to the development of meaningful educational tools; and
- Experiencing early exposure to research at a major university.

The findings from this study will help improve interventions for teenagers, contributing to educational tools that foster resilience against misinformation. While there are no direct benefits to children participating in this study, they will receive a \$30 Amazon e-gift card as a participation incentive. Instructions for redeeming the e-gift card will be sent directly to their personal email address.

CONFIDENTIALITY OF RESEARCH INFORMATION

All information your child provides will be kept confidential. Audio, video recordings, photographs, and quotes of the sessions will be taken only for research purposes. If images may be used for any reports or publications, they will be blurred or obscured. Recordings and notes will be stored on password-protected University of Washington servers. Any identifiable information will be replaced with pseudonyms or removed entirely before data is shared in research reports or presentations. All data will be stored on a password-protected server and deleted after five years. If the research team learns about the intent to harm themselves or others, or becomes aware of child abuse, we are required to report this information to the authorities. Access to your identifying information will be limited to certain members of the study team and individuals from the UW or other agencies that may need to audit study records.

OTHER INFORMATION

Participation is entirely voluntary. You may refuse to allow your child to participate or withdraw them from the study at any time without any penalty or loss of benefits.

Printed name of study staff obtaining consent	Signature	Date

Subject's statement

This study has been explained to me. I volunteer to allow my child to take part in this research. I have had a chance to ask questions. If I have questions later about the research, or if I feel my child has been harmed by participating in this study, I can contact the researcher listed on the first page of this consent form. If I have questions about my rights as a research subject, I can call the Human Subjects Division at (206) 543-0098. I will receive a copy of this consent form.

Printed name of child participant

Printed name of parent/guardian	Signature of parent/guardian	Date

Copies to: Researcher
 Parent/Guardian

Child Assent Form

UNIVERSITY OF WASHINGTON

ASSENT TO PARTICIPATE IN RESEARCH

Researcher:

Yeonhee Cho (Johnny), Ph.D. Candidate
The Information School, University of Washington – Seattle
yhcho@uw.edu

RESEARCHER'S STATEMENT (PLEASE READ CAREFULLY)

Hi! My name is Johnny, and I am a researcher at the University of Washington. I am inviting you to take part in a research study because I want to learn how teenagers think about misinformation and how games can help teens reflect on it.

Misinformation means information that is false or misleading and can spread online or through social media. In this study, I want to understand how teens notice misinformation, feel about it, and talk about it with others.

WHAT WILL HAPPEN IF YOU JOIN

If you decide to participate, you will take part in **one session that lasts about 2 hours**.

- **About 1 hour:**
You will play a misinformation-focused game designed for teens.
- **About 1 hour:**
You will join a guided debriefing and small-group discussion where you can:
 - Share your thoughts about the game
 - Talk about how misinformation affects people
 - Reflect on decision-making, emotions, and social impact

You do **not** need any special knowledge or experience. There are no right or wrong answers—we are interested in your honest thoughts and experiences.

RISKS AND DISCOMFORTS

This study has **minimal risks**. You might feel slightly uncomfortable talking about misinformation or sharing opinions in a group. If that happens:

- You can skip any question
- You can take a break
- You can stop participating at any time

To protect your privacy:

- Only first names or made-up names will be used
- Audio or video recordings will be used only for research
- Any photos or videos used publicly will be blurred or de-identified
- All data will be stored securely on University of Washington servers

If the research team learns that someone may be in danger or being harmed, we are required by law to report this to keep people safe.

POSSIBLE BENEFITS

You may benefit by:

- Learning how misinformation spreads
- Thinking more deeply about online information
- Practicing discussion and reflection skills
- Helping create better educational tools for other teens

Even if you don't feel a direct benefit, your ideas can help researchers and educators understand teens' perspectives better.

THANK-YOU GIFT

As a thank-you for participating, you will receive a **\$30 Amazon e-gift card**. You will receive the gift card even if you decide to stop participating before the session ends.

YOUR CHOICE

Please talk with your parents or guardian before deciding. We will also ask for their permission.

- Being in this study is **your choice**
- You can say **no**
- You can say **yes and change your mind later**
- No one will be upset if you choose not to participate or decide to stop

If you want to stop, just tell the researcher.

QUESTIONS

You can ask questions now or at any time. You can contact me at **yhcho@uw.edu** if you have questions later.

Researcher's signature

Date

Your statement:

This research has been explained to me. I agree to take part in this study. I have had a chance to ask questions. If I have more questions, I can ask the researcher.

Your name

Your signature

Date

E.5. Baseline Survey

This baseline survey was administered prior to the learning module to gather background information and understand participants' perceptions of misinformation, media literacy, emotional responses, empathy, social responsibility, agency, and SEL-related competencies.

Section 1: Background

1. Name
2. Age
3. Grade
4. Gender
5. Email address
6. Parent/Guardian email address
(Parent or guardian consent was required for participation.)
7. Which social media platforms do you use at least once a week?
(Select all that apply.)
 - TikTok
 - Instagram
 - Snapchat
 - Discord
 - YouTube
 - X (Twitter)
 - Other: _____
8. How often do you share or repost content on social media?
 - Never
 - Rarely
 - Sometimes
 - Often
 - Very often
9. Misinformation is a big problem in my generation.
(1 = Not a serious problem at all; 5 = Very serious problem)
1 2 3 4 5

Section 2: Media Literacy Confidence

1. I feel confident evaluating whether online information is trustworthy
(1 = Not at all / Strongly disagree; 5 = Very much / Strongly agree)
1 2 3 4 5
2. I feel confident questioning information, even when others believe it is true.
(1 = Not at all / Strongly disagree; 5 = Very much / Strongly agree)
1 2 3 4 5
3. When my friends share information online, it is hard for me to question it.
(1 = Not at all / Strongly disagree; 5 = Very much / Strongly agree)
1 2 3 4 5
4. Imagine someone shares false information about a student in your school. What would you do,

and why?
(Open-ended response)

Section 3: Emotion

1. My emotions influence what I choose to believe online.
(1 = Not at all / Strongly disagree; 5 = Very much / Strongly agree)
1 2 3 4 5
2. When a post makes me feel strong emotions (e.g., anger, fear, excitement), I am more likely to react quickly.
(1 = Not at all / Strongly disagree; 5 = Very much / Strongly agree)
1 2 3 4 5
3. I sometimes share or respond to content before fully thinking it through when I feel emotional.
(1 = Not at all / Strongly disagree; 5 = Very much / Strongly agree)
1 2 3 4 5

Section 4: Social Responsibility and Accountability

1. If I share something false, I believe I am partly responsible, even if I did not know it was false.
(1 = Not at all / Strongly disagree; 5 = Very much / Strongly agree)
1 2 3 4 5
2. I feel responsible for the impact of the content I share online.
(1 = Not at all / Strongly disagree; 5 = Very much / Strongly agree)
1 2 3 4 5
3. Before sharing something online, I think about how it might affect others.
(1 = Not at all / Strongly disagree; 5 = Very much / Strongly agree)
1 2 3 4 5

Section 5: Empathy and Perspective-Taking

1. When I see someone being hurt, attacked, or embarrassed online, I feel concerned for them.
(1 = Not at all / Strongly disagree; 5 = Very much / Strongly agree)
1 2 3 4 5
2. I try to understand how others might feel when they are affected by misinformation.
(1 = Not at all / Strongly disagree; 5 = Very much / Strongly agree)
1 2 3 4 5
3. I think about how online information might affect real people.
(1 = Not at all / Strongly disagree; 5 = Very much / Strongly agree)
1 2 3 4 5

Section 6: Agency

1. I feel that my actions can make a difference in reducing misinformation online.
(1 = Not at all / Strongly disagree; 5 = Very much / Strongly agree)
1 2 3 4 5
2. I believe I can influence others to think more carefully about what they share.
(1 = Not at all / Strongly disagree; 5 = Very much / Strongly agree)
1 2 3 4 5

3. I feel capable of taking action when I see misinformation.
(1 = Not at all / Strongly disagree; 5 = Very much / Strongly agree)
1 2 3 4 5

Section 7: SEL CASEL Model

1. Which SEL skill do you think is the most important when dealing with misinformation?
 - Recognizing emotions (Self-awareness)
 - Managing emotions (Self-management)
 - Understanding others (Social awareness)
 - Handling conflicts (Relationship skills)
 - Making responsible decisions (Responsible decision-making)
2. Which SEL skill do you think teenagers struggle with most when dealing with misinformation?
 - Recognizing emotions (Self-awareness)
 - Managing emotions (Self-management)
 - Understanding others (Social awareness)
 - Handling conflicts (Relationship skills)
 - Making responsible decisions (Responsible decision-making)

E.6. Visual Reflection

The visual reflection activity was designed to encourage participants to express their understanding of misinformation and its social impact through drawing. Following the learning module, participants were asked to illustrate how they would respond to misinformation in a real-world context.

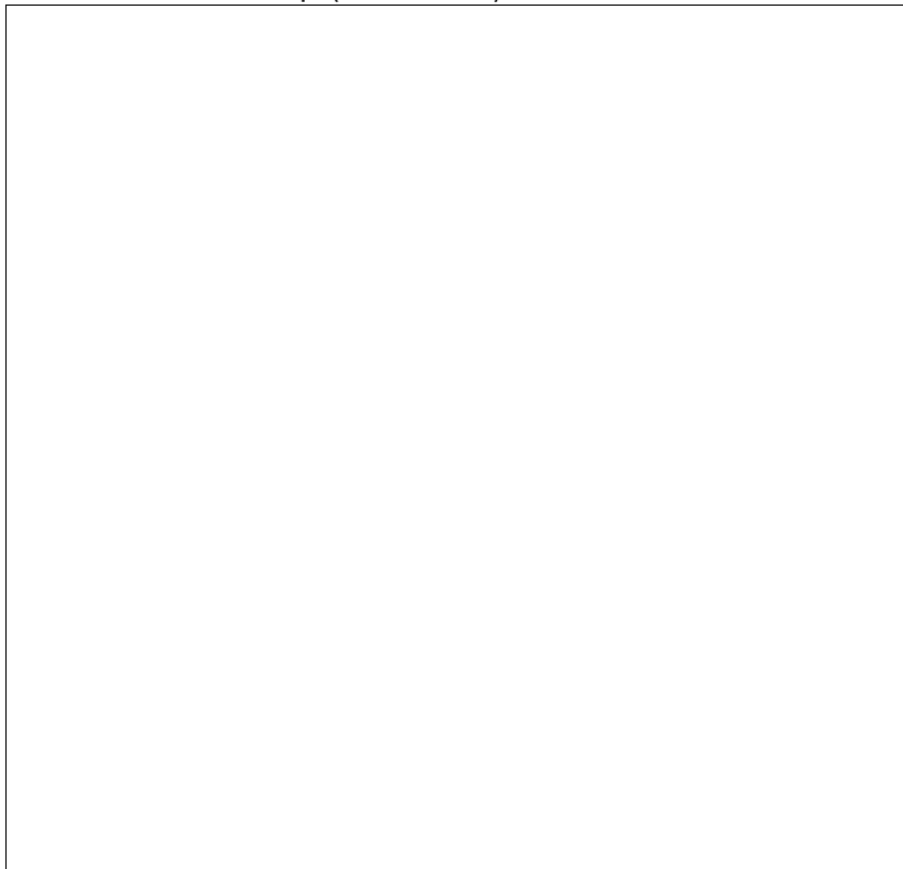
[Visual Reflection]

Name:

After today's lesson, how would you respond if you saw misinformation?

- Draw a situation where misinformation is being shared.
- Show what you would do and how you would take responsibility.

It does not have to be a real example (of misinformation).

A large, empty rectangular box with a thin black border, intended for a participant to draw a response to the prompt about misinformation.

Write briefly about what is happening in your drawing and why you chose this response:

E.7. Focus Group Interview Protocol

Discussion Guide: Teen Agency, Accountability, and Misinformation in Digital Spaces

This semi-structured focus group protocol was used to explore teenagers' social-emotional experiences, perceptions, and reflections following participation in the SEL-based misinformation learning module. Questions were designed to elicit insights related to emotional engagement, social awareness, empathy, and responsible decision-making.

Opening and Warm-Up

1. How was your experience today?
2. Which activity did you enjoy the most? (*Optional follow-up: What made that part stand out for you?*)
 - Gameplay
 - Debriefing (Role-Play)
 - Debriefing (Write a Message)
 - Visual Reflection
 - Group Discussion
3. Is there anything you think could be improved about today's activities?

Emotion and Experience

1. How did today's activity make you feel? (*Optional follow-up: Was there a moment that stood out to you?*)
2. When you see something online that feels "off," what does that feeling feel like? Do you act on it?
3. Did today's activity remind you of anything you have seen or experienced on social media or in group chats?

Meaning and Insight

1. Was there anything you started thinking about differently after today's activity?
2. Do you think AI makes it harder or easier to trust what you see? (*Optional follow-up: Has this changed how you use social media?*)

Social Responsibility and Peer Dynamics

1. What does "social responsibility" around misinformation mean to you? (*Optional follow-up: Why?*)
2. Who do you think is responsible when misinformation spreads (e.g., individuals, social media platforms, government)?
3. If a close friend shared something you knew was false, what might stop you from saying something?

Empathy and Real-World Impact

1. What does empathy mean to you in the context of misinformation? (*Optional follow-up: Why?*)
2. Did today's activity make you think about how online posts can affect other people?
3. Does it feel different when false information is about a stranger versus someone you know?

Agency, Emotions, and SEL Competencies

1. What does “agency” around misinformation mean to you? (*Optional follow-up: Why?*)
2. After reviewing the CASEL framework, which competency felt most challenging for you today? Why?
3. Which SEL competencies do you think teenagers struggle with the most when dealing with misinformation? Why?

Closing and Reflection

1. If you could change or add one thing to today’s activities to help students learn better, what would it be?

APPENDIX F

DEBRIEFING RESULTS

F.1. Teen Misinformation Experiences

Participant	Message
T1	When my mom saw videos of animals that were AI and thought they were real, I tried to tell her it was fake. She was watching YouTube Shorts on the TV and called me out of my room to show me this dog video. And I was like, “Mom, that’s fake.” But she was like, “No, it’s not AI.” My dad and grandma have also been deceived by AI multiple times, and my dad even bought things because of it.
T2	When people asked me to make art for them, it turned out to be PayPal scams. They had fake profile pictures and tried to trick me. This happened like four times. I felt really upset because it targets small artists, which feels really unfair and kind of evil.
T3	One time, [redacted] told everyone I had prostate cancer, which wasn’t true. I felt really betrayed and overwhelmed. It made me feel like my trust and loyalty were broken.
T4	I saw fake pet videos. I mean, I saw fake pet videos that were, like, really convincing, and there’s deepfakes of crazy stuff, but I have a problem with those. Imagine falling for a Facebook page for a long time. It’s spelled M-E-O-W-L. You see him doing all this crazy stuff, and my dad also makes deepfake AI videos of our cats.
T5	One time my parents were fooled by a deepfake AI video, and I had to tell them it wasn’t real. It made me feel disappointed in people and also worried. When I told them, they were frightened and scared too.
T6	People claim a lot of things about politics, and it often gets blown up into something more negative than it actually is. I usually try to double and triple check what I see so I can keep some sense of hope.
T7	I heard about the Yellow Deli cult and that they were going to kill themselves in 48 years. It made me think about how information spreads and how people say “share knowledge, share truth.”
T8	I see AI thumbnails that don’t even match the video content, so I usually just ignore those videos.
T9	I’ve seen online scams and phone scams, so I try to ignore anything I don’t recognize.
T10	My mom was scammed by a fake animal shelter over the phone. They told her they needed donations or they would have to put animals down, so she donated around \$1,000. Later, they blocked her everywhere, and we realized it was all fake. It made me feel really sad that someone would do that.

Participant	Message
T11	I've seen AI-generated images like colorful cat breeds that aren't real.
T12	On TikTok, I constantly see AI videos of people and nature. Usually I report them because those videos create a false reality. I feel confused because I don't know what's real or not, and it makes me feel a little sad too.
T13	I've heard my friends get accused of things they didn't do because of rumors. Usually, we just say the information is incorrect and move on.
T14	I've definitely heard people say things that aren't true, but I usually just ignore it.
T15	People on TikTok were saying Olivia Rodrigo and Louis Partridge broke up, and everyone believed it until they posted each other again on Instagram.
T16	There was misinformation about ICE saying they shot someone in self-defense, but there was video evidence showing that wasn't true. It made me feel sad, especially because people believed it so easily.
T17	My teacher showed us a picture that looked real, but the next day told us it was AI.
T18	I see a lot of political misinformation online.
T19	I saw AI-generated images about a snowstorm that looked extreme, but after checking, it wasn't as bad as it seemed.
T20	I have, on several occasions, used misinformation to win board games.
T21	I see a lot of misinformation online, especially about politics. I try not to spread it, but I might have accidentally shared something before.
T22	I saw a YouTube video saying Pluto is a planet.
T23	I heard a rumor about my friend's ex cheating, but it wasn't true.
T24	There was a rumor about someone cheating, but it wasn't true, and it still affected them.
T25	I felt helpless when I was falsely accused of something I didn't do. There was misinformation about me that spread through my friend group, and it ended up affecting my school life. It just really sucked, because I became the victim.
T26	I saw information saying Europe has no Red 40, but it's actually just called something different. People link it to cancer, but that's not entirely true.
T27	Some guy at my school tricked someone into thinking they were talking to someone they were into on Snap using an AI chatbot. It started a bunch of problems, and the majority of the sophomore class was talking about it. By the time anyone realized it was fake, no one really cared. There's a dude named [redacted] at my school, and someone tricked him into thinking he was talking to someone he was into on Snap, and it became a whole thing, because no one thought he could pull someone like that, but it was actually an AI chatbot. And everyone was talking about it—I'd be at the gym, and people were talking about it, and by the time he was like, "yo, you're talking to an AI," no one really cared at that point. I wasn't really part of it, but I heard about it, and I found it really funny.

Participant	Message
T28	I was at a friend's house and the topic of ICE came up. Her sister mentioned ICE killing a man with his own gun, and her dad got really upset because it was misinformation. I stayed quiet because it was a tense situation. Another time, the same topic came up, and my friend's sister said an ICE agent killed a guy with his own gun. Her dad got really upset because it wasn't true—it was false information. They took his gun, but they killed him with their own guns, not his. I just stayed quiet because it felt like that kind of situation where you could lose it if you said something.
T29	I don't really see much besides AI videos or people making fake news just to make others angry.
T30	My experience is mostly people making up events or actions about me that aren't true.
T31	My grandma was misled by an AI video of a squirrel, and it made me feel hurt.
T32	I've been told rumors that I believed at first, but later found out they weren't true. I'm glad I didn't spread them because I don't like drama.
T33	When I researched on Wikipedia, I noticed some information had been intentionally changed.
T34	I saw fabricated AI videos of animals, like raccoons on a trampoline, and a lot of people thought they were real. It surprised me how convincing AI can be.
T35	One time I saw an AI video and thought it was real. I felt surprised, and after that, I tried to be more careful about recognizing AI content.
T36	A friend showed me an AI video of an animal attack, and I told them it was AI.
T37	I encountered misinformation at school before, but it wasn't really related to me. Somebody just told me about it—I didn't do anything about it because I didn't know the victim that well.
T38	My friend cited something incorrectly for a project, and separately, my dad told my grandparents I had COVID, which spread as misinformation.
T39	Someone sent me abusive messages, and I responded the same way. Then someone posted it on TikTok, and people mocked me.
T40	I saw a TikTok about a woman being racist at an Asian supermarket, but it turned out not to be true.
T41	There was a rumor that someone had moved or died, but it wasn't true.
T42	I went to school one day, but it was canceled due to staff shortages. I felt annoyed because I had walked a long distance for nothing.
T43	When I was getting ready to move to America, I got misinformation from my summer experience that the weather in Washington was sunny all year.

Participant	Message
T44	I had a situation in middle school where things were exaggerated and escalated because two people didn't want to tell the truth. I took all the blame and had to apologize for no reason, and my social life fell apart.
T45	Someone stalked the actor for Loak and camped outside his mansion, harassing him by playing thirst trap edits of Loak on a portable big screen and projector until they were arrested the next day.
T46	No experience.
T47	I had a friend who lied that I paid her money and forced her to write me a fanfic that mischaracterized a character in a game past midnight for multiple days, and she told all my friends—our mutuals, since we were in the same friend group—and I didn't find out until three months later.
T48	My mom told me a friend was moving to Texas next month, and I told another friend and we talked about it, but later I found out she wasn't actually going to Texas. Then my friend spread rumors that I was talking to two guys, which wasn't true, and I heard that from a different friend.
T49	Nothing.
T50	Misinformation about people dating—I was told rumors in middle school. I also saw things on Instagram about UFOs. At school, someone was called “fake” and “rude.”
T51	Rumors being spread about people.
T52	—
T53	I accidentally gave out misinformation. I felt bad when I found out I was wrong, and I clarified it to my friend later.
T54	There was a rumor about me dating someone I didn't even know.
T55	My grandma thinks AI-generated stories are real.
T56	I saw AI deepfake video on Instagram.
T57	I feel like teenagers are kind of dramatic, and they'll exaggerate things. It's like a game of telephone—it gets more exaggerated every time. I remember being told that someone was cheating on someone, but it turned out they never did. They just talked to someone else, but every time it got passed around, it changed—from talking, to flirting, to cheating. It just kept escalating all the way.
T58	One time, my teacher accused me of using AI on an assignment because she was using an AI checker. She uses it every assignment. The teacher relies on AI, but those tools don't really work properly—they flag a lot of things as AI even when they're not. So I got told that my essay was 100% AI-generated, even though I stayed up all night working on it.
T59	I've heard AI music—yeah, AI music—and it makes me feel really bad.

F.2. Teenager's role-playing

Group 1 — Topic: Maggie Rumor

First Role-Playing

- **Producer:** I'm the misinformation producer. I was really excited about this new AI technology, and I was also curious. I thought if I put one of my peers into it, it would be fun—but I didn't realize what would actually happen.
- **Sharer:** I just read about this... Oh, check this out. I just heard about an AI image going around online of Maggie Bishop from Ballard High School.
- **Influencer:** Guys, I'm the misinformation influencer. The reason I'm sharing this is because I don't want to miss out on the attention I could get from posting it and going viral.
- **Disinformation:** I really hate Maggie from her school, so I'm spreading disinformation because I don't like her. She's, like, so weird. I even saw a video of her yelling at a little kid at the park—and then she hit the kid. That's what happened. I'm saying this because I think it's funny, and I don't like Maggie.
- **Victim:** Hi, I'm Maggie Bishop. I feel scared, and I want justice. I did not kick a puppy, and I did not hit a child in the park. Yes, I yelled at a child—that's part of my job—but I did not hit anyone. I want the person who made this deepfake to be held accountable. I also want people to know that this will not affect my campaign.

Second Role-Playing

- **Victim:** Hi, I'm Maggie Bishop. What I would do differently is probably choose better friends—friends who wouldn't make deepfakes of me.
- **Disinformation:** I don't actually like Maggie, but I don't think I should ruin her chances of being elected. So I'm not going to spread anything about her.
- **Influencer:** I'm not going to post this. I understand the consequences now. I've had rumors

spread about me before, and I didn't like it. Even if I don't like Maggie, I'm still not going to share it.

- **Sharer:** I saw the video, but then I found out it was AI-generated and didn't actually happen—so I'm not sharing it.
- **Producer:** I'm never making an AI image like this again. I feel guilty.

Group 2 — Topic: Jay's Grades Rumor

First Role-Playing

- **Producer:** Jay is failing all of their classes—I said it just to make fun of them. I thought it would be funny since we're friends, but I made it sound really serious.
- **Influencer:** I saw this and decided to spread it on TikTok because it's crazy. I also want more followers. I can't believe Jay is failing all of their classes—like every single one, even extracurriculars.
- **Disinformation:** I made completely fake evidence—like test scores showing him getting 0% on all his finals.
- **Victim:** Why would you do this? It's not my fault. I'm just here—I didn't do anything.

Second Role-Playing (Reverse Role-Playing)

- **Victim:** What are you talking about? I'm not failing.
- **Disinformation:** I don't really care—I'm just attacking him.
- **Influencer:** Jay is actually the top student in the school. He's going to the best college with a full scholarship... okay, maybe that's not believable.
- **Producer:** My bad—I'm really sorry. I was just making fun of you, Jay.

Group 3 — Topic: Puppy Image Rumor

First Role-Playing

- **Producer:** Today, I was just experimenting with my friend's photo. I was excited to share it because I thought my friends would find it really funny. So I edited it to look like he was kicking a puppy. I thought everyone would laugh and we'd have fun, so I showed it to one of my friends.
- **Sharer:** She showed me the photo, and I thought it was really funny. So I said, "Hey, I want to share this with all our friends," and I sent it in the group chat.
- **Influencer:** I'm an influencer, and I make money by going live on Instagram. When I saw this, I thought it would go viral. People would be shocked to see him as someone who hurts puppies, so I shared it for attention and popularity.
- **Disinformation:** I wanted to post and make money too. I saw the influencer's video and thought, "What can I do to make this worse?" I didn't care about this guy. I made up a fake story that he's an evil person who hates puppies. My motivation was that I felt bad about myself, and I wanted to take it out on someone else.
- **Victim:** I'm the victim of this misinformation, and I feel really angry. Nobody is spreading the truth, and there's no justice. People are sharing fake things about me that never happened. I didn't kick any puppy—that was AI.

Second Role-Playing (Reverse Role-Playing)

- **Victim:** I would never post photos of myself anymore, because people could use AI to manipulate them.
- **Disinformation:** I would care more about the victim. I wouldn't try to attack people anymore. Next time, I would try to find the truth and share that instead.
- **Influencer:** I would realize that clout is not as important as real friendships and telling the

truth. I wouldn't spread misinformation anymore or ruin someone's life just for attention.

- **Sharer:** I would tell my friend to delete it. I'd say, "That's not okay—you shouldn't make images like that." I wouldn't share it, because if it got out, it could really hurt someone.
- **Producer:** I wouldn't create it in the first place. Even if I did, I would just keep it to myself and not share it with anyone.

Group 4 — Topic: AI Deepfake and Harmful Rumor Scenario

First Role-Playing

- **Producer:** I created a deepfake image of my friend because I wanted attention and thought it would be funny. I felt excited and didn't realize it could cause harm.
- **Influencer:** I saw the image and felt angry about what I believed the person did, so I shared it to spread awareness and get justice.
- **Disinformation:** I knew the information was not true, but I still shared it because I disliked the person and wanted to bring them down. It felt exciting to spread it.
- **Victim:** I was targeted by the misinformation and was attacked by others. It was very harmful, and I felt hurt and helpless.

Second Role-Playing (Reverse Role-Playing)

- **Victim:** I would speak up and tell others that the information is false. I would try to help others understand the truth and respond with forgiveness instead of anger.
- **Disinformation:** I might still feel tempted to spread it because of personal dislike, but I recognize that it causes harm and should not be done.
- **Influencer:** I would be more careful and verify the situation before trying to "seek justice" by sharing information online.
- **Producer:** I would not create the deepfake. I didn't understand the long-term consequences,

and now I would avoid doing something that could harm others.

Group 5 — Topic: Breakup Rumor

First Role-Playing

- **Producer:** I'm the misinformation producer, and I misspoke when I was telling people about the situation. I didn't explain it clearly.
- **Sharer:** I'm the misinformation sharer, and I shared the rumor.
- **Influencer:** I'm the misinformation influencer, and I shared the rumor with a much larger group of people. I was excited, and I didn't really think about whether it was true.
- **Disinformation:** I'm the disinformation producer, and I told the victim's friends right away because I wanted attention.
- **Victim:** I'm the misinformation victim, and I was hurt by the rumor that was going around about me.

Second Role-Playing (Reverse Role-Playing)

- **Victim:** I'm the victim, and I would have handled things better after the breakup.
- **Disinformation:** As the disinformation producer, I wouldn't immediately tell all of the victim's friends.
- **Influencer:** As the influencer, I probably wouldn't share it at all, or at least not to a large group.
- **Sharer:** As the sharer, I would try to understand the truth, especially if the situation felt unclear.
- **Producer:** As the producer, I would speak more clearly and directly to avoid misunderstanding.

Group 6 — Topic: Deepfake Popularity Rumor

First Role-Playing

- **Producer:** I'm the misinformation producer. I felt happy because I unintentionally created a harmful deepfake image. I did it for popularity, thinking it would make my friends laugh.
- **Sharer/Influencer:** I'm the misinformation sharer. I thought the image was funny, so I put it in the group chat, expecting everyone would enjoy it.
- **Disinformation:** I'm the disinformation producer. I targeted Subtarshian because I was angry, and I intentionally created deepfake images to harm him.
- **Victim:** I'm the misinformation victim. I feel very sad because of the misinformation about me. I feel almost hopeless, and it is affecting my reputation a lot.

Second Role-Playing (Reverse Role-Playing)

- **Victim:** Even after everything that happened, I would forgive everyone, because I understand it started as a mistake.
- **Disinformation:** Knowing the consequences, I would not create the deepfake image, because it would harm this person's reputation.
- **Sharer/Influencer:** Knowing how easily this could spread beyond the group chat and harm the victim, I would not share it. I would also tell the producer not to create or use the image.
- **Producer:** Now that I understand how it affected the victim, I would never create that image. I realize the impact it had on his life.

Group 7 — Topic: Car Theft Deepfake Rumor

First Role-Playing

- **Producer:** I unintentionally created a deepfake image of Britta stealing a car because I thought it was fun. It felt exciting at the time.

- **Sharer:** I honestly didn't care. I thought it was really funny, so I wanted to share it with everyone. I was like, "I need to show this to my friends—it's going to be hilarious."
- **Influencer:** I'm the influencer, and I shared it because it made me angry. I thought people shouldn't be stealing cars, so I used my platform to spread it and call it out.
- **Disinformation:** I shared it intentionally, even though I knew it was fake, because I hate Britta. I wanted to attack her and make other people hate her too. I thought it was great.
- **Victim:** I was really scared. I thought I might lose my friends if they believed it. I was worried people would think I actually stole a car and start avoiding me. I was also scared about my future, like what if teachers or even the police believed it?

Second Role-Playing (Reverse Role-Playing)

- **Victim:** I would try to explain to everyone that this is AI-generated misinformation. I would help people understand how these images are created so that if something like this happens again, they won't believe it right away.
- **Disinformation:** I still wouldn't like the victim, but instead of spreading the information, I would keep it to myself.
- **Influencer:** I probably wouldn't use my platform to spread it. I might still feel annoyed, but I would keep it to myself instead of sharing it.
- **Sharer:** I didn't really think when I shared it before, but now I would stop and realize it's not a good idea. Even if I think it's funny, I wouldn't send it to all my friends.
- **Producer:** Even knowing the consequences, I might still go further because I think it's funny. I understand that it hurts Britta, but I feel like I'm doing it for entertainment, so I might not change my behavior.

Group 8 — Topic: AI-Generated Rumor and Opinion Sharing

First Role-Playing

- **Producer:** I created a post without really thinking about the consequences. I just wanted to share my thoughts and opinions, and I didn't realize it could turn into misinformation or harm someone.
- **Sharer/Influencer:** I saw the post and thought it was interesting, so I shared it with my friends. I didn't really think about whether it was true or not—I just wanted to pass it along.
- **Disinformation:** I knew the information might not be true, but I still shared it because I wanted attention and engagement from others.
- **Victim:** I felt confused, hurt, and helpless. I didn't understand why people were sharing things about me that weren't true, and it affected how others saw me.

Second Role-Playing (Reverse Role-Playing)

- **Victim:** I would try to understand the situation and not immediately react to others' opinions. I would also try to stand up for myself and explain the truth.
- **Disinformation:** Knowing the consequences, I would not share information that I know is false. I would keep it to myself instead.
- **Sharer/Influencer:** I would not spread information just because it gets attention. I would think more carefully about how it affects others before sharing it.
- **Producer:** I would be more careful about what I say and share. If I am unsure, I would keep it to myself instead of posting it.

Group 9 — Topic: Party Cancellation Rumor

First Role-Playing

- **Producer:** I started the rumor that the party was canceled. I shared that information without really thinking about how it would affect anyone else.
- **Sharer:** I heard that the party was canceled, so I passed that information along to other people. I did not stop to check whether it was actually true.
- **Influencer:** I posted about the party being canceled to a larger group of people. I liked the attention, and I wanted people to notice what I was saying.
- **Disinformation:** I spread the rumor intentionally because I was jealous of her. I wanted her to miss the party, and I wanted people to focus on her in a negative way.
- **Victim:** I believed the party was canceled, so I did not go. Later, I found out that everyone else went, and I felt left out, hurt, and embarrassed.

Second Role-Playing (Reverse Role-Playing)

- **Victim:** Next time, I would check more carefully to make sure the information is true. I would also ask other people directly instead of relying on one post.
- **Disinformation:** Knowing the consequences, I would not spread the rumor just because I was jealous. I would deal with my feelings instead of trying to hurt someone else.
- **Influencer:** I would not post it for attention. I need to think more about the victim's feelings instead of focusing on followers or popularity.
- **Sharer:** I would not pass the information along without checking it first. If I was not sure, I would keep it to myself.
- **Producer:** I would think more carefully before saying something like that. I would consider how the victim might feel and make sure I am not causing harm.

Group 10 — Topic: Anna Stalking Rumor

First Role-Playing

- **Producer:** I started the rumor by saying that Anna stalked an actor and camped outside his mansion. I made it up as a dramatic story and did not think about the consequences.
- **Sharer:** I heard the rumor and shared it because I thought it was interesting and wanted other people to hear it too.
- **Influencer:** I turned the rumor into a bigger story online because I wanted attention and thought it would get a lot of views.
- **Disinformation:** I intentionally made the rumor more extreme by adding fake details, like Anna tracking down the actor's family, hiding outside his house, and getting arrested. I wanted to make the story more shocking.
- **Victim:** I felt angry and overwhelmed because none of that was true. It was upsetting to hear people spreading such a ridiculous and harmful story about me.

Second Role-Playing (Reverse Role-Playing)

- **Victim:** I would tell people clearly that the rumor was fake and defend myself.
- **Disinformation:** I would not add fake details or make the story worse on purpose.
- **Influencer:** I would not spread it for clout. I would tell people the story was false instead.
- **Sharer:** I would stop sharing the rumor once I knew it was not true.
- **Producer:** I would not create the rumor in the first place and would avoid gossiping about people.

Group 11 — Topic: School Rumor

First Role-Playing

- **Producer:** I started a rumor about someone at school. I did it without really thinking about the consequences, and at the time it seemed funny.
- **Sharer:** I shared the rumor because I thought people already knew it was fake, so I assumed it was harmless and funny.
- **Influencer:** I posted the rumor on social media for attention and money. I also thought it was embarrassing for the other person, which made me want to share it more.
- **Disinformation:** I intentionally spread false information because I was jealous. That jealousy made me feel excited, and I wanted to make the story bigger.
- **Victim:** I felt angry because the rumor was harmful to my reputation.

Second Role-Playing (Reverse Role-Playing)

- **Victim:** I would speak up and make it clear that the rumor was not true, because it was harmful and unfair.
- **Disinformation:** Knowing the consequences, I would not spread false information out of jealousy.
- **Influencer:** I would not post something just for my own benefit, attention, or money.
- **Sharer:** I would not share something just because I thought it was funny. I would check first and think about the harm it could cause.
- **Producer:** I would think before I speak and reflect on my emotions before starting a rumor.

Group 12 — Topic: AI Image Shared for Fun

First Role-Playing

- **Producer:** I made the image because I saw the software and wanted to try it. My motivation was curiosity and fun, and I felt excited about using the AI tool.
- **Sharer/Influencer:** I saw the image and did not want to miss out on the fun, so I shared it in the group chat. I felt happy and excited, and I helped spread it further.
- **Disinformation:** I felt angry and jealous, so I wanted to use the image to harm someone. I intentionally spread it further because I wanted to attack that person.
- **Victim:** I was the victim of the misinformation, and it was harmful. It affected how other people saw me and made me feel hurt.

Second Role-Playing (Reverse Role-Playing)

- **Victim:** Knowing the consequences, I would try to forgive others, but I would also speak up and protect myself from the harm caused by the misinformation.
- **Disinformation:** I would not create or spread harmful AI images in the future, even if I felt angry or jealous.
- **Sharer/Influencer:** I would not share the photo online because I know how easily it could spread and harm someone.
- **Producer:** I would not produce the same kind of misinformation again, even if I was curious about the AI tool.

Group 13 — Topic: Fake School Announcement (Snow Day)

First Role-Playing

- **Producer:** I saw an announcement that tomorrow might be a snow day, and I thought it was real. I felt excited and shared it because I believed we wouldn't have school.

- **Sharer/Influencer:** I saw the announcement and got really excited. I thought, “No school tomorrow!” so I shared it with others without checking if it was true.
- **Disinformation:** I actually knew the announcement was fake, but I still spread it because I thought it was funny to see people believe it and skip school.
- **Victim:** I believed the announcement and didn’t go to school. Later, I realized it was fake, and I felt angry and regretful because I got in trouble.

Second Role-Playing (Reverse Role-Playing)

- **Victim:** Knowing the consequences, I would double-check the announcement before trusting it, instead of assuming it was true.
- **Disinformation:** Even if I thought it was funny, I would not spread false information on purpose because it can seriously affect others.
- **Sharer/Influencer:** I would not share the announcement immediately. I would check if it is real before sending it to others.
- **Producer:** I would make sure the information is accurate before posting anything, even if it seems harmless or exciting.

F.3. Teenagers' Messages from Debriefing Activity

Participant	Message
T1	Please STOP watching short form videos on the daily, it can greatly damage memory and recognition.
T2	Don't say things about other people if you don't know if it's true
T3	Don't believe everything you see/hear on the internet
T4	Be responsible for what you do on the internet + know the consequences of your actions
T5	Check multiple sources, don't be dumb
T6	Make sure you can trust your friends and that you are all chill with each other. Having douchebag friends sucks butt.
T7	Check the source. Double check if the idea is crazy. Triple check if it's actually insane. Maybe even a quadruple check if yes?
T8	Run all pictures and videos through an AI checker before believing it's real or positng about it
T9	Check validity of stuff you hear or see before sharing it amongst others
T10	Think about the impacts your actions have on the people around you and don't share images of other people without permission
T11	Fact check information and make sure it's actually true before telling someone else
T12	I would tell them to not trust everything they see. I would tell them to think before posting and consider how their actions might affect other people.
T13	Don't spread information about someone online unless you know it's true.
T14	Sharing private information can be dangerous so you should think before you send.
T15	Think about your actions, even if it was meant as a joke your actions could affect others negatively
T16	Be sure to look up everything you are even mildly skeptical about
T17	It doesn't matter what story of thing is online, it matters that if it's complex, then the story isn't what it is.
T18	Things on the intenret can last way longer and have way bigger effects than you realize. Before you post something, you should think about the effects it'll have on other people.
T19	Use your words with care and don't share others' personal info without consent or at all. It's not your information to share
T20	I think fact checking is very imporatannt in this day and age with disinformation spread on purpose.

Participant	Message
T21	Words often get mixed up and warped easily so be careful who you choose to trust with harmful info.
T22	Speak clearly and think of misunderstandings before they come about.
T23	If you hear a rumor and you don't know if it's true or not, don't spread it further.
T24	Don't create lies
T25	Much like thinking before you speak, think before you post. Your actions have big consequences and once it's online it's there forever.
T26	Make sure that you are talking to the person that you are making misinformation about for consent or do research first
T27	Don't get wrapped up in the "fun" of things like AI, because they can have consequences and it can show your character as an untrustworthy person.
T28	Just cause its funny and obvious to you does not mean you will not fall for it, be mindful
T29	Think about everyone before you post. People have different reactions and boundaries
T30	Doubt information before you get concrete evidence (Something more than a single picture or one person's view)
T31	Always question things that you aren't 100% certain on.
T32	Always don't trust the info unless you know them in person or know for sure that they are trustworthy through other people.
T33	Don't be dumb
T34	Think about it. Is it true/false. Is it safe/harmful. Is it helpful/worse. Is it right/wrong. Is it good/bad.
T35	If you produced some misinformation unintentionally, just keep it for yourself, don't share or show it to anyone else.
T36	Even if you think you are right, and you trust the other, always keep things to yourself. Sharing opinions will always face someone who opposes to it. If you keep it to yourself no conflict will occur. So, keep it to yourself.
T37	Do not share information if you know that it's not true.
T38	Don't hangout with people who make you a victim and don't spread rumors you don't know is true
T39	Only spread the info if you know for 100% that it's true
T40	Never make a assumption if you saw real situation

Participant	Message
T41	Don't spread rumors before knowing if the information or story are true and confirmed. (Anna would do this)
T42	I would not gossip.
T43	To the middle schoolers—don't trust everything that people say, misinformation can be formed from the wrong motivations.
T44	Don't trust everything online! Check out a reliable source you can find.
T45	Validate your sources/have a bit of doubt on others' words
T46	AI is NOT your friend
T47	Don't believe everything you see online and ask trusted adults if you are unsure.
T48	One piece of advice I'd give is to not trust everything blindly. Always verify your information before spreading it.
T49	If you see misinformation, make sure not to send it to friends without telling them it's false. Always ensure people are aware of the truthfulness of information
T50	Research before you share anything and post/repost responsibly about news, especially political or social issues!! Try to fact check by looking at comments and Google.
T51	Don't let your emotions control you because that'll lead to faster spread of misinfo and you'll probably make it worse
T52	Be careful who you share things to also you should check the victim beforehand.
T53	Misinformation can spiral and share very quickly since it is usually shocking. Be careful when you are sharing sketchy posts with people.
T54	Think & Analyze for a little before sharing or believing.
T55	Misinformation can be harmful to everyone in valued & it can spread very quickly. You shouldn't create it or spread it as once you do, you can't undo it.
T56	Reflect on emotions and acknowledge what I feel so I know what/how to act like.
T57	Think before you act
T58	Check info before spreading it around
T59	Be sure to think of others too, rather than just yourself.

APPENDIX G

VISUAL REFLECTION RESULTS

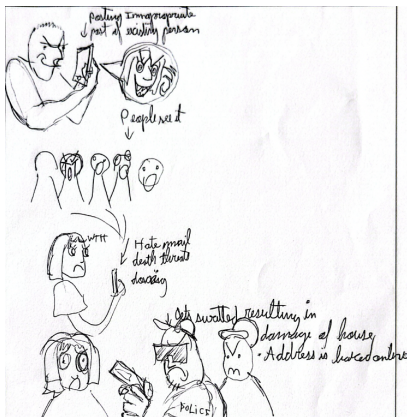
G.1. Visual Reflection Samples



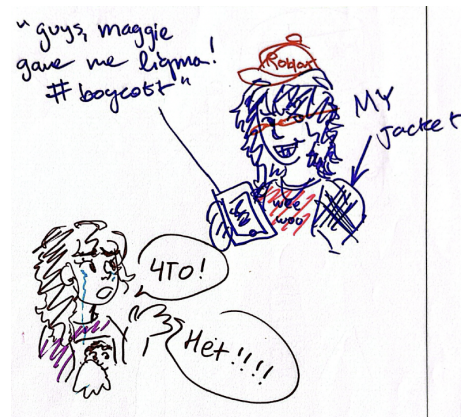
Maggie spreads misinformation about me to our school on instagram — T1



An account from our school posted a video where they give someone a dollar to look through their phone, and it got 1.5 million views — T2



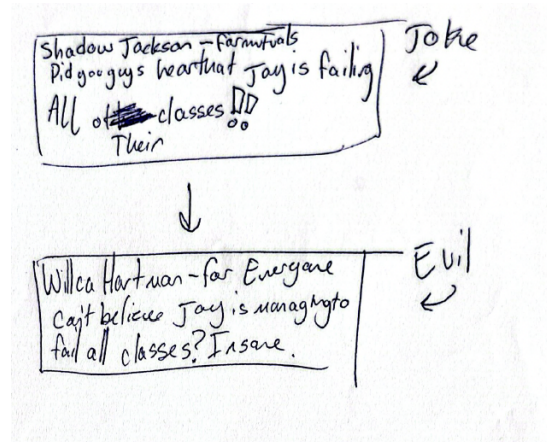
1. Person posts misleading post of existing person
2. Shared to millions of people
3. Person receives hate mail and death threats, leading to her getting doxxed and her address is leaked
4. She tries to clarify it was false but it is overshadowed by the people who saw the video
5. She gets police called on her address and has to move out because of harassment — T3



[Name Redacted] spreading misinfo that could tarnish my reputation — T4



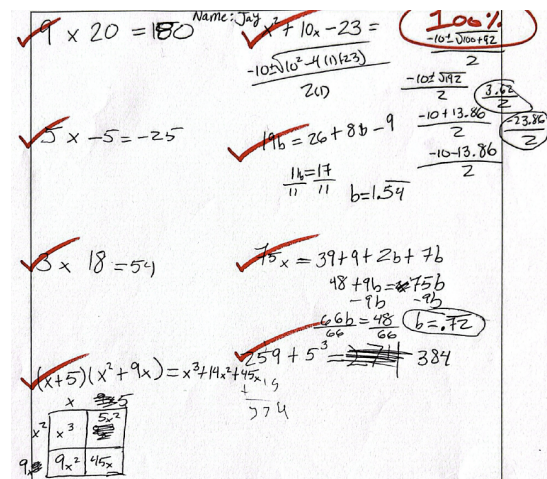
JustOmegaTTV has sworn to never play Wynnecraft so me putting them in the player list is fake. — T5



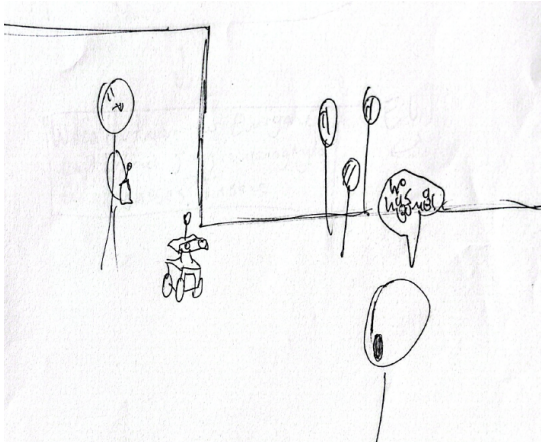
Shadow makes a joke about Jay—which Willca then takes out and posts it in earnest—as if [Name Redacted] was actually failing all of their classes. — T6



self explanatory — T7



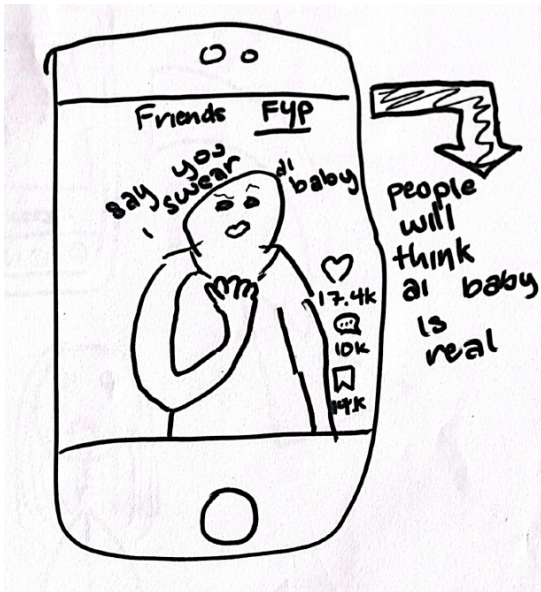
[Name Redacted] would never get 100% on math, so it's misinformation — T8



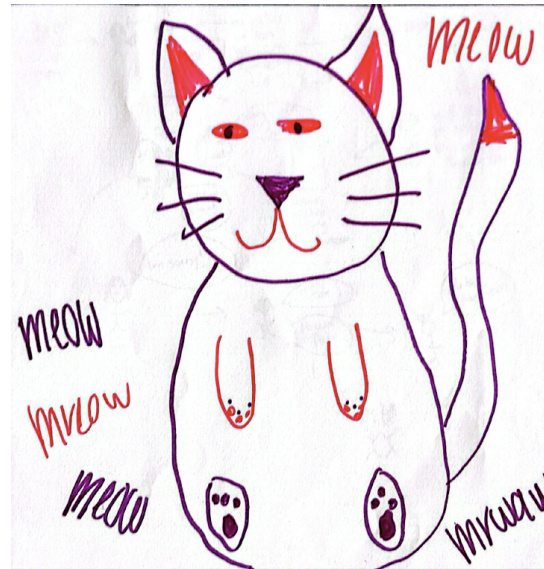
I come to school with a robot, guy man calls it a bomb
other people believe him — T9



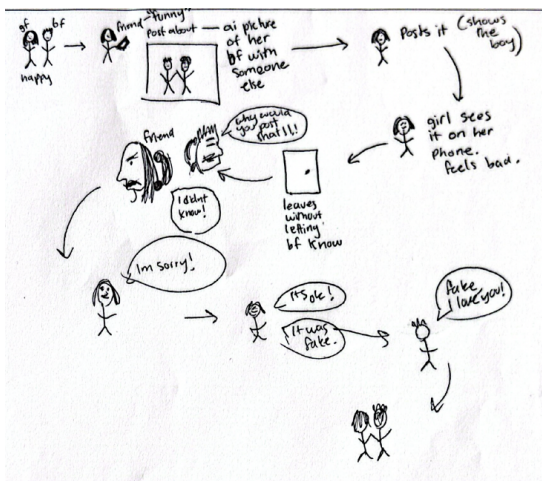
Girl gets bullied on Instagram with AI photo — T10



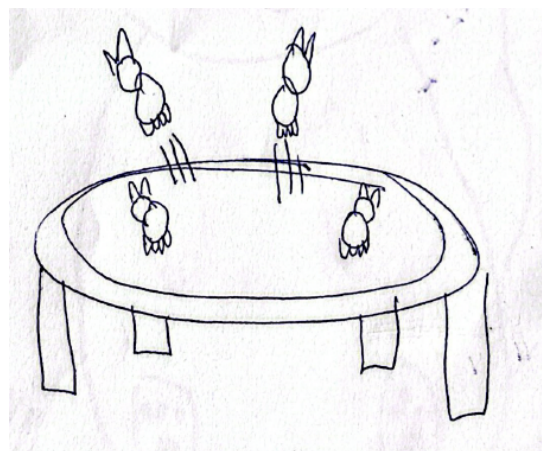
AI baby gets posted causing people to think that he is
real and can talk — T11



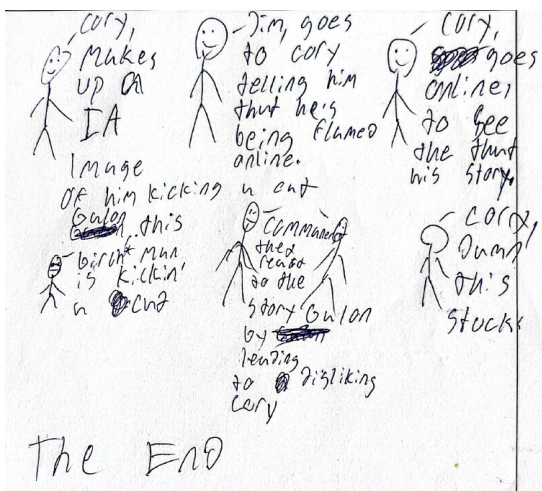
I see a cat breed on my phone but its actually pink and
I got excited however it was AI and I got sad — T12



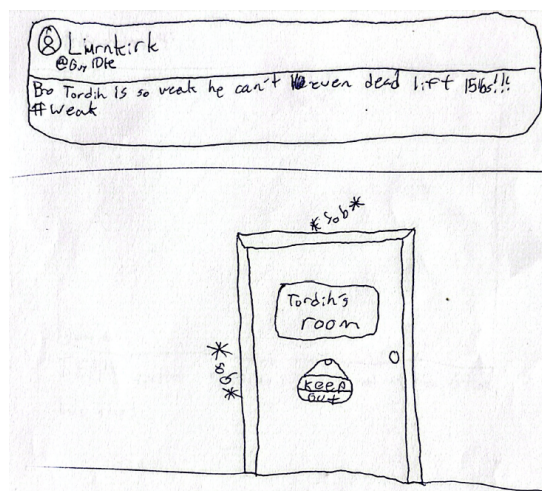
A happy couple, their friend posts an AI picture of him cheating on her, the girlfriend sees it and feels sad, leaves without telling them, they talk it out, say sorry, the friend realized the effects of her actions. They all realize it was a misunderstanding and was fake. They are good and happy again. — T13



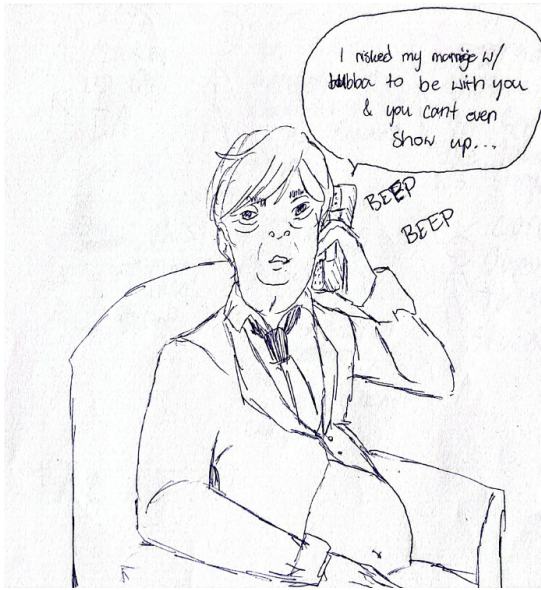
AI video of bunnies is posted and people can't tell if it's real or not and don't know whether to believe it or not — T14



[Name Redacted] makes a AI picture that ends up hurting him — T15



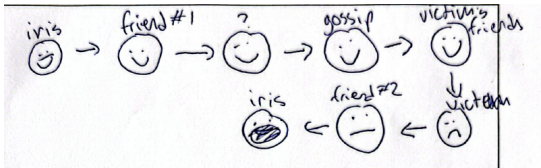
[Name Redacted] shares a fact about [Name Redacted] that makes him sad because it was private info — T16



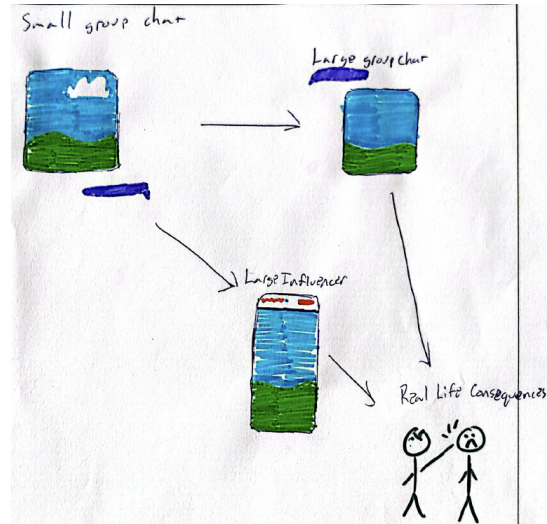
Trump calls gangsta Galen about being late to the delivery room — T17



Someone creates an AI video of [Name Redacted] stealing an old lady's seat at the bus stop, causing him to get fired from his job cooking burgers. — T18

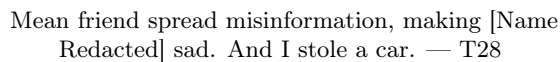
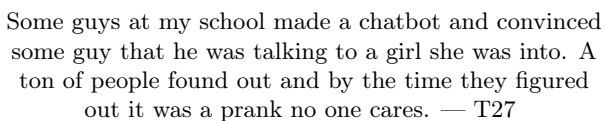
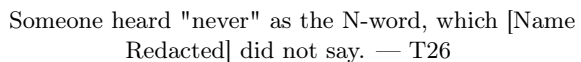
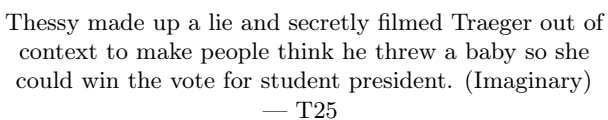


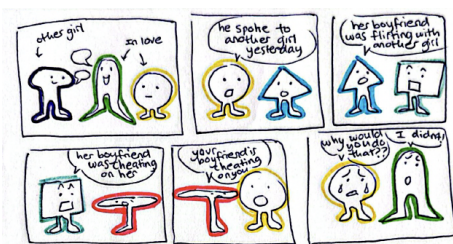
Misinformation spreading — T19



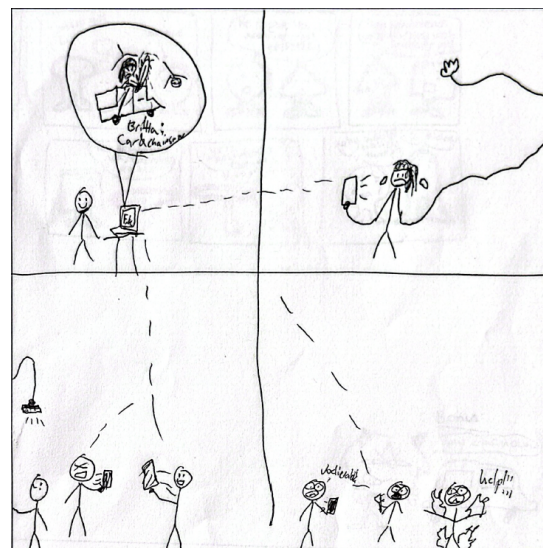
Misinformation shared in small group chats spreads to larger group chats and has real life consequences. —

T20





Everyone reacts differently and some people get so wrapped up in it they don't even see people around them struggling — T29



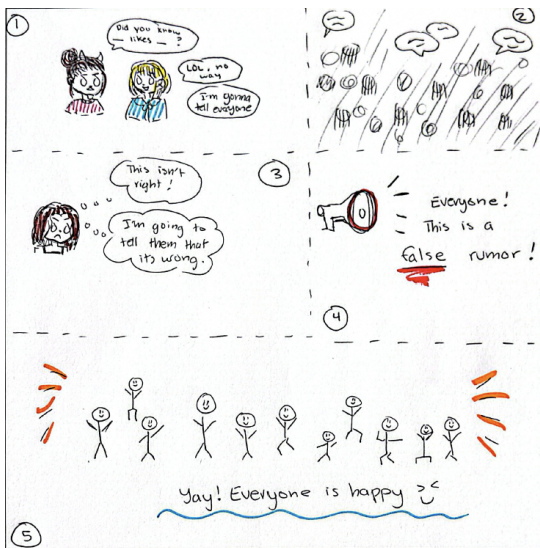
A young impressionable boy falling for an AI cat video — T30



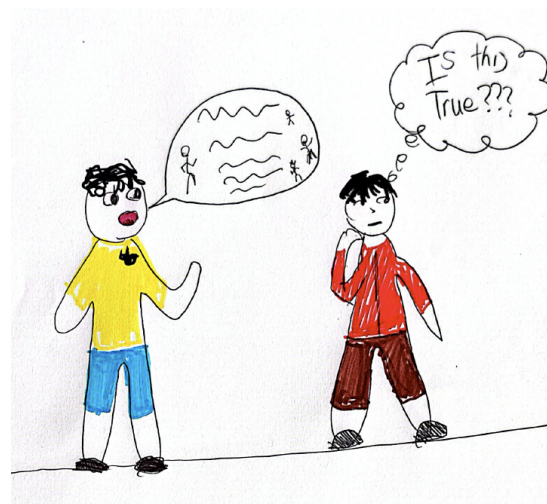
Person posts deepfake of Britta driving a stolen car, Britta's friend sees it and blames Britta, Britta (clueless) is taken of her friendship (Imaginary) — T31



Comic about misinformation spreading (actually happened) Bonus: [Name Redacted] steals car — T32



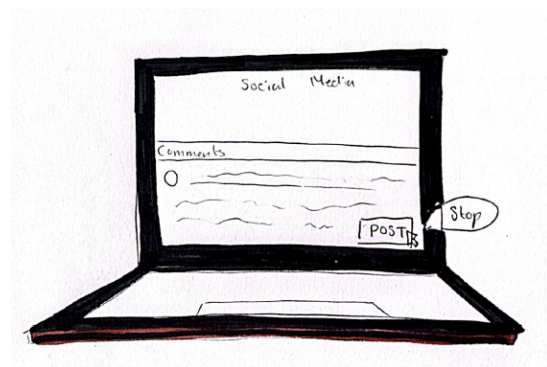
One person spreads a rumor (__ likes __) out of jealousy and the rumor spreads to the whole school. However, one person decides it is not right and clears up the rumor. — T33



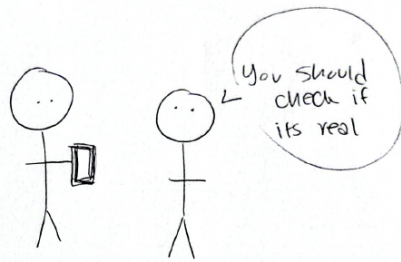
I learned to always double check others spread of information — T34



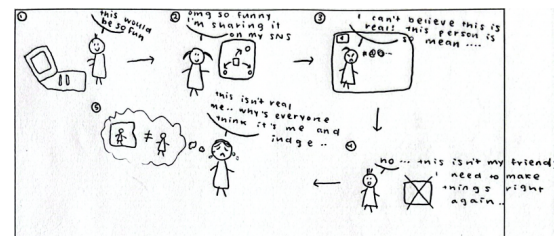
I drew a scenario of 2 girls spreading rumors about a girl who did really good on a tough test, in which she's being called a cheater. I had the long hair girl stand up by discussing with them a bit deeper. Allowing them to think about their actions and allowing them to understand the consequences of the girl who just did really well. — T35



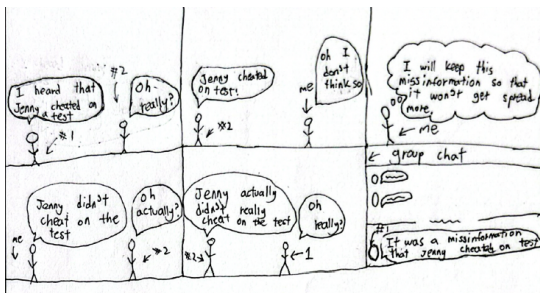
If you have something bad to say (especially online/can be spread to the public) don't post it. — T36



Tell people to not believe everything that they're being told — T37



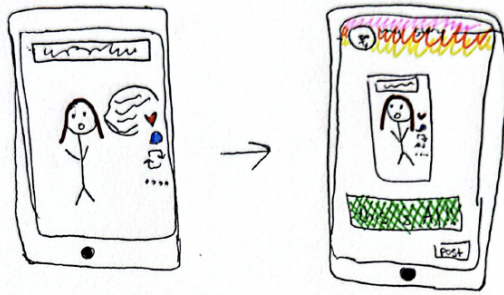
1. The person producing the misinformation
2. Another person who sees it shares it online because he/she thinks it's fun to do it.
3. The influencers sees the misinformation and shares his opinion.
4. Person who doesn't believe in the thing tries to make things right.
5. The victim feels confused and sad because it's not the fact, but the people are just judging the person just by looking at the photo/video. It leads to the consequences, which is unfair. — T38



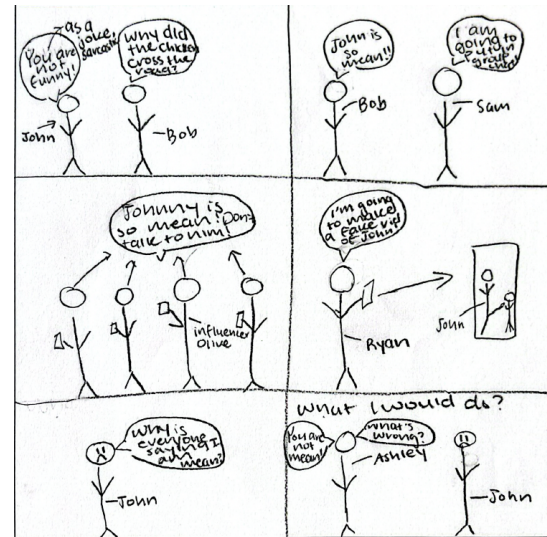
Person who started to spread misinformation and one of the victim's friend hears it and tells that them it's not true, then person who shared the misinformation notices that it is not true, and that person takes responsibility and tells everyone the truth. — T39



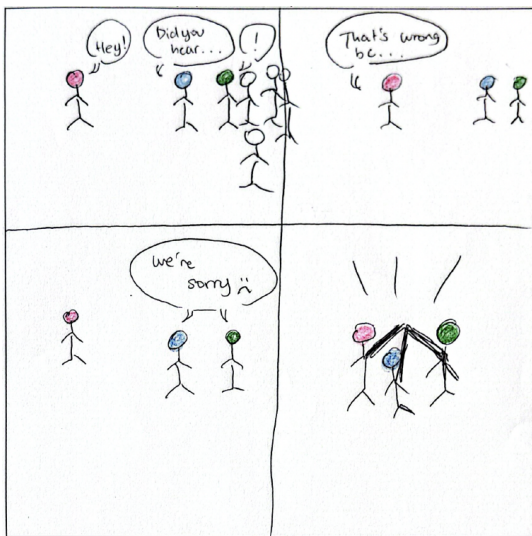
[No written reflection provided] — T40



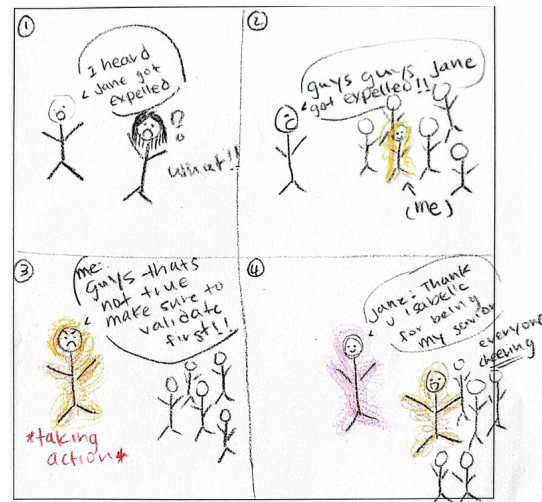
Someone sees an AI video and informs people it is false through their story. It is easy and quick and reaches a lot more people faster. — T41



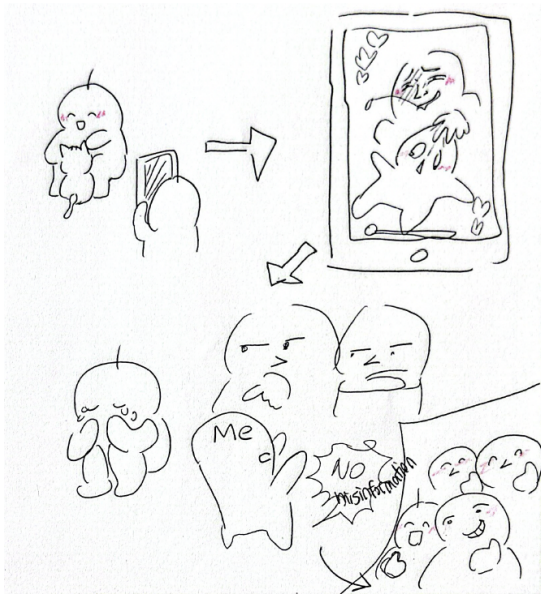
John (being sarcastic in a conversation) says Bob is not funny. Then Bob says to Sam that John is mean and this info spreads. Ryan makes a fake vid of John and John is sad. I would talk to John and ask him what's wrong? — T42



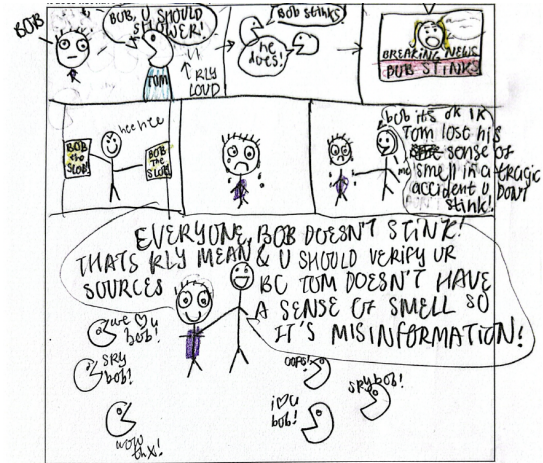
Someone is gossiping and telling that to multiple people, and I am saying that they shouldn't. — T43



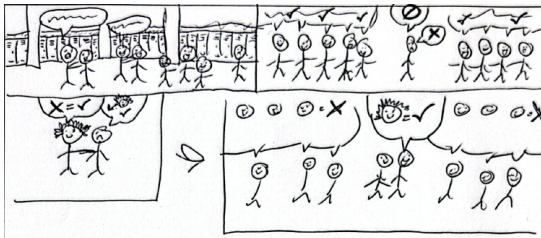
Some gossiped about [Name Redacted] being expelled to many people but I made sure to correct them by saying to validate and now everyone happy! — T44



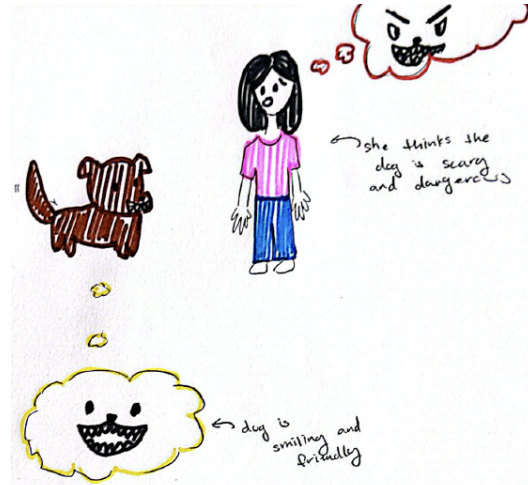
Somebody took a photo about a student petting a cat, and he changed into a picture about bullying. If I see this kind of situation, I would tell the students who took misinformation not to do it and encourage the victim. — T45



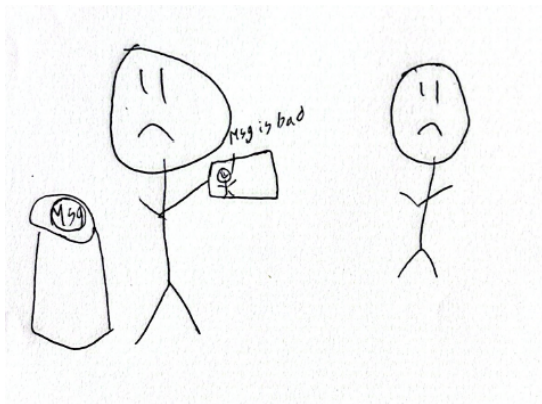
- Bob, you should shower! (really loud) - Bob stinks! He does! - Breaking News: Bob Stinks - Me: Bob it's ok I know Tom lost his sense of smell in a tragic accident, you don't stink! - Everyone, Bob doesn't stink! That's really mean and you should verify your sources because Tom doesn't have a sense of smell so it's misinformation! [Imaginary] — T46



A rumor is being spread, and then I came to help the victim. Then people stop believing the rumor and everyone is happy — T47



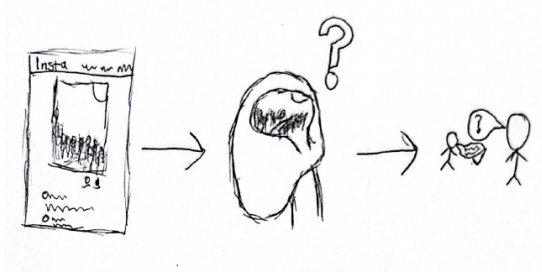
The dog is smiling with his teeth. The girl views it as dangerous (thinks the dog will bite). Spreads false information that the dog is dangerous even though it is friendly. — T48



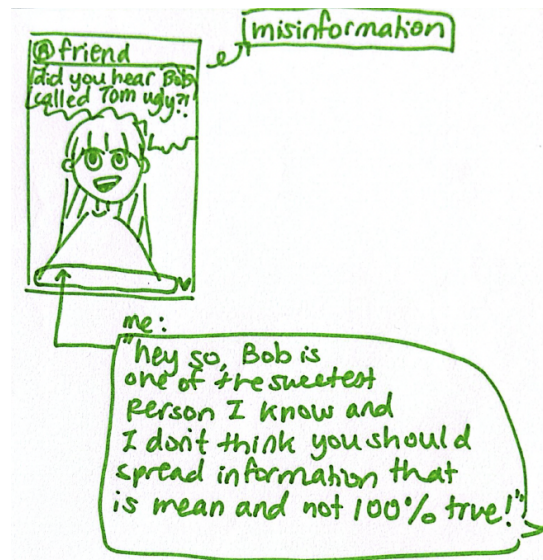
Some internet theorist theorized that MSG is bad, making poor, innocent civilians have to give up MSG — T49



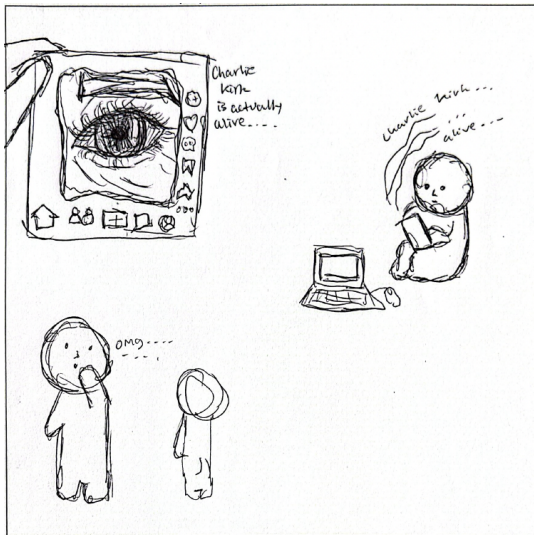
Someone post "A" being a bad person. I help A find the poster and tries to stop him but ignores. SO I and "A" asks the staff and adults the situation and they stop the jester and take down the tweet = ending — T50



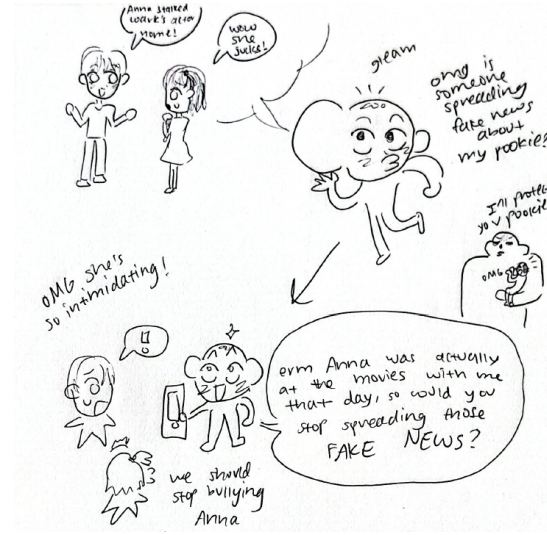
You find stuff on Instagram that can be fake, you question if it is fake or not, then ask someone who actually knows the topic. — T51



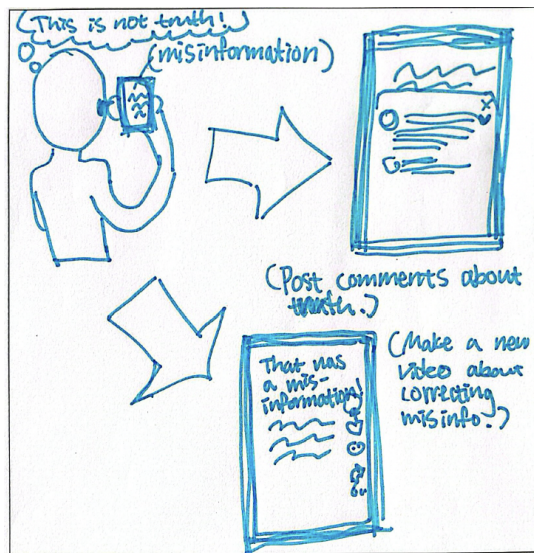
A person I know is spreading false info about a person and you do your part is discouraging the spread of misinformation that could hurt someone. — T53



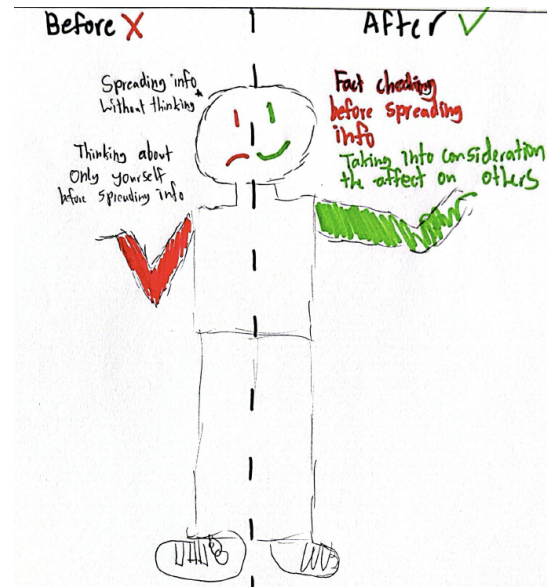
Charlie kirk is actually alive... Omg... — T54



[No written reflection provided] — T55



This is not truth! (Misinformation) (Post comments about truth.) That was a mis-information! (Make a new video about correcting misinfo?) — T57



Before: Spreading info without thinking, thinking about only yourself before spreading info. After: Fact checking before spreading info, taking into consideration the effect on others — T58



The top is what not to do when you are not sure about information. The bottom is what you should do when you hear information you don't know is true or false.

— T59

APPENDIX H

TEENAGERS' INTERPRETATIONS OF CASEL

CASEL Competency	Teenagers' Everyday Language	Teenagers' Examples (Phase II)
Self-awareness	Noticing your own feeling and reactions; Knowing what I am doing, why I am doing it, and how my actions may affect others.	• “Self-awareness is when you’re aware of yourself... you can be aware of what your actions are doing” (T7, Session 2, FGI). • “Our generation doesn’t know how to be aware. They don’t know how to be unironic about who they are as a person” (T5, Session 2, FGI). • “If you have self-awareness and self-management first, I don’t think it would be a bigger problem than everything else, because after you have self-awareness and management, everything else kind of comes after that” (T15, Session 4, FGI). • “If you don’t have self-awareness in situations, you can’t make responsible decisions” (T38, Session 9, FGI).
Self-management	Not letting emotions control me; Pausing before posting, checking my impulse, and not letting emotion decide what I share.	• “Don’t let your emotions control you because that’ll lead to faster spread of misinfo” (T51, Session 11, CM). • “Think before I speak, maybe” (T8, Session 2, FGI). • “A lot of like thinking before you share, like being more skeptical or whatnot” (T53, Session 12, FGI). • “Think before you post. Your actions have big consequences and once it’s online it’s there forever” (T25, Session 6, CM).

Social awareness	Remembering that people online have real feelings, real lives, and can be hurt by misinformation. ; thinking about the victim.	• “emaphy is it’s forgiveness. We are all make mistakes” (T26, Session 6, FGI). • “empathy is like putting yourself into other people’s shoes... before sharing this information, like thinking about it and being like, how would this victim feel?” (T27, Session 6, FGI). • “People are so disconnected from what they see that they disconnect themselves from the humanities aspect of it. I kind of feel like we all forget there were, like, people online, too” (T8, Session 2, FGI). • “I think it’s social awareness, like actually caring about other people and like thinking what other people feel... That doesn’t mean everyone will find it funny” (T48, Session 11, FGI). • “Understanding where other people are coming from. Like, even if their actions confuse us or make us mad, it’s to understand that they’re just people” (T36, Session 8, FGI).
Relationship skills	Protecting friends, communicating with care; Using trust, care, and communication to help friends make better choices online.	• “If it’s my close friend, I wouldn’t, like, completely block them out. I’ll just like leave them, oh yeah, that’s probably not true” (T35, Session 8, FGI). • “Yeah, because it’s like someone I know, like, they’ll listen to me” (T48, Session 11, FGI). • “If it’s a stranger, I wouldn’t do anything about it, but if it’s like a friend, maybe I would say something about it” (T14, Session 3, FGI). • “Use your words with care and don’t share others’ personal info without consent or at all. It’s not your information to share” (T19, Session 5, CM).

**Responsible
decision-
making**

Thinking about my impact; Making choices online that do not hurt others, spread rumors, or create long-term consequences.

- “Think about the impacts your actions have on the people around you and don’t share images of other people without permission” (T10, Session 3, CM).
 - “The others build into responsible decision-making. Like, all of them kind of culminate in that” (T38, Session 9, FGI).
 - “One small decision can change the other person’s life” (T11, Session 3, FGI).
 - “Be responsible for what you do on the internet + know the consequences of your actions” (T4, Session 1, CM).
-

CURRICULUM VITAE

Yeonhee (Johnny) Cho

Allen Library, University of Washington, Seattle, WA 98195

yhcho@uw.edu

Education

- Ph.D. in Information Science, University of Washington, 2026
- M.S.Ed. in Learning, Science and Technology, University of Pennsylvania, 2018 Master Paper: AR-based Learning in Science Education
- M.A. in Media Studies, Syracuse University, 2017 Thesis: VR and Memory Retention in Language Learning
- B.S. in Media and Communication Technology, Michigan State University, 2011

Research Interests

- Misinformation Education
- Social and Emotional Learning (SEL)
- Media and Information Literacy
- Game-based learning
- Participatory Design
- Human-Computer Interaction

Research Experience

- Research Assistant, UW Gamer Group (2021–2022): esports, youth well-being, misinformation game design
- Virtual Reality Developer, Syracuse University (2016–2017): mixed-reality research, Unity development
- Psychophysiological Research Assistant (2016): HR, EDA, eye-tracking, BIOPAC
- Lab Researcher, M.I.N.D. Lab (2015–2017): experimental setup and support

Teaching Experience

- Pre-doctoral Instructor, INFO 360 (Design Methods), UW (2026)
- Pre-doctoral Instructor, INFO 300 (Research Methods), UW (2025)
- Pre-doctoral Instructor, INFO 547 (Design Methods for Librarianship), UW (2024)
- Instructor, NJIT (Digital Design Studio II; History of Games)
- Teaching Assistant, University of Washington (2019–2025) Courses include Design Methods, Research Methods, Capstone, Information Systems

Work Experience

- UX Researcher Intern, Indeed (2022)
- Education Intern, Franklin Institute (2017–2018)
- HR Associate, SK (2012–2014)

Refereed Publications

- Cho, Y., Daeun, Ally, Yip, J. C., & Lee, J. H. *Becoming a Healthy Player: Exploring Teen Esports Players' Perspectives on Mental Well-Being through Participatory Design*. *Proc. ACM Hum.-Comput. Interact.* (CHI), <https://dl.acm.org/doi/full/10.1145/3772318.3791938>
- Cho, Y., Newman, M., Pitt, C., Yip, J. C., Lee, J. H. *You Are Tilted!: Leveraging Tabletop Gaming to Manage Tilt and Strengthen Team Dynamics in Esports*. *Proceedings of the ACM on Human-Computer Interaction*, 8(CHI PLAY), Article 351, 29 pages. <https://doi.org/10.1145/3677116>
- Cho, Y., Coward, C., Lackner, J., Windleharth, T. W., & Lee, J. H. *The Use of an Escape Room as an Immersive Learning Environment for Building Resilience to Misinformation*. *Journal of Librarianship and Information Science*. <https://doi.org/10.1177/09610006231208027>
- Lee, K. J., Na, S., Wang, H.-C., Park, H., Jo, M., Cho, Y., Jung, Y., Park, G., Lee, J. H., & Yip, J. *Conducting online participatory design ... cultural awareness*. *Behaviour & Information Technology*. <https://doi.org/10.1080/0144929X.2023.2272194>
- Cho, Y., Newman, M., Morris, L., Koughan, L. D., Yip, J., & Lee, J. H. *Gender Differences in Ethical Stances for Playing AR Games: The Case of Pokémon GO*. *DiGRA 2023*. <https://dl.digra.org/index.php/dl/article/view/1902>
- Lee, J. H., Yip, J., Moore, A., Cho, Y., de Jong, Z., Kobashigawa, R., & Sanchez, A. E. *Users' Perspectives on Ethical Issues ... Pokémon GO*. *International Journal of Human-Computer Interaction*, 39(2), 348–362. <https://doi.org/10.1080/10447318.2021.2012378>
- Cho, Y., Hsu, H. N., Zheng, Z., Trinh, E. E., Jang, H., & Cheng, Y. *Is Social VR an Effective Tool for Learning a Second Language?* *iLRN 2022*. <https://ieeexplore.ieee.org/abstract/document/9815924/>
- Kum-Biocca, H. H. J., Kim, H., Biocca, F., Cho, Y. *AR-VIS: Augmented Reality Interactive Visualization Environment for Exploring Dynamic Scientific Data*. *HCI International 2019 – Late Breaking Posters*, 374–380. https://doi.org/10.1007/978-3-030-30712-7_47

Conference Presentations

- *Perceptions of Misinformation Among Teenagers: A Qualitative Inquiry*. US–Korea Conference (UKC), Atlanta.
- *High School Students' Understanding and Response to Misinformation in the Age of AI*. UKC, San Francisco.
- *Experiential Journalism of Virtual Reality News*. BEA'20, Las Vegas (with S. Y. Ri)
- *How Spatial Presence in VR Affects Memory Retention and Motivation...* ICA'18, Prague. (Top Student Paper nomination; 44% acceptance)

Honors and Awards

- SSRC Data Fluencies Fellowship, 2024

- KSEA Scholarship, 2024
- Teaching Award Nominee, UW (2023, 2025)

Professional Membership ACM CHI; CHI PLAY; ICA; AERA; iLRN; KSEA

Professional Service and Mentoring

- Reviewer: Education and Information Technologies; iLRN
- Mentor: Korean-American Youth Scientist Program (2024); Lumiere Program(2023); Women in INFO Hackathon Mentor (2026)
- Guest Speaker: University of Oklahoma (XR in library and Museums)(2026); UW Esports Course (2021)

Media Recognition

- UW Promising Scholar (2025)
- UW iSchool featured research articles (2020–2022)

Volunteer and Community Service

- President, Bellevue Korean Soccer Team
- KSEA Youth Group President
- Korean Student Association President, Syracuse

Patents

- Virtual Reality for Kids (2018)
- VR Survey System (2017)

References

- Dr. Jin Ha Lee (UW)
- Dr. Jason Yip (UW)
- Chris Coward (UW)