Mechanics of Coaching

The past, present, and future of coaching in Washington's Quality Rating Improvement System (QRIS) - Early Achievers: System actors' perspectives and thoughts for next steps

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Abstract

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Chair of the Supervisory Committee:

Gail E. Joseph

In this study, a sequential exploratory design was applied to inquire about the ontological aspects of coaching and its role in the state of Washington early learning Quality Rating Improvement System (QRIS) - Early Achievers. Researchers in the past have demonstrated positive child level outcomes of instructional coaching and professional development for teachers on certain academic domains yet the link between coaching and QRIS systematic outcomes are still unclear. There is a need to operationalize the definition of coaching and its role in the QRIS system.

By conducting a descriptive analysis using a set of secondary data captured from the state Web-based Early Learning System (WELS) of 2,757 site records on coaching objectives followed by general inductive analysis of six interviews of Early Achievers implementation partners, several perspectives on how Early Achievers could reflect measuring success driven by coaching activities are presented in this paper.

The following research questions will be addressed in this study:

- RQ1: What is the overall state of the coaching workforce in the Washington State Early Learning system including the number of coaches, caseloads, and the characteristics?

- RQ2: What are the characteristics of coaching activities reported on the statewide

Web-based Early Learning System?

- RQ3: In what ways do the perspectives from Early Achievers partners explain the quantitative results reported on the statewide WELS database?
- RQ4: What are perspectives from QRIS implementation partners for improving the current system for supporting coaches?

Findings suggest the current caseload among Early Achievers coaches are significantly higher than results from other studies; types of coaching activities reported on statewide database varied across program type; perspectives from system actors reflected hopes for the upcoming revision of the WA QRIS, and more than ever, there's a need to build trust and sense of belonging among all stakeholders including families, practitioners, and implementation network partners that multiple coaching approaches are valued in the system.

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Land

As a scholar of the University of Washington, I acknowledge that we are sitting on Indigenous Land, which touches the shared waters of all tribes and bands within the Duwamish, Suquamish, Tulalip, and Muckleshoot Tribes.

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Dedication

To Hitomi Kariya

for providing unconditional love and support as my life partner and providing extraordinary support during the COVID-19 pandemic as a leading epidemiologist in Washington

To Ei-Hyung Hwangbo, Geun-Yeol Lee, and Ji-Young Park

for also providing unconditional love and support throughout my life

To Eun Hee (Silver) Denton, Mike Denton, and B.B. Denton

for accepting me as a family in Seattle

&

To Young-Hee Lee, my mom

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Preface

I decided to write my dissertation around coaching and early learning Quality Rating Improvement System (QRIS) not because I'm familiar with this topic, but to understand how and why coaching works from a certain program or a system via conducting a sequential explanatory approach. Researchers have demonstrated the positive impacts of evidence-based coaching in the early learning system in multiple ways. Yet, the sources of evidence lacked specific information on how those researchers attuned to the needs of early learning coaches and coachees. It seemed unclear that how an evidence-based coaching process is working as a change catalyst in the context of QRIS. There are many ways to quantitatively describe what is happening on a phenomenon yet what I really wanted to know is to listen to the needs of the system actors in the Washington QRIS - Early Achievers - especially from those who support the Early Achievers coaches. My approach may not be considered innovative nor projecting future outcomes in a systematic way, though I believe relating the matters of the current system to those in the field deemed much rewarding as a scholar. I hope the current study provides implications for next steps to actors across the system.

Introduction

Researchers in the early learning system have continuously shown that high quality early learning environments are associated with measurable gains in child-level developmental outcomes (Karoly, 2014; Lahti, Elicker, Zellman, & Fiene, 2015; Soderberg, Joseph, Stull, & Hassairi, 2016; Zelman & Fiene, 2012). It has become a crucial need in the state of Washington to address equitable access to high-quality care for children under five years old. Regulations from the Early Start Act (Washington State Department of Children, Youth, and Families, 2019) will be fully in place and effective by the end of the 2020-2021 school year, with stakeholders working towards providing high-quality access to 90% of all children eligible for pre-K participation in Washington.

The purpose of the current study is to examine factors associated with changes in the Washington state Quality Rating and Improvement System (QRIS) for projecting what can be improved with the current existing model of QRIS. I believe researchers have social responsibilities to inform actors in the system – including teachers, coaches, directors, administrators, policymakers, researchers, and families – to promote proactive data-driven decision making (DDDM) for sustaining and improving the statewide QRIS (Early Achievers) during this era of uncertainty magnified by the COVID-19 global health crisis.

In the past decade, actors in the state of Washington have prioritized efforts to understand and build consensus around a uniform QRIS service model. Researchers in the state initiated collaborative research-practice-policy partnerships to construct and implement a feasible childcare quality assessment model with community partners (Joseph, Feldman, Brennan, & Cerros, 2010). Since then, researchers have attempted to inquire into and explore different aspects of the Washington early learning system including the relationship between measures of childcare quality and children's developmental gain (Soderberg, 2014), factors associated with supporting teachers on working with English-Language Learners (Cummings, 2015), validation of a program quality assessment tool (Zeng, 2017) and a kindergarten

literacy assessment tool (Stull, 2015), a reflection of pre-service teachers' mathematics practices (Boyd, 2016), and features of early learning coaches communities of practice (Keller, 2017).

The pursuit of building high-quality childcare systems had to be revisited due to the scalability and feasibility of the system. Prior to the COVID-19 pandemic, Washington's Office of Financial Management recommended the state legislature and Washington State Department of Children, Youth, and Families (DCYF) - the governing cabinet of QRIS - revisit the current QRIS to ensure it is more agile and cost-efficient; hence, Washington State DCYF (2020) announced it will retire previously used two standardized assessments – the Environment Rating Scale-Revised Edition (ERS-R) (Harms, Clifford, & Cryer, 1998) and the Classroom Assessment Scoring System (CLASS) (Pianta, La Paro, & Hamre, 2008a) – and implement the Environment Rating Scale-Third Edition tool (ERS-3) beginning in July of 2020. The current circumstance due to COVID-19 seems unforeseeable and obscure; however, it also creates a window of opportunity (Kingdon, 1986) for actors of the state QRIS to create a moment of reflection around 1) What components and aspects of QRIS worked well?; 2) What factors can be changed?; and, 3) How can we co-create the next era of QRIS that is considered high quality and sustainable by utilizing the data that are currently available?

One aspect of the early childhood system that researchers can consider is to explore the feasibility of one implementation activity: data-driven decision making (DDDM) processes among professionals in QRIS (Guss, Norris, Horm, Monroe, & Wolfe, 2013; Little, Cohen-Vogel, Sadler, & Merrill, 2019; Sandall, Schwartz, & Lacroix, 2004; Stein, Freel, Hanson, Pacchiano, & Eiland-Williford, 2013). DDDM has been featured in coaching and similar forms of professional development for supporting teachers to improve teaching practices. As resources, time, and scope of the future of the QRIS system in the state seems

obscure, research on understanding catalysts and barriers of DDDM in the context of Washington's version of QRIS – Early Achievers - can be a crucial aspect to project what would be the best way to sustain the next version of our QRIS including access to data, timeliness of data, perceived values of data, capacity and support for staff, and political and system level contextual factors. Before I move on to my literature review, I want to briefly describe the overview of the origin of Early Achievers, implementation partners of Early Achievers, Early Achievers coaching framework that emphasizes use of data in the programs, and roles and support available for coaches – the primary unit of analysis for the current study for inquiring DDDM practices.

Introduction of Race to the Top and Early Achievers

In November 2009, the Obama Administration announced the enactment of the American Recovery and Reinvestment Act (ARRA) (U.S. Dept. of Education, 2009) which led to the launch of the Race to the Top (RTT) competition for funding. The RTT challenge encouraged transformative change within schools, targeted toward leveraging, enhancing, and improving classroom practices and resources (U.S. Dept. of Education, 2009, p. 4). Three out of five priorities in the summary report addressed items relevant to early learning communities. These included *innovations for improving early learning outcomes* by providing applications for evidence-based practices and strategies for improving educational outcomes among students who are in need, *building statewide longitudinal data systems* for connecting and allowing questions to address effective continuous quality improvement, and *P-20 coordination* for improving all parts of educational services across the state (U.S. Dept. of Education, 2009). For a state to win the Race to the Top Early Learning Challenge (RTT-ELC), clear guidelines on early learning system outcomes, building infrastructure for data monitoring systems, and designing a P-20 alignment throughout the state education system were required.

As a response to the federal request for proposals, Joseph et al. (2010) from the Childcare Quality and Early Learning (CQEL) Center at the University of Washington (UW) partnered with the governing agency (Department of Early Learning), Thrive by Five Washington, and 93 participating sites across the state, which later become Washington's version of the Quality Rating Improvement System (QRIS), Early Achievers. The pursuit and dream of having high quality early childhood programs began in 2009 (Joseph et al., 2010). Training and coaching interventions were provided to the pilot sites and Joseph's group (2010) articulated baseline results by highlighting the needs for policy and programmatic efforts to support providers. Joseph et al. (2010) noted the following:

> … especially from programs that are characterized in low feedback loops, scaffolding for children who are having a hard time understanding a concept, queries that prompt children to explain their thinking; discussion and activities that encourage analysis and reasoning, integrating concepts, and advanced language modeling were found (p. 42).

Despite many factors and logistical items that needed to be addressed, in 2011, Washington became one of the nine states receiving the initial grant of $60,000,000 (DCYF, n.d.; U.S. Department of Education, 2011 - CFDA #84.395) for Phase 1 (U.S. Department of Education, 2011). Shortly thereafter, the Early Achievers system - a framework for a high-quality early childhood system - was launched across the state as a QRIS in Washington.

Early Achievers Framework

Early Achievers is a framework for ensuring access to high quality early learning programs for children in the state of Washington (DCYF, 2021). As a state-wide system, Early Achievers advocates three pillars of initiatives including access to high-quality care to ensure children can learn and develop skills for successful kindergarten entry and beyond; information for parents to find high-quality care that matches the needs of families; and

access to resources and supports for early learning professionals across the state (DCYF, 2020). The framework consists of six integral structures which represents a "House" framework with its guiding process of 1) *individualized learning and teaching*; 2) *engaging interactions and environments*; 3) *family engagement and partnership*; 4) *screening and ongoing assessment*; 5) *curriculum and learning opportunities*, and; 5) *professional development and training including Communities of Practice (COP) and coaching* (DCYF, 2017; Keller, 2017).

DCYF (2017) defined guiding principles as the critical component of the Communities of Practice and coaching as it comprises a roadmap or "GPS" that "helps coaches to navigate paths that they travel with providers to the house" (p. 6). With its three tenets of culturally responsive coaching, parallel processing, and adult resilience, the guidelines work as a mechanism to provide variabilities around how coaches work with providers that influences the way that coaches interact with providers, for those who interact with children, including families and community members of the society that a child belongs to (DCYF 2017; Keller, 2017). It also seemed very similar to the alliance building strategies as these guidelines support all stakeholders to build stronger relationships (Pierce & Buysse. 2014).

Implementation Partners in Early Achievers

Multiple partners were involved in creating the Early Achievers system for providing high quality early learning experiences to youngest citizens of Washington State. In this section, I will highlight three primary partners of Early Achievers.

Child Care Aware of Washington (CCA of WA) is a state non-profit agency for childcare resource network support. CCA of WA provides statewide services around training, technical assistance, and coaching for licensed and Early Achievers participating programs. CCA of WA employs the majority of coaches in the state as well as providing contracted

coaching support to certain ECEAP contractors (i.e. school districts providing support at Early Achievers participating ECEAP sites). CCA of WA have six regional partners including Community-Minded Enterprises (Eastern WA); Catholic Family & Child Service (Central WA); Opportunity Council (Northwest WA); Child Care Resources (King & Pierce); Child Care Action Council (Olympic Peninsula); and Educational Service District 112 (Southwest WA). CCA of WA is a crucial component of the system as their coaches provide support for continuous quality improvement (CQI) and data-driven decision making (DDDM) opportunities for early learning professionals across the state.

The University of Washington Cultivate Learning (formerly known as CQEL) provides statewide support on research, QRIS monitoring, and professional development for providers and coaches. Cultivate Learning provides Washington coach framework training to Early Achievers coach workforce and hosts monthly webinars as a network hub between CCA of WA and DCYF. As a leading agency in the state for manifesting evidence-based practices across the state, Cultivate Learning provides tactical and strategic plans to all partners among the system.

The Department of Children, Youth, and Washington Early Childhood Education and Assistance Program (DCYF – ECEAP) is a cabinet agency of Washington state and ECEAP is one of the services provided by the DCYF early learning division supporting programs who serve children aged 3 and 4 in the state of Washington. As a state funded program, ECEAP provides extensive support for families at or below 110 percent of federal poverty level or for those who are on Individualized Education Programs (IEPs) for special education. Despite the ECEAP program resides in the DCYF agency (the governing body of Early Achievers in Washington), ECEAP is considered a subsystem that operates within its own performance guidelines that are inconsistent from Early Achievers guidelines.

Practice-based Coaching (PBC) in Early Achievers

Practice-Based Coaching (PBC) was implemented as a framework in Early Achievers (CQEL, 2015 adopted from Snyder, Hemmeter, & Fox, 2015) for continuous quality improvement across the system. As introduced in the Cultivate Learning (formerly known as CQEL) 2-day Coach Framework Training, the PBC model has four key components for supporting continuous quality improvement (CQI) among Early Achievers programs including collaborative partnerships, shared goals and quality improvement plans, focused observations, and reflecting and sharing feedback. The data and process of reflect internally derived data collection processes in as these are informally collected by coaches by live observations (Black & William, 1998; Firestone & Gonzalez, 2007). These often considered are one of the most useful sources of data for change in instructional practices as these data sources contain contextual information that resonate with teachers' beliefs and values (Little et al., 2019). The following presents the components of PBC.

Collaborative partnership is a partnership activity between a coach and teacher to set goals and identify action steps for implementing a practice at a program level (Snyder et al., 2015). Snyder et al. (2015) suggest activities in the collaborative partnership might include discussions around why, when and how practices will be implemented; conversations around problem solving and strategy for practice implementation, and joint reflection and feedback about an observed practice by a coach. The process requires two-way interactions and the CQEL (2015) also noted the partnerships become a critical aspect of coaching as it helps to individualize to the strengths, needs, shared understandings, and unique desired outcomes of both the provider and the coach.

Shared goals and quality improvement plans includes processes for setting initial goal and processes for ongoing-goal and action plans (CQEL, 2015). During quality improvement

planning, the action steps, resources needed to accomplish the action steps, and supports needed to reach the goal are specified. The plan also includes a timeline for a coach and a provider to review progress on goals.

Focused observation is another component of the PBC model for gathering information about implementation or desired teacher behavior and instructional practice during classroom routines, activities, and transitions (CQEL, 2015). Focused observation (CQEL, 2015) can be conducted by live observations or video recordings for a provider and a coach to review at a later time. The component also includes strategies such as modeling instructional practice or providing a verbal vignette/prompts.

Reflecting and sharing feedback allow a coach and a provider to focus on reflecting support strategies for improving teaching practices based on the information gathered from focused observation and sharing feedback about what has been observed during the focused observation stage including implementation of teaching practices (CQEL, 2015). This step involves a coach and a provider to share and recognize progress towards desired outcomes as well as a chance for a coach to provide constructive feedback for improving and refining teaching practices. It naturally builds a culture of DDDM between a coach and a coachee for change in instructional practices. The above components of PBC are intended to support coaches and providers and to ensure the team are working towards a shared goal.

Coach Training, Requirements, and Roles

As a fundamental actor for supporting data-driven decision making (DDDM) processes and continuous quality improvement (CQI), Early Achievers coaches are required to attend two series of workshops once they are hired by their agencies (i.e. Child Care Aware of Washington [CCA of WA] or contractors within Early Childhood Education and Assistance Program [ECEAP] programs) (DEL, 2015). The coach onboarding training is currently held on a Schoology platform offered by CCA of WA.

Based on the information provided by an administrator from ECEAP, the training curriculum includes an overview of Early Achievers, an overview of Early Achievers partners, Early Learning Guidelines, training and guidance on cross-cultural communications, information about the coach support team, and required activities for a coach such as documentation on a statewide database coach log (Web-Based Early Learning, [WELS], n. d.), participation in monthly webinars and COPs, certification in CLASS (Pianta et al., 2008a) site quality assessment tools, and completing the Coach Framework Training within six months of hire. The recent publication from an Early Achievers revision overview (DCYF, 2021) provided additional information for coaches beginning July 2021. Early Achievers coaches throughout the state will also serve as a technical support assistant to co-create individual Early Achievers participant plans. DCYF (2021) stated coaches are asked to meet with Early Achievers participants before the process starts to address any questions that participants have. Coaches will also be asked to continue to provide support on an online engagement platform called Coaching Companion, a coaching application for coaches and Early Achievers professionals to engage in conversations and share exemplar practices via video observations and resource sharing (DCYF, 2021).

Despite the abundance of information, the available documents from DCYF did not explain how CQI processes are interweaved in the Early Achievers theory of change, how different information has been captured among system actors to address CQI, and what are available data sources that can be accessed for applying DDDM practices among system actors. It was also unclear to me how many children are currently served by Early Achievers programs, what types of programs feature distinctive characteristics (i.e. use of curriculum or evidence-based practices), and how much it costs for a parent to enroll a child in a five-star Early Achievers program versus a two or three-star Early Achievers program. In the next chapter, I hope to articulate findings from literature on understanding CQI in the early

learning context and how it is linked to DDDM, to understand whether a QRIS system works well or not, and what type of data can be utilized for such an inquiry.

Literature Review

In this section, I will describe an overview of a Quality Rating Improvement System (QRIS); provide an overview of Continuous Quality Improvement (CQI) including its theoretical origin; give an overview of data-driven decision making (DDDM) processes and its linkage to CQI; and discuss how coaching plays a critical role as a means for CQI in the early learning system.

Overview of Quality Rating Improvement System (QRIS) and Early Achievers

Quality Rating Improvement System (QRIS) is an accountability system with the goal of defining and measuring quality and incentivizing improvement among early childhood programs in the United States (Bassok, Markowitz, Bellows, & Sadowski, 2021). As a resource network for early childhood Quality Rating Improvement Systems (QRIS) in the United States, the Build Initiative (BUILD, 2013) states having a network structure supports states on how to create a framework for building a high-quality rating and improvement system. Shilder (2019) defined QRIS in a recent BUILD report as the following:

> ... [a] systemic approach to assess, improve, and communicate the level of quality in early and school-age care and education programs. According to the U.S. Department of Health and Human Services (DHHS), QRIS are similar to rating systems for restaurants and hotels in that they award quality ratings to early and school-age care-and-education programs that meet a set of defined program standards. By participating in a state's QRIS, early and school -age care providers embark on a path of continuous quality improvement. In Washington State, the QRIS, called Early Achievers, was designed for programs serving children prior to school entry. The state began developing the school-age QRIS in 2015 (p. 4).

BUILD (2013) emphasized that designing a comprehensive QRIS and successful implementation of QRIS will support increased program quality across the system, solidify the infrastructure for supporting quality improvement, and assess achievement throughout the process of Continuous Quality Improvement (CQI). As of December 2020, 65 QRIS programs exist in the United States and its territories, including California and Florida, which have structured county or regional-level QRIS (BUILD, 2020) and Washington is one of the partner states of QRIS (See Figure 1 for more information). Although BUILD serves as a national resource network for QRIS, each state is responsible for designing and supporting its own statewide QRIS (U.S. Dept. of Education, 2011 - CFDA #84.395). The grant's eligibility criteria may have influenced the structures of current statewide systems (U.S. Dept. of Education, 2011 – CFDA #84.395). As stated on the *Selection Criteria – A. (i) State Success Factors of the grant* (U.S. Dept. of Education, 2011 – CFDA #84.395), the applicant – i.e., the state – was responsible for articulating a comprehensive and coherent agenda regarding how the initiative would improve student outcomes statewide and how it was clearly linked to achieving such goals.

The QRIS supports multiple aspects of the early learning system. Zaslow and Tout (2014) synthesized the unique characteristics of QRIS including its goals, activities, and outcomes associated with the system initiatives, describing four distinctive themes of QRIS that were introduced in its early phase (early 2000s to mid-2010). These include QRIS as a hub to support multiple layers of interventions; most activities for supporting QRIS illustrated as system-level activities; links between QRIS system quality features to the child-level outcomes; and levels of QRIS implementation. Despite there not being a single model of QRIS, the following five components can generally be found in a QRIS model (Paulsell, Tout, & Maxwell, 2013) including 1) quality standards, 2) a process for assigning ratings

based on quality standards, 3) a process for supporting providers in quality improvement, 4) financial incentives, and 5) dissemination of ratings.

Paulsell et al. (2013) defined quality standards as "an aspect of quality that the QRIS is trying to promote" (p. 271). These categories of quality standards can be classified into licensing compliance, ratio and group size, safety, curriculum, environment, child assessment, qualifications for workforce, family partnerships, administration and management, accreditation, provisions for children with special needs, community involvement, and cultural and linguistic diversity. Paulsell et al. (2013) also added that although the system aims to support child level outcomes, the link between child level outcomes to QRIS standards is lacking in the literature (Isner, Tout, Zaslow, Soli, Quinn, Rothenberg, & Burkhauser, 2011; Kirby, Carnongan, Malone, & Boller, 2011; Malone, Kirby, Caronongan, Tout, & Boller, 2011; Tout, Starr, Isner, Cleveland, Soli, & Quinn, 2010). In Early Achievers, five standards are assessed to measure quality at a program including learning environment of a program, staff professional development, child outcomes, curriculum and staff supports, and family engagement and leadership (DCYF, 2021).

Assigning ratings are based on documents and evidence gathered through review of a care provider's on-site documentations, credentials, or any information captured via site observations (Paulsell et al., 2013). Similar to those available from hospitality or restaurant industries, a care provider can receive a rating from one- to five- stars. Assessors for these activities are mostly employed by external entities (i.e. higher education institutes) who use inter-rater reliability measures, with clear articulation of what's expected from each level of ratings prescribed by a state governing agency (Paulsell et al., 2013). For Early Achievers programs, based on the data collected by staff at the University of Washington Cultivate

Learning, programs have access to their ratings information through the state database called Web-based Early Learning System (WELS) (DCYF, n.d.).

Quality improvement includes a strategic blueprint of an individualized quality improvement plan for QRIS programs to prepare for participation in the QRIS (Isner et al., 2011; Paulsell et al., 2013; Smith, Schneider, & Kreader, 2010). The topic for quality improvement varies based on the needs of a site. These could include navigation of the QRIS, rearranging classroom layout, support for curriculum implementation, or working on a particular domain based on guidelines from a quality assessment tool (Paulsell et al., 2013; Tout et al., 2010). Similar to the effect of implementing a quality standard to a classroom, the activities of quality improvement have not been linked to the strategies or practices that are considered effective or evidence-based, as there are many unknown variabilities within a site which could lead to inconsistent planning for visits, support for modeling instructional practices, and resources for technical assistance (Paulsell et al., 2013; Smith et al., 2010). Quality improvement and creating goals and action plans are required implementation activities among participating Early Achievers sites, and these are usually held between a coach and an instructional staff at a program.

Financial incentive plays a role in a QRIS to support or reward quality improvement for reimbursement of the cost, and bonus payments to providers for a higher quality level that they have achieved (Paulsell et al., 2013; Tout et al., 2010). *Tiered reimbursement* is a type of QRIS financial incentive which provides higher subsidy rates to QRIS participants who have met higher tiers or levels in the QRIS and potentially cover the proportion of the cost to parents (Paulsell et al., 2013). *Scholarship, wage enhancements, and retention bonuses* are other types of financial incentives promoting continuous quality improvement and continuation for high quality at a program, encouraging providers in a program to attain higher educational degrees or recertifications (Adams & Compton, 2011; Gaylor, Spiker,

Hebbbeler, & Williamson, 2009; Gaylor, Spiker, Williamson, & Ferguson, 2010). Multiple types of financial incentives are available for Early Achievers programs including an Early Achievers Grant (EAG) for promoting child care providers to attain associate degrees (Washington State Board for Community and Technical Colleges, 2021) and quality improvement awards for participants who receive a higher rate for their renewal or re-rate period which ranges from $750 to $4,000 depending on the number of classrooms or learning environments (DCYF, 2020).

Dissemination of ratings is the last component of a QRIS model. As participation in a QRIS program is voluntary in most states, Paulsell et al. (2013) emphasized the need for recruiting providers to participate in the system by gathering preliminary data including participants' buy-in and engagement around the system. This also includes communicating the information about ratings to parents and family members. Again, additional research could help the field to understand what best motivates and supports providers and parents to join a QRIS program (Paulsell et al., 2013). In Early Achievers, the information about ratings is entered by staff at Cultivate Learning and dissemination of the information is followed by QRIS staff at the Department of Children, Youth, and Families.

Early Achievers, Washington state's version of QRIS, was developed to support early learning programs in offering high-quality care that supports the learning and development of children (DCYF, 2020). It is one of the key initiatives in Washington to support children to start school ready to succeed (DCYF, 2020). As stated in the *Early Achievers Participant Operating Guidelines* (DCYF, 2020), despite participating in the Early Achievers being considered voluntary, programs funded via federal grants (i.e. state-funded Pre-K programs) and participating sites are incentivized via support from strength-based coaching, opportunities for applying for grants (i.e. needs-based grants for up to $750 for Family Home Child Care, or $1,000 for a Child Care Center), and dissemination of ratings information that

summarizes results of the site-level quality care assessments such as Environmental Rating Scales (ERS) (Harms et al, 1998) or Classroom Assessment Scoring System (CLASS) (Pianta et al., 2008a).

Key partner agencies in the Early Achievers system consist of the Department of Children, Youth, and Families (DCYF), Child Care Aware of Washington (CCA of WA), and the University of Washington Cultivate Learning (UWCL). In July of 2017, the DCYF was formed to consolidate the state's emphasis on providing high-quality learning experiences for all children by merging the Department of Early Learning (the governing body of Early Achievers), the child welfare system (governed by the Department of Social and Health Services), and the state juvenile justice system (Shilder, 2019). CCA of WA is the state's largest non-profit employer of coaches providing a childcare resource and referral network support for families to access childcare across Washington state as well as training, technical assistance, and coaching in Early Achievers programs (Shilder, 2019). UWCL provides quality assurance monitoring, research support, and professional development opportunities by offering foundational trainings such as Coach Framework Training to Early Achievers coaches, Early Achievers Institutes, and coaching tools such as the Coaching Companion application (Shilder, 2019).

Validation in Center-based Programs to Process Inquiry in Family Childcare Settings

After the initial phase of initiation and conceptualization of QRIS (taking place in the late 1990s to early 2010s), research around QRIS implementation slowly grew. This included linkages between financial incentives and participation rates (Hallam, Hooper, Bargreen, Buell, & Han, 2017; Tang, Hallam, Francis, & Sheffler, 2020), how the structure of a QRIS model addressed aspects of child level outcomes (Tout, Zaslow, Halle, & Forry, 2009), a process for continuous quality improvement and the impact of coaching to QRIS (Isner et al., 2011; Smith et al., 2010; Zeng, Douglass, Lee, & DelVecchio, 2020), and understanding and

evaluating the initial implementation phase of the QRIS (Boller, Del Grosso, Blair, Jolly, Fortson, Paulsell…, & Kovas, 2010).

It was not surprising to see that most of the studies conducted on QRIS are primarily validation studies of the QRIS implemented at a state level in the initial QRIS implementation period between 2010 to 2015 (Hong et al., 2015; Kirby et al., 2015; Lahti et al., 2015; Soderberg et al., 2016; Zellman & Karoly, 2015). This may be due to factors highlighted by Boller and Maxwell (2015) as two of the required evaluation activities in the Race to the Top Early Learning Challenge (RTT-ELC) grant application (U.S. Department of Education, 2011 - CFDA #84.395): "(1) validating, using research-based measures, whether the tiers in the State's Tiered Quality Rating and Improvement System accurately reflect differential levels of program quality" and (2) "assessing, using appropriate research designs and measures of program progress. the extent to which changes in quality ratings are related to children's learning, development, and school readiness" (p. 349). Boller and Maxwell (2015) have noted some of the strengths and weaknesses of the current wave of QRIS studies, with limitations including acquiring information about "the process of implementing a QRIS, quality improvement strategies, or systems change" (p. 340). QRIS states generally do not have time or financial capacities to inquire about implementation practices, which can create uncertainty around effective ways to motivate participants to join a QRIS or determine what roles or processes of quality improvement features or system change are addressed in the QRIS (Boller & Maxwell, 2015).

As a community-oriented researcher, I was alarmed by Boller and Maxwell's findings. The current state of QRIS research lacks understanding of how continuous quality improvement or features of system changes, as addressed by different actors in a system, contribute to outcomes observed from a QRIS. Continuous Quality Improvement in QRIS are considered long-term implementation changes which may take two to four years for a full

implementation (Bierman, Derousie, Heinrichs, Domitrovich, Greenberg, & Gill, 2013; BUILD, 2017; Fixsen, Blase, Timbers, & Wolf, 2001; Panzano & Roth, 2006; Prochaka & DiClamente, 1982; Solberg, Hroscikoski, Sperl-Hillen, O'Conner, & Crabtree, 2004). Change in an educational setting tends to be challenging (Fullan & Stiegelbauer, 1991) and people's tendency to refuse change in a program creates risk for QRIS partners. Thus, communication is an essential component (Wilford et al., 2021) in creating a research-practice partnerships (McLanahan et al., 2021). Without knowing specific activities and processes implemented by actors in the system, it is harder for researchers and general audiences to understand what is truly happening when a program implements a QRIS and how it may be related to classroom quality, given lack of knowledge about the context of implementation for change.

QRIS standards are often complex and contain multiple components and measures, with variation by state (Lahti et al., 2015). Lahti and colleagues (2015) believe it's important to carefully address and identify outcomes or goals for validating a QRIS. The authors noted that QRIS is a process that requires multi-step approaches and is based on the design of a program's quality standards and strategies for how to measure those goals. The results may vary in terms of accuracy, choosing assessment tools used for assessing quality based on the state's goal, and how the results of ratings are disseminated to stakeholders. For instance, Lathi et al. (2015) have stated that if a state's goal is to understand and measure the physical health of a child, it is inappropriate to use some of the more common global child-care quality assessment tools such as CLASS (Pianta et al., 2008a) or Environmental Rating Scales (ERS) (Harms et al., 1998).

Lahti et al. (2015) have suggested four approaches to validating a QRIS, referencing work in Indiana and Maine. Their first approach is "Examining the validity of key underlying concepts" (Lahti et al., 2015, p. 282) by assessing whether the components and standards of a QRIS are measuring its intended outcomes. Lahti et al. (2015) write that both Indiana and

Maine have partnered with university-based researchers to conduct validation research, yet the models were slightly different in each state. QRIS standards in Indiana were created based on a local community-based model followed up by a state committee modification (Paths to Quality, 2008), whereas Maine aligned with program-specific national accreditation standards (Quality for ME, 2008). The second approach is about "Examining the measurement strategy and psychometric properties of measures used to assess quality" (Lahti et al., 2015, p. 282) which can be a typical study you'll find around examining the relationships and the feasibility of some of the assessment tools (i.e. ERS or CLASS) and their intended outcomes. The third is "assessing outputs of the rating process" (Lahti et al., 2015, p. 282) by illustrating the growth of a program based on its type and how its rating level has changed over time. The last approach is "examining how ratings are associated with children's outcomes" (Lahti et al., 2015, p. 282). This could be conducted via a regression study or deriving a sort of association by child level assessments (i.e. Teaching Strategies GOLD) or documentation of a child's progress on a learning domain. Lahti et al. (2015) also pointed out how few QRIS validation studies incorporate QRIS and its role vis-à-vis children's learning outcomes, and how it is often challenging to conduct such a study (Elicker & Thornburg, 2011).

As I reflected on suggestions from Lahti et al. (2015), it was clear that there is a lack of interest or understanding among practitioners around why these QRIS activities are happening and what works better at which level by whom; meanwhile, limited information about how providers process QRIS outcomes from summary ratings is known (Lahti et al., 2015; Lugo-Gil, Sattar, Boss, Boller, Tout, & Kirby, 2011; Tout et al., 2009; Zellman et al. 2008). This includes the fact that current literature does not address how actors in the system make sense of QRIS outcomes information such as information captured from Environmental

Rating Scales (Harms et al., 1998) on site quality outcomes or teacher-child interactions from a CLASS assessment tool (Pianta, Mashburn, Downer, Hamre, & Justice, 2008b).

Despite the findings of QRIS and its association to child-level outcomes being weak and requiring further examination (Hong et al., 2014; Sabol, Soliday Hong, Pianta, & Burchinal, 2013; Sabol & Pianta, 2014), several researchers have suggested positive impacts of QRIS implementation across a system, especially in a school-based or center-based programs. For instance, Early, Maxwell, Burchinal, Alva, Bender, and Bryant (2007) described the importance of improving the effectiveness of an early childhood education system as a whole by providing a wide range of professional development and targeted support (i.e. coaching) for teachers' interactions with children. Hamre and Pianta (2005) reported that increasing levels of support for instructional and emotional support for teachers in a first-grade classroom increases the emotional support and instructional support domains observed by the CLASS assessment tool (Hamre & Pianta, 2001). In addition, Yazejian and Iruka (2015) have shown demonstrated scholarship amounts received by staff at childcare centers yield positive outcomes vis-à-vis quality change in center-based programs. In short, researchers have found ways to increase QRIS outcomes by incentives, coaching, and continuous support for improving instructional practices.

On the other hand, in the past five years (2016 - 2021), a few researchers (Bromer, Molly, Porter, & Reardon, 2020; Tang et al., 2020; Zeng et al., 2020) have also attempted to address and inquire into the implementation process of QRIS, including activities around continuous quality improvement or professional development, especially with family childcare programs. Family childcare homes (FCCs) are known by different names depending on state regulations or geographical regions (ACF, n.d.). The Administration for Children and Families (n.d.) has reported that a FCC program can be classified as a small or large program. FCC programs often limit the number of infants and toddlers who have access to the

program. FCCs account for the over sixty percent of programs across the United States' early childhood system (NSECE, 2014) yet relatively little research has been done on understanding strategies to support FCC providers to improve their quality-care practices (Bromer & Korfmacher, 2017). As the current study explore coaching and continuous quality improvement activities across all program types in Early Achievers and majority of programs are considered FCCs (2,271 FCC programs among 3,845 sites), it is important to highlight what is currently known as factors enhancing QRIS participation and sustainability among FCCs. Researchers have shown factors such as financial incentives, on-site technical assistance, and opportunities for professional development enhanced the QRIS participation experiences among FCC programs (Bromer et al., 2020; Hallam et al., 2017; Tang et al., 2020; Yazejian & Iruka, 2015; Zeng et al., 2020).

Tang et al. (2020) demonstrated the impact of Delaware's QRIS, known as Delaware Stars by highlighting the association between financial incentives and on-site technical assitance that influence change in the Family Child Care Environment Rating Scale Revised (FCCERS-R) subscale scores among 139 Family Child Care (FCC) participating in the Stars program over time (Harms, Cryer, & Clifford, 2007). The study found FCC programs that received more financial incentives (i.e. grants) and those who participated in the on-site technical assistance showed greater growth over time from two time-point assessments in the FCCERS-R composite scores, with the average subscale score from 3.78 - 5.52 to 4.99 - 6.35 out of a seven-point Likert-type scale (Tang et al., 2020). This was similar to the findings suggested earlier by Yazejian and Iruka (2015) as authors noted that scholarship and on-site technical assistance (i.e. coaching or professional development) have shown improved quality in classroom practices and quality (Isner et al., 2010; Snell, Forston, Stanton-Chapman, & Walker, 2013). Hallam et al. (2017) found similar results when examining the QRIS participation rate among FCC providers in Kentucky and Delaware. From focus group

sessions, participants shared the benefits of QRIS participation as: 1) quality improvement, 2) professionalism (i.e., increasing their sense of professionalism in the field) 3) increase in enrollment (i.e., QRIS increases the number of new families interested in the program), 4) financial incentives, and 5) technical assistance support (i.e. coaching/technical assistance by QRIS technical assistance specialists) (Hallam et al., 2017).

One of the most recent studies of how QRIS scores have changed among participants based on the impact of technical support and continuous quality improvement comes from Zeng et al. (2020). Zeng and colleagues worked with FCC professionals in the state of Massachusetts. The research team focused on empowering FCC professionals by providing cohort-based business and entrepreneurial leadership training in addition to coaching sessions with resources for 34 high poverty neighborhood FCC professionals. By adapting Bromer and Korfmacher's (2017) conceptual model, Zeng et al. (2020) demonstrated that the results of implementing the Small Business Innovation Course (SBIC) supported "significant pre–post differences and a large effect size for business management self-efficacy at the construct level ($M = 1.45$, $SD = 0.95$, $p < 0.001$, $d = 1.53$)" (p. 33). What was most interesting to me was the comment provided by a research participant that the participant felt ready and equipped to prepare for financial decision-making, including budgeting and plans for quality improvement (Zeng et al., 2020).

Finally, Bromer et al. (2020) have argued that policy makers often leave FCC out of the equation for policy initiatives despite FCC program represent majority of early learning programs by 60% in the United States. As the requirements for licensing, QRIS implementation, or other federal, state, or local regulations have increased over time, Bromer et al. (2020) claimed that the system still needs to pay attention to design such policies with FCCs in mind. Bromer and colleagues (2020) reminded us that the loss of FCC programs may be caused by the current system structure as well as lack of scientific evidence and

strategies around engaging and retaining FCC providers. Previous work such as the Break Through Series (BTS) collaborative model (Daily, Tout, Douglass, Miranda, Halle, Agosti, Partika, & Doyle, 2018) or implementing small-scale changes using the Plan Do Study Act (PDSA) model (Berkel, Galio, Sandler, Mauricio, Brown, & Smith, 2019; Byrk, Gomez, Grunow, & LeMahieu, 2015; Conradi, Agosti, Tullberg, Richardson, Langan, Ko, & Wilson, 2011; Deming, 1986; Lynn, Baily, & Bottrell, 2007; Shewhart, 1931) have inquired continuous quality improvement processes among school and large-scale systems. As population represented in these studies were mostly from pre-K or early elementary school age programs, the findings are less convincing to apply in FCC settings where programs serve mixed-age group. In several studies, participants of pilot QRIS programs have shared similar concerns that additional information on QRIS is needed and opportunities for family childcare providers who are linguistically and culturally diverse are lacking (Iruka, Yazejian, & Maxwell, 2010; Tout et al., 2010).

To sum up, what's currently available from literature consist of QRIS implementation outcomes found at center-based or school-based programs. Researchers are also inquiring into what's also working in family childcare settings in the recent years. Different strategies suggested by the above studies can be utilized for supporting diverse types of programs participating in a state QRIS. What was still unclear to me is understanding how Continuous Quality Improvement (CQI) processes are embedded among QRIS programs. Studies have shown CQI is considered as an internal process for leveraging change in a program by establishing a data-driven feedback loop for improving instructional outcomes, yet these did not seem evident in the QRIS literature. As establishing a data-driven feedback also impacts program-level strategies, I will further address CQI and data-driven decision making processes in the following section.

Overview of Continuous Quality Improvement (CQI)

The work to initiate and implement a high-quality Quality Rating Improvement System (QRIS) (BUILD, 2013) is not too different from how Goffin and Washington (2013) have described challenges and next steps for the early childhood education system in the United States. In QRIS, Continuous Quality Improvement (CQI) is defined as an internal process of ownership by the team in the program to leverage change internally (BUILD, 2013). Especially for the statewide level of CQI, it is crucial to form inter-agency partnerships to strengthen the QRIS system and establish a feedback loop to stay connected with the ECE communities regionally. Implementing a CQI approach shifts from a stakeholder's perspective by reflecting, learning, and committing to strive for high quality programs rather than simply complying with guidelines and standards regulated by external systems (BUILD, 2017). By having a culture of proactive decision-making processes instead of one that is reactive to incidents, BUILD (2017) has stated that the approach grows transformational leaders and encourages the leaders to equip themselves and employees to change management skills such as inclusive communication tools, team management, and using data and evidence for decision making processes, including co-creating goals and quality improvement plans. As an element often illustrated in a metaphor of a "house" (See Appendix B for more information), researchers (Bloom, 2015; BUILD, 2017; Keller, 2017; Sandall & Joseph, 2010) have described CQI as the element that holds everything together.

The "house" contains the elements of high-quality early childhood environment that are illustrated the National Center for Quality Teaching and Learning (Sandall & Joseph, 2010). The house framework has six integral structures: 1) individualized learning and teaching; 2) engaging interactions and environments; 3) family engagement and partnership; 4) screening and ongoing assessment; 5) curriculum and learning opportunities; and 6) professional development and training including coaching and Communities of Practices.

Early Achievers has its mission to support individuals at programs to improve practice by strengthening the aspects of the program using the framework (Joseph, Cevasco, Stull, & Nolen, 2011; Sandall & Joseph, 2010). These pursuits for improving practices are often known as Continuous Quality Improvement (CQI).

The authors of the *Early Achievers Participant Operating Guidelines* (DCYF, 2020) also noted the agency's emphasis on Continuous Quality Improvement (CQI). The authors (DCYF, 2020) described CQI as an ongoing process of learning and reflecting opportunities for growth using multiple sources of information, and intentional commitment to quality improvement practices, including "1) Creating a plan with goals, timelines, and action steps; 2) Testing and implementing solutions; and "Evaluating the results and revising the plan" (p. 1).

As a system-wide activity, CQI is also well represented in a case study conducted by the BUILD foundation (2017). Wong (BUILD, 2017) described that the focus for system-level CQI for Palm Beach leadership was to reflect practice to navigate from an "agency-centric" to a "provider-centric system" (p. 18). Various types of strategies were used in the Palm Beach case. These included surveys to inquire into and collect data on CQI culture, standards, and change, activities. Interestingly, notes from Communities of Practice (Wenger, 2006) were also captured in the study.

Communities of Practice (COP) is a process for "groups of people who share a concern or passion for something they do and learn how to do it better as they interact … in short, a shared practice" (Wenger, 2006, p. 1). CoPs are often considered one of the professional development strategies for coaches to enable and share feelings of isolation (Bradley, 2004; Gebbie et al., 2012; Puig & Recchia, 2008) and provide empowerment to coaches (Hoffman, Dahlman, & Zierdt, 2009; Keller, 2017). Buysee et al. (2003) pointed out that every community of practice has its own cycle and ability to harmonize new members of

a system to enter the community and engage with peers who serve as exemplar models in the system. CoPs foster a welcoming environment and support learners to be fully engaged in their learning communities (Puig & Reggia, 2008).

Similar practices have been observed in the Early Achievers via monthly webinars. Keller (2017) described participation in the Early Achievers monthly coach webinar, which is recommended and encouraged yet not required. It serves as a mode for interactive discussion sessions, and an informational communication channel where coaches can share their insights on a given topic in the month such as utilizing ERS tools, asking reflective questions, and creating a program-wide Communities of Practice (Keller, 2017).

One feature of CQI that was found in the policy and system implementation literature includes strategies from implementation science addressed some of the alignment issues shared by systems researchers (Carr, Mokrova, Vernon-Feagans, & Burchinal, 2019; Franko, Zhang, & Hesbol, 2018; Halle, Metz, & Martinez-Beck, 2013; Kauerz, 2020; Stipek, Clements, Coburn, Franke, & Farran, 2017). Despite the term "system" lacking in precision and only being loosely defined in the educational setting, systems help actors to achieve reduced duplication of efforts, enhance improved effectiveness across implementation agencies' efforts, and achieve higher quality in care (Kauerz, 2020). BUILD (2013) acknowledged that the initial work around QRIS across the United States was focusing on "ratings, accountability, and monitoring of early learning programs" (p. 1). There have been shifts around the transition to strategizing quality improvement processes and providing support in combination of data-driven Continuous Quality Improvement (CQI) processes after its initial introduction (BUILD, 2013). As one of the key ingredients and a prerequisite to build a successful and sustainable CQI effort (BUILD, 2013), communications and partnerships were by far the most important ingredients in building a successful and working QRIS. For instance, if a goal of a state is to form cross-sector partnerships where the only

intersecting themes are standards and compliance, Wiggins and Mathias (2013) have noted that communications and partnerships serve as bridges to connect with early learning communities and facilitate two-way communication between programs and QRIS decision-makers as well as ongoing feedback from programs, which leads to improvements in QRIS and CQI practices. Transformational leaders who practice change management skills such as inclusive communication, team approaches, and using evidence to inform goals and quality improvement plans implement CQI at the core of a program (BUILD, 2017). CQI in QRIS goes beyond meeting expectations of QRIS guidelines; it supports the team in a program to own the process where the excitement of learning and growing is encouraged (Wiggins & Mathias, 2013). The process helps system actors to enjoy the processes of inquiry rather than finding results for a test.

Theoretical Origin of CQI

The current version of how instructional leaders, practitioners, policymakers and researchers address Continuous Quality Improvement (CQI) in the Quality Rating Improvement System (QRIS) or Early Childhood Education system originated from the work of improvement scientists and evaluation practice experts' (Christie, Lemire, & Inkelas, 2017; Daily et al., 2018; Wiggins, & Mathias, 2013) via the interpretation of the Deming's (1986) process improvement work. Deming (1986) is considered one of the most influential figures who demonstrated Shewhart's Plan, Do, Study, Act (PDSA) cycle (Shewhart, 1931) in business, engineering, and manufacturing fields. The interpreters of the work also expanded the concept of "quality control" in the field of healthcare (Berkel et al., 2019; Conradi, et al., 2011; Lynn et al., 2007) since the early 1960s and '70s. The concept evolved into the modern version of improvement science (Byrk, Gomez, & Grunow, 2011; Langley, Moen, Nolan, Nolan, Norman, & Provost, 2009; Lemire, Christie, & Inkelas, 2017; Perla, Provost, & Parry, 2013) and became a branch of work around quality improvement work in

an education setting (Daily et al., 2018; Zaslow, Martinez-Beck, Tout, & Halle, 2011; Zellman & Fiene, 2012), emerging as a framework of QRIS in early childhood education system.

As a pioneer of Quality Improvement in the modern era, Shewhart (1931) claimed the defining components of quality control processes were based on philosophical principles of Aristotle (Kraut, 2018) to perceive quality as "goodness of an object" (Shewhart, 1931, p. 37). It could be a means to explain how a word (i.e. qualis) or a chemical combination (i.e. H_2O) - "chemical and physical properties" – by specifying a certain specification (Shewhart, 1931, p.38). There could be many ways to interpret what Shewhart really means by "quality." Shewhart showed that quality can be viewed in four different quadratics of "use, cost, esteem, and exchange" (Shewhart, 1931, p. 53). Shewhart acknowledged that other than the dimension of "use," variations among cost, esteem, and exchange can be relatively subjective and it vary widely. The terminology variation is an important topic and will be addressed in the future sections as well.

Another view adopted in the early childhood education quality improvement processes came from the implementation science field, especially from the field of Public Health. Perla et al. (2013) articulated quality control as a form of "science of improvement." Perla et al.'s articulation of Shewhart's work was closer to perspectives of epistemology (Feldman, 2002) and psychologism (Thagard, 1988) in combination with Shewhart's cycle of Plan, Do Study, Act (PDSA). Perla et al. (2013) stated that "improvement has meaning only in terms of observation based on a given criteria (p.171)" and their interpretation embraces different degrees of psychologism (Thagard, 1988) – that is, the study of epistemology via inquiring cognitive sharing. The mechanism was similar to Locke (1996)'s description of epistemology. The concept of psychologism as well as its logic can be distinguished into three types: weak; strong, or anti-psychologism (Perla et al., 2013). From a weak

psychologism perspective, weak psychologism is considered a logic that is prescriptive of mental processes. Strong psychologism possesses a logic that is descriptive of how humans think. On the other hand, anti-psychologism is perceived as a logic that has nothing to do with any mental processes at all, and thus shall not be considered in the process of improvement. Perla et al.'s (2013) philosophy of quality improvement emphasized cognitive processes and mental structures of a human being rather than addressing and identifying the steps of quality improvement.

Perla et al. (2010) also claimed that the process of quality improvement ties into the reasoning processes based on Dewey's (1901) definition of knowledge as conscious and voluntary effort to establish belief upon a firm basis of reasons. Similar to the justification of Plato's "Justified True Belief" model (Ichikawa & Steup, 2018), Perla et al. (2010) wrote "the idea that knowledge is not simply information about the best scientific evidence but rather the intersections of belief and best evidence [are] at the heart of quality improvement" (p. 125). Depending on a person's beliefs or reasoning around one's quality, this can shift even if it's considered what scientists claim evidence-based practices, again addressing the philosophical aspects as well as the cognitive perspectives of one's view in the quality improvement process.

Lemire et al. (2012) praised the foundational work around Deming's (1986) systems of profound knowledge around the topic. Lemire et al. summarized Deming's cycle via quoting the work of Langley et al. (2009) as: 1) Knowledge of systems, 2) knowledge of psychology, 3) knowledge of variation, and 4) knowledge of how knowledge grows. As growing definitions among improvement scientists, Lemire et al. (2012) provided clear terminological distinctions between improvement science and continuous quality improvement. Improvement science is about "developing, testing, implementing, and spreading change informed by subject matter experts" (Lemire et al., 2012, p. 25) whereas

continuous quality improvement is based on a "data driven change process that aims to systematically design, test, implement, and scale change toward systematic improvement as informed and defined by the experience and knowledge of subject matter experts" (Lemire et al., 2012, p. 25). Both definitions included the factors such as change, subject matter experts, and knowledge as the primary ingredients of the work; the only difference between CQI and improvement science concerns the factors of data and scalability. The latter concept of scalability seemed a bit different than the original intent of Shewhart's work on understanding the processes of the change through systematic inquiries on a smaller scale.

Based on literatures and perspectives from implementation scientists, Continuous Quality Improvement (CQI), evaluation, improvement science, and performance management all share one common theme: any processes of defined CQI activities require specified data sets that are considered high quality and meaningful to drive insights to those who are using the data as a team, a decision maker, a recipient, or a community member. In the early learning field, CQI is considered a fine-tuned process to change in quality and improve instructional practices. Plan, Do, Study, Act (PDSA) is an iterative process that promotes quality improvement (Bryk et al., 2016; Deming, 1986; Lemire et al., 2012; Perla et al., 2010). PDSA requires three posing questions:

1) In a goal setting stage, we are trying to understand "What are we trying to accomplish?"
2) During the measurement process, the team will address "How will we know that a change is an improvement?"
3) Last but not least, in the last stage of PDSA, the team would follow up with a question, "What changes can we make that will result in improvement" to demonstrate the outcome of the iterative process?

Two fundamental features (Langley et al., 2009; Lemire et al., 2017) of this work require improvement from continuous developing, testing, iterations of implementations, and changes; and recognitions of subject matter experts for defining and informing each step of a PDSA.

As noted by Christie et al. (2012), because the focus of PDSA is local and emphasizes the implementation of "small rapid cycle tests of changes," data are usually collected by those who are the front-liners of the system, such as a physician in a health care system or a teacher in a classroom (p. 14). The goal is to improve outcomes that are determined by owners of each process. These are considered concrete, front level practices rather than a high-level change, such as if someone is trying to pursue a broader cultural shift or change.

In a general PDSA cycle, the first step is to clearly state the objective of the PDSA cycle as well as answering some of the corresponding questions (Moen, Nolan, & Provost, 2012). In this stage, the key specification is determining how the data will be collected throughout the PDSA cycle by where, when, and whom to develop an "operational plan" (Lemire et al., 2017, p. 28). Implementation is the key component of the second step of the PDSA cycle. Documentation of emerging issues, challenges, or successes are highly recommended, and these are considered steps to ensure transparent and systematic process (Lemire et al., 2017). The third step is a stage where all team members compare and interpret observed patterns in the data and predict the captured information to identify similarities and contradictions of what is expected. These are usually done by embedded practices based on "past knowledge and experience" (Lemire et al., 2017, p. 28). In the final stage of PDSA, this would be considered an opportunity to provide additional modification or changes for desirable change before rerunning the cycle again, and it would serve as an opportunity to create a "learning loop, in which iterative rounds of developing, testing, and implementing changes" take place (Lemire et al., 2017, p. 28). Lemire's group (2017) also noted that there

is no one way of carrying out the PDSA cycles yet highlighted the principles suggested by Langley's team into three principles of "testing of change":

- Principle 1: Test on a small scale and build knowledge sequentially
- Principle 2: Collect data over time
- Principle 3: Include a wide range of conditions in the sequence of tests

In the real-world application of PDSA, these detailed steps may not be considered feasible, and a typical "black box" implementation approach can be found (Howard, Rankin, Fishman, Hawkinson, McGroder, &Helsel, 2014). For instance, Howard et al. (2014) describes coaching as a "black box" (p. 16) in which the inputs are known, and the outputs are improved teaching practice and instructional practices leading to child level outcomes in general. Howard et al. (2014) found coaching was often included in a package of professional development methods (that is, in-service training) and that the dosage and efficacy of coaching was largely unknown and lacking in detail. It reflected to me as in the context of education settings, coaching is used as a means to utilize data to improve a goal or quality at a given situation, which is conceptualized as data-driven decision making (DDDM). In the next section will display overview of DDDM and how it implies in the educational settings.

Data-Driven Decision Making

As I discussed in my overview of the features of Quality Rating Improvement System (QRIS), data-driven decision making (DDDM) is considered one of the key features in continuous quality improvement by systematically gathering, analyzing, and disseminating various types of data to inform decision making for improvement (Los Angeles County Department of Children and Family Services [LA DCFS], 2013; Ikemoto & Marsh, 2007; Mandinach, Honey, & Light, 2006; Marsh, Pane, & Hamilton, 2006). In this chapter, I will discuss what DDDM is, what common practices and features of DDDM are, why is it

important to address DDDM in building high quality early childhood systems, and how a state agency can foster DDDM at a system level.

Overview of Data-Driven Decision Making (DDDM)

Ongoing data collection and analysis is fundamental in order to build a system to understand what is working and what is not working (LA DCFS, 2013). As the education field is claiming "we are completely data driven" (Marsh et al., 2006, p. 1), DDDM plays a critical role in federal and state educational accountability policies (Guss et al. 2013; Marsh et al., 2006). Despite the increased interest in DDDM, the field is struggling to encompass how to utilize the overwhelming level of information (Celio & Harvey, 2005; Guss et al. 2013; Marsh et al., 2006).

DDDM was modeled from the ideas and features of Continuous Quality Improvement ([CQI], Byrk et al., 2016; Deming, 1986; Lemire et al., 2012; Perla et al., 2010). Marsh and her team (2006) described DDDM as an organizational improvement to enhance and respond to various types of data including "input data such as material costs, process data such as production rates, outcome data such as defect rates, and satisfaction data including employee and customer opinion" (p. 2). Marsh et al. (2006) further noted that the concept of DDDM arose in the 1980s from early discussions of measurement-driven instructions (Popham, 1987; Popham, Cruse, Rankin, Sandifer, & Williams, 1985) to initiatives of a state's use of site-based planning and decision-making processes in the 80s (Massell, 2001), and efforts to engage in strategic planning in the late 80s and 90s (Schmoker, 2004). DDDM has gained more attention due to the introduction of No Child Left Behind (NCLB) (U.S. Department of Education, 2001). NCLB emphasized four initiatives including *accountability* to ensure disadvantaged students achieve academic proficiency, *flexibility* to allow school districts to use federal educational funds for improving student achievement, *research-based education* to emphasize that implemented educational programs and practices have warrants as

evidence-based practices, and *parent options* to increase the choices for allowing students to attend Title I schools (Ikemoto & Marsh, 2007; Marsh et al., 2006; Washington Office of Superintendent of Public Instruction, n.d.; U.S Department of Education, 2001).

As I further reflect on the origin of DDDM in the education system, it seems clear that the current version of CQI and DDDM addressed in early learning initiatives such as Race to the Top (U.S. Department of Education, 2009) and the majority of the available studies are focused on data use in K-12 school settings (Anderson, Leithwood, & Strauss, 2010; Horn, Kane, & Wilson, 2015; Means, Padilla, DeBarger, & Bakia, 2009; Murnane, Sharkey, & Boudett, 2005; Sharkey & Murnane, 2003; Sutherland, 2004; Wohlstetter, Datnow, & Park, 2008). It was also not surprising to see limited information was available why increased use of data might be considered a fundamental component for system change in the early learning system (Little et al., 2019). There were some examples from Ikemoto & Marsh (2007) that DDDM processes in NCLB failed to acknowledge how use of data for decision making among practitioners varies, yet studies have shown actors in all levels of an education program (classroom, school, and district) believed DDDM is an important process and deemed useful for change (Kerr, Marsh, Ikemoto, Darilek, & Barney, 2006; Marsh, Kerr, Ikemoto, Darilek, Suttorp, & Zimmer, 2005). What was still unclear to me was how professionals in the educational settings blend previous experiences by sensemaking from what is presented in the data. It seems valuable to understand the process and features of DDDM and how different models of DDDM play a critical role. In this section I hope to illustrate the use of DDDM in K-12 settings and how it differs in the early learning field.

DDDM in K-12 Settings: School Improvement

Mandinach et al. (2006) conducted what is considered one of the cornerstones for conceptualizing the DDDM framework for school improvement in K-12 settings. Mandinach

et al. (2006) illustrated three key components of DDDM by referencing the work of Light, Wexler, and Heinze (2004): *data, information,* and *knowledge.*

> *Data* exist in a raw state. They do not have meaning in and of itself, and therefore, can exist in any form, usable or not. Whether or not data become information depends on the understanding of the person looking at the data.
>
> *Information* is data that is given meaning when connected to a context. It is data used to comprehend and organize our environment, unveiling an understanding of relations between data and context. Alone, however, it does not carry any implications for future action.
>
> *Knowledge* is the collection of information deemed useful, and eventually used to guide action. Knowledge is created through a sequential process. In relation to test information, the teacher's ability to see connections between students' scores on different item-skills analysis and classroom instruction, and then act on them, represents knowledge (p. 3).

The above components can be achieved by following four steps. Mandinach et al. (2006) added a progression for DDDM including *collecting and organizing data, understanding the situation by combining, sensemaking process by individuals to process information to knowledge,* and *collection of new data* for other knowledge for further improvement yields school level outcomes. Among all steps described above, the concept that struck me the most was the notion of a sensemaking process. Mandinach et al. (2006) further described the implementation and practical application of DDDM in a school system. Despite there being multiple barriers to execute such process for DDDM including training, technical training, or access to data issues (Choppin, 2002; Cromey, 2000; Mason, 2002; Wayman, 2005), findings from studies suggest support for teachers to use data for effective strategic planning is necessary (Confrey & Makar, 2005; Hammerman & Rubin, 2003).

Teachers often do not make use of data or examine data in a systematic way for planning long-term goals (Confrey & Makar, 2005). Mandinach et al. (2006) added that teachers either fail or neglect to understand statistical concepts represented by data that present descriptive results such as distribution, sampling, and variance. However, other researchers claimed it is sufficient for educators to focus on simple data analysis for answer questions for instructional improvement (Celio & Harvey, 2005; Herman & Gribbons, 2002). As Celio and Harvey (2005) suggested "less may be more" (p. 71); some educators felt it may be too much to understand the complexity and volume of data that may make them feel overwhelmed.

While Mandinach and her team's (2006) framework conceptualized the baseline framework and progression of DDDM, Ikemoto and Marsh (2007) further improved the idea by specifying four quadrants of DDDM based on its complexity. The four models of DDDM including *basic, analysis-focused, data-focused,* and *inquiry-focused,* each falling into one of the four quadrants along two continua (Ikemoto & Marsh, 2007). *Basic* DDDM – quadrant I – describes using data for simple analysis and procedure whereas *inquiry-focused* DDDM – quadrant IV – uses complex data and analysis techniques (Ikemoto & Marsh, 2007). Ikemoto and Marsh (2007) described that the term inquiry-focused was chosen as it's influenced by other researchers in the previous studies which utilizes DDDM as a way for organizational learning and continuous quality improvement (Copland, 2003; Feldman & Tung, 2001; Halverson, Grigg, Prichett, & Thomas, 2005).

In the *basic* DDDM model, educators mostly rely on a single type of data (i.e. outcome data) from one time point in a school year from prepopulated information (Ikemoto & Marsh, 2007). Often, it involves an administrator, or a principal of a school system, making her o his own decision based on one source of data which results in premature reallocation of training resources such as training for math instructional improvement (Ikemoto & Marsh, 2007).

In the *analysis-focused* DDDM model, Ikemoto and Marsh (2007) stated that the model involves groups of individuals at a school system (i.e. leadership team, grade-level teachers) with data available from "iterative examination" (p. 114). Despite the model being considered complex and collective, Ikemoto and Marsh (2007) warned that this quadrant of model does not involve expertise from subject matter experts and researchers with limited access to sophisticated analysis technique such as modeling and forecasting.

In the third quadrant, *data-focused* model, educators make use of multiple sets of data, yet these are often collected once a year. These types of data snapshot do not draw upon empirical evidence or expert knowledge (Ikemoto & Marsh, 2007). For instance, Ikemoto and Marsh (2007) provided another example from a school district where administrators were determined to gather and analyze survey information collected from multiple stakeholders including families, teachers, and administrators to address budget deficit and minimize direct impact to students. Despite the case described various actors in the system collected multiple levels of satisfaction data, the action based on the data did not fully utilize and articulate the meaning of the data, which could use a support from experts like educational researchers (Ikemoto & Marsh, 2007).

The last quadrant, *inquiry-focused* models, presented only five out of 36 cases. Examples included that significant effort and time were dedicated to probe and solve a specific problem that targets improvement of instructional practices. Ikemoto and Marsh (2007) added that the model also was emphasized by leadership members of a district and presented as an agenda item at a district principal meeting, teacher meeting, or even as a part of professional development. Despite the number of cases being relatively smaller than other models, it seemed clear that in this model, educators were drawing from multiple sources of data and collectively using the information to examine its evidence and use it as a part of ongoing quality improvement process (Ikemoto & Marsh, 2007).

One highlighted example includes a district led initiative to improve infrastructural and instructional capacity for English Language Learners. In the Institute for Learning (IFL) study (Ikemoto & Marsh, 2007), a district noticed that it was not meeting required activities based on the NCLB guidelines via evidence that low scores of English Language Learners (ELL) soared the total score for the district. The district developed a protocol to examine the situation by collecting evidence via a series of observations in non-ELL and ELL classrooms across the district (Ikemoto & Marsh, 2007). Members in the district also gathered qualitative information by asking questions of students and examining their schoolwork including observations of teacher instructional sessions and classroom materials. Drawing conclusions based on the quantitative and qualitative data; the district acknowledged that the current teacher workforce in the district only had sufficient competency that was considered elementary level Spanish as teachers did not speak the students' native language (Ikemoto & Marsh, 2007). This resulted in ELL teachers not providing the same rigor of instructions to students. The district then offered training and professional development opportunities to instructional staff, as well as convening study groups involving master ELL teachers who provided and promoted rigorous instructional practices across the district (Ikemoto & Marsh, 2007).

Across all models described above, despite there being a limited number of cases or instances of use of DDDM (Ikemoto & Marsh, 2007), it was clear that K-12 educators were adhering to different processes for DDDM which aligns with the incidence in a school level. I am also still unclear how these examples or models are displayed in the early learning settings. Also, I am wondering what are considered the catalysts and barriers for DDDM in an education system.

DDDM in Early Learning System

DDDM featured in an early learning system presented both similar and different features from the model in K-12 settings. As early childhood programs are pressured to gather data about children and teachers for DDDM (Stein et al., 2013; Yazejian & Bryant 2013; Zweig, Irwin, Kook, & Cox. 2015), a study from Little et al. (2019) posited what could be addressed in the early learning setting by utilizing Cohen-Vogel and Harrison's (2013) DDDM work. Little et al. (2019) described three distinctive features including *data access and availability, capacity for data use and action,* and *culture of data use.*

To inquire into *data access and availability,* Little et al. (2019) highlighted recent studies that confirmed an abundance of data in early childhood educational settings is inevitable (Firestone & González, 2007; Guskey, 2003; Halverson et al., 2007; Ingram, Louis, & Schroeder, 2004; Louis, Leithwood, Wahlstrom, & Anderson, 2010; Yazejian & Bryant, 2013). Little et al. (2019) organized different types of data referencing the work of Firestone and González (2007) by specifying data into *externally derived* versus *internally derived* data. *Externally derived* data are collected by actors that are not classroom teachers (i.e. coaches or administrators) and often include summative assessment or administrative data on student attendance (Little et al., 2019). These are considered and perceived as objective, valid, and reliable source of data especially from those in the educational measurement and evaluation field (Anderson et al., 2010). On the other hand, *internally derived* data are collected by instructional staff inside of a classroom that are also considered as process oriented (Little et al., 2019). Researchers view this type of data as a primary ingredient to improve instructional practices for teachers (Black & William, 1998; Firestone & González, 2007). Examples of *internally derived* data include observational notes, coaching notes, or activity logs (Little et al., 2019). Researchers also emphasized the importance of understanding how data access is available for teachers for DDDM (Petrides &

Guiney, 2002). Data systems have become more and more complex and there's a progression from the past where the central district office maintained independent sources of data (Petrides & Guiney, 2002). Instead, early learning systems such as Early Achievers in the current era use an Online Analytical Processing platform (Subotić, Poščić, & Slavuj, 2013) that enables anyone with access to cubical form of data to query business-level data. This encompasses all types of activities for DDDM including using multiple sources of data via relational databases, report writing using available data, and data mining that are historically held by subsystem or programs (Subotić et al, 2013). As I reflect findings from K-12 settings and early learning system, I felt collecting, managing, and accessing data have become too technical and complex for educators. Often, analyzing information from OLAP tools require not only the understanding of what has been collected, it requires training of super users to query data, understanding of SQL (domain specific language for a relational database management system), and proper tools and resources for executing such query such as MySQL or VizQL from Microsoft Power BI or Tableau.

Another feature illustrated by Little et al. (2019) includes *capacity for data use and action*. Researchers have agreed that schools utilizing high level data use often emphasize capacity for teachers and administrators to collectively engage in DDDM processes whereas low level of data use in schools often rely on expertise of external partners (Datnow & Hubbard, 2016; Halverson et al., 2007; Murnane et al., 2005). School administrators and instructional leaders may also use data to guide learning environment or instructional practices for process improvement (Cohen-Vogel & Harrison, 2013; Firestone & González, 2007) yet it was unclear to me whether these described different levels and types of DDDM similar to the classification of four quadrants (Ikemoto & Marsh, 2007).

The last pillar of the features of Little et al. (2019) describes *culture of data use among teachers.* Researchers have demonstrated that having a culture of data use among

teachers by setting norms and expectations enhances mutual accountability and positive environment in a school setting (Firestone & González, 2007; Wohlstetter et al., 2008). By having such atmosphere of "organizational learning," the focus of data use becomes intentional so that actors involved in such processes focus on improving instruction, solving problems, and incorporating long term investment by identifying support or professional development opportunities for future use (Firestone & González, 2007, p. 152). This seemed a cherry on the cake to me that rather than having an accountability system. The culture of organizational learning enhances and promotes collaborations among teachers and administrators rather than focusing on monitoring and evaluating performances. The conversation around data becomes the purpose of data meeting or check-ins which further enhances opportunities for improvement.

Examples above shown by Little et al. (2019) were mostly from pre-kindergarten programs or school-based programs. To inquire into unique challenges addressed in the early learning system, especially from other types of programs (i.e. inclusive classrooms, programs in QRIS), it is also important to acknowledge the work of Sandall and her team (2004) with early childhood interventionists' perspectives. Sandall et al. (2004) shared insights on why collecting and using data in early learning settings is challenging. Sandall et al. (2004) stated the three primary tenets of data collection in the early childhood settings: "a) to validate initial assessment information; (b) to develop a record of progress over time; and (c) to evaluate instructional effectiveness and make instructional decisions" (p. 161).

As the features and measures of quality assessments in early childhood programs have evolved, Sandall et al. (2004) also pointed out changes that are pivotal for monitoring progress of children. First, play-based or activity-based approaches were considered popular practices in early childhood settings in the 1990s and early 2000s (Bricker, Pretti-Frontczak, & McComas, 1998; Linder, 1993). As educators focused on incorporating interests of

children into their instructions and curriculum, the effort for monitoring children's progress is all aligned with their play and routine activities choices (Sandall et al., 2004). As the nature of instructions becomes play-based and project oriented, Sandall et al. (2004) noted this makes it harder for teachers or other instructional staff to collect and monitor data as opposed to the traditional single-case behavior monitoring approach in a special education program.

The other change that influenced the data use and collection in early childhood system includes approaches for building a portfolio for assessment (Grace & Shores, 1991; Lynch & Struewing, 2002). As a means to measure progress for children by collecting multiple sources of information that are considered developmentally appropriate (Bredekamp & Rosegrant, 1992), it is still unclear how assessment via portfolio strategies influence or impact use of data among teachers and administrators for improving instructional practices (Sandall et al, 2004). However, the approach is still viewed as purposeful and tells the "story of the child's effort, progress, or achievement over time" that may be slightly different than those assessment tools and approaches from K-12 settings (Sandall et al., 2004, p. 163).

Other approaches and findings in the recent years in the early childhood education (ECE) systems focused on the inquiry of implementation fidelity and program adherence using professional development tools or practices such as coaching. Downer (2013) referenced the studies conducted by Powell and Diamond (2013). Powell and Diamond (2013) found a combination of intervention fidelity and child level outcomes assessed by coaches and using those data to inform decision making among the implementation team members yielded focused instructional strategies for child development (i.e. language skills) rather than having broad inclusive goals and plans. As coaches were able to progress from a meta-dimensional improvement practices from improving language skills among children to narrow their scope to increased use of language-promoting practices such as labeling statements or scaffolding techniques, the progression provided a glimpse of blueprint in the

ECE field that perhaps DDDM is more effective when a reference category has been established and the strategy targets an inquiry-based model (Ikemoto & Marsh, 2007; Downer, 2013). Downer (2013) added that what we still don't know in the field requires careful navigation of factors that are associated during the implementation stage of DDDM such as "if data are being collected at a population level, would it be useful to build a system that shows an individual's fidelity data in comparison to the average fidelity data across the entire intervention?" or "Are there any unanticipated negative effects of data sharing, either in comparative fashion or otherwise?" (p. 163). Downer's perspective could be investigated ideally by a mixed-methods approach, yet this may take more time and coordination among stakeholders to inquire and initiative such a large-scale study.

Several themes came to my mind after reading the above collection of studies. It seemed clear that the early childhood system has its own unique way of collecting and using data to monitor and understand developmental measures that are considerably unique compared to those programs in K-12 programs. What are still unclear to me is, especially reflecting what is available from the Washington Early Achievers system, that the emphasis of data use and building the culture of DDDM has concentrated information on one actor of the system – children. What is yet to be known is the needs shown by Early Achievers implementation actors around building a system-wide database to capture coaching-relevant information – the actors outside of the core spectrum of QRIS support staff for quality improvement – and how the information can be utilized to improve quality and child development profiles. As noted by Downer (2013), as accountability increases whereas funding decreases in early childhood systems, collecting of evidence not only for documentation purposes for child progress but for understanding and informing strategies for continuous quality improvement across years of implementation of QRIS became inevitable.

Factors for DDDM: Enabling versus Prohibiting Factors

Regardless of program types or environment in K-12 or early childhood settings, Ikemoto and Marsh (2006) have identified factors enabling DDDM and factors prohibiting DDDM. Before displaying all factors for the current section, these factors can be classified into a broader classification of *technical* and *adaptive* change factors from system theorists (Heifetz & Linsky, 2002; Kauerz, 2020).

Technical Factors. Technical factors are considered known situations and finite challenges such as resources, funding, procedures, or documentations to address an issue (Heifetz & Linsky, 2002; Kauerz, 2020). Four areas of technical factors for addressing DDDM were identified by Ikemoto and Marsh (2006) including 1) *accessibility and timeliness of data,* 2) *capacity and support for staff,* 3) *time*, and 4) tools for DDDM.

Accessibility and Timeliness of Data. Accessibility and timeliness of data "greatly influences individual use [of data]" (Ikemoto & Marsh, 2006, p. 120). Ikemoto and Marsh (2006) pointed out most cases in their study, administrators in schools were able to see various types of data including student data. They had the ability to disaggregate data from the source, run item-level analysis, and presented results in multiple modes (Ikemoto & Marsh, 2006). On the other hand, data captured from state-level (i.e. state assessment data) were not available to teachers in a timely manner for triangulating of data available from the school level, and the system received criticisms from teachers and principals (Ikemoto & Marsh, 2006). Despite the state's inability, Ikemoto and Marsh (2006) pointed out teachers and administrators who were regularly reviewing and analyzing data were the ones who were in states or districts where data collection and available information for triangulation is beyond the scope of typical data collection including demographics, attendance, or achievement scores (i.e. parent survey data, student satisfactory data).

Capacity and Support for Staff. Capacity and support for staff for DDDM were reported lacking in most of the known studies (Choppin, 2002; Dembosky, Pane, Barney, & Christina, 2005; Feldman & Tung, 2001; Ikemoto & Marsh, 2006; Mason, 2002). In one study, about 23% of teachers reported they felt prepared to interpret and reflect student test scores for decision making processes (Ikemoto & Marsh, 2006). In addition, lack of capacity for principals' willingness to support teachers with professional development or training was also evident when Ikemoto and Marsh (2006) interviewed teachers for follow up questions after a survey was distributed.

Time. Time is another factor that enables or prohibits DDDM in education systems. Lack of time for analyzing, synthesizing, reflecting, and interpreting data limited DDDM among teachers and school systems in several studies (Feldman & Tang, 2001; Ingram et al., 2004). If DDDM was considered one of the priority items for meetings or collaborations, it is more likely that educators will have understanding and competencies to implicate what data tells which would lead to quality improvement actions (Lacht, 2001).

Tools. Tools and resources are one of the classic exemplar factors that are considered as a technical factor. As tools and resources often come from external partners, Ikemoto and Marsh (2006) emphasized the importance of having those tools for guiding "the overall inquiry process" (p. 123). Even if educators had access to data dashboards or simple summarized records that displayed raw data to graphs, this allowed teachers and administrators a means to manipulate and interpret the meanings of data (Ikemoto & Marsh, 2006). This may be also particularly true in the early childhood settings as Guss et al. (2013) noted, having resources such as master teachers' or coaches' expertise will enhance teachers' ability to better reflect observational data.

Adaptive Factors. In comparison to technical factors, adaptive factors and challenges are considered ambiguous, unclear, and requires attention to behaviors, attitudes, and values

to change a system (Heifetz & Linsky, 2002; Kauerz, 2020). These motivational inputs allow stakeholders in a system to engage and support to change the status quo exists at a system level, yet one of the primary challenges involves stakeholder's inability to project aligned results will be considered better status than its current situation (Kauerz, 2020). People are inherently unwilling to change and change is considered hard for people (Fullan, 2001). This becomes especially evidence when new expectations or agendas appear to be different or inconsistent with pre-existing agendas (Spillane, Reiser, & Reimer, 2002). In the context of DDDM models, Ikemoto and Marsh (2006) narrated 1) *perceived validity of data, 2) partnerships with internal and external organizations, 3) organizational culture and leadership,* and 4) *context from federal, state, and local government* should be considered for factors enhancing or prohibiting DDDM.

Perceived Validity of Data. Marsh et al. (2017) pointed out educators in their study questioned the validity of data. For instance, teachers were wondering whether the assessment tests were aligned with curriculum, whether satisfaction data with low response rates accurately measure intended outcomes, or whether the test scores of students reflect students' knowledge (Marsh et al., 2017). These perceived doubts about data affect buy-in of educators, acceptance, or support for the data that researchers agreed that factors affecting DDDM (Feldman & Tung, 2001; Herman & Gibbons, 2001; Ingram et al., 2004).

Partnerships with External Organizations. Partnering with external organizations for DDDM also yielded positive culture of data use (Marsh et al., 2017). Having solid partnerships with partner agencies often create a linkage between partners to share information and means of reflecting the information that is aligned with local needs (Coburn, Honig, & Stein, 2007; Spillane & Thompson, 1997). This was also displayed in one of the studies that emphasized local-public-private partnerships for not only a program-level

change, but also broader policy and system level changes (Guss et al., 2013; Yazejian & Bryant, 2013).

Organizational Culture and Leadership. Ikemoto & Marsh (2007) have described organizations that have administrators and leadership staff with visions of DDDM who promote collaboration for data use across the entity and promoted DDDM, whereas administrators with visions wherein instruction is considered private constrained the inquiry process for DDDM. It seemed obvious that leaders who are exposed to such DDDM practices as a regular routine were more likely to promote DDDM for effective data use, which leads to decision making that is committed for changes in schools (Choppin 2002; Copland, 2003; Feldman & Tung, 2001; Herman & Gribbons, 2001; Ikemoto & Marsh, 2007; Lachat & Smith, 2005; Symonds, 2003).

Federal, State, and Local Policy Context. Finally, context from federal, state, or, local policy context would influence implementing DDDM in a system. For instance, the NCLB act created a culture of incentivizing programs that are examining student achievement data and as a result, schools would have more students meeting the standards (Ikemoto & Marsh, 2007). Despite the policy seemingly having contributed to improve accessibility and motivation for analyzing data, Ikemoto and Marsh (2007) pointed out it does not encourage use of multiple types and sources of data for inquiry processes. This was similar to the claim from Boller and Maxwell (2015) that states who implemented QRIS generally do not have capacities to inquire implementation practices or collect multiple evidence for system changes.

To summarize the information above, multiple factors influence DDDM by enabling or prohibiting such practices. Although these factors are mostly influencing complex forms of DDDM, as DDDM is not a straightforward nor monolithic activity, multiple considerations

are required to examine whether DDDM works or not at a system level for policy implications.

System Initiatives and Policy Implications of DDDM

The current section will address how a state system can evaluate its own initiatives by utilizing data-driven decision-making processes. For a system to evaluate its own design, it is desirable to have a theory of change (Coffman, 2007). Coffman described that the notion of "theory of change" gained attention in the early childhood field especially in the 1990s (p. 1). Connell, Kubisch, Schorr, and Weiss (1995) introduced the approach for evaluating complex initiatives such as Community Initiatives for Children and Families. Despite its popularity as a system level initiative, Coffman (2007) noted theories of change is not a "panacea for all evaluation dilemmas" (p. 1). The approach was merely describing the system elements and its complexities rather than testing assumptions and validity of assessments.

Coffman (2007) further described and introduced the theory of change that can be implemented for a Quality Rating Improvement System (QRIS). The five elements of a system initiative consist of *context, components, connections, infrastructure,* and *scale* (Coffman, 2007, p. 2). *Context* describes the political environment around the system that sketches policy and funding changes for sustaining the system. *Components* establishes high-performance systems that drives results for system initiatives. *Connections* creates linkages between system components for further improvement. *Infrastructure* develops and supports the system. And finally, *scale* ensures access to system to a broader community and beneficiaries so that it produces inclusive results for all. Not all system has all five element (Coffman, 2007) and it may be worth dissecting activities, outcomes, and impacts of the Coffman's model that describes the elements of DDDM. All five elements of Coffman (2007)'s model describes a methodology for collecting and analyzing data for system

improvements, yet I believe it's worth further investigating the *connections* and *infrastructure* stages of the change.

During the *connections* phase, Coffman (2007) utilized questions to inquire whether the initiative connected implementation components as intended and whether those connections produced intended outcomes. Several approaches were introduced including Social Network Analysis (Durland & Fredericks, 2005) to understand the relationships among actors, groups, and entities in a system. By identifying nodes and networks among those ingredients, one can establish and determine whether the network connections look similar or different over time (Coffman, 2007). An experimental or quasi-experimental design can be constructed for understanding how connections produced intended outcomes (Coffman, 2007). For instance, Coffman (2007) introduced a case study from SPARK initiative evaluation as Berkley (2005) equipped a cluster evaluation where an overall evaluator assesses the initiative level assessment across the SPARK sites and project-level evaluators at a site level. Despite the methodology was not clearly articulated, findings suggest partnerships within the SPARK sites and the intentional leadership effort from key partners became catalysts for local, state, and national level change (Coffman, 2007). These outcomes were queried based on kindergarten readiness assessments, focus groups and key informant interviews at a site level, and surveys and quarterly calls among grantees which also lead to content analysis of key documentation (Berkley, 2005).

It seemed clear to me that the evaluation team utilized multiple approaches including quantitative and qualitative data collection, the effort resulted in a great example for creating a process for shared data systems for monitoring individual and organizational level outcomes for system linkages, alignment, and coordination (Coffman, 2007), so that the data can further describe elements for data-driven decision-making processes.

In the *infrastructure* phase, Coffman (2007) focused on asking whether the infrastructure for the initiative support the original objectives and inquiring whether the initiative achieved the objectives for "effectiveness, sustainability, and quality" (p. 17). Case study or performance audit were introduced for understanding the effectiveness of such infrastructure (Coffman, 2007). As a type of post-hoc analysis for understanding success or failure of a system, Coffman (2007) described the success case method of Brinkerhoff (2003) combined storytelling features and deliverables such as reports that all actors in a system can "understand and believe" (p. 23) the initiatives. Performance audit was also introduced which determines how well an entity is functioning for its intended initiative (Coffman, 2007). Performing customer satisfaction surveys or program evaluations can help stakeholders to understand whether a particular service is considered accessible and user-intuitive, or it has an impact to the intended recipient of the service (Coffman, 2007).

This was another great example where DDDM was employed by creating a cross-system governance protocol or system-wide use of data to describe how infrastructural outcomes connect to beneficiary impacts (Coffman, 2007). It seemed well organized to ensure the ecosystem of a complex system level initiatives which produces better impacts for beneficiaries across "a broad spectrum of domains and on a system-wide population level" (Coffman, 2007, p. 8).

Finally, it is also worth noting the implications of DDDM at a practical and policy level. As noted earlier, DDDM is complex, and it is not a linear process (Ikemoto & Marsh, 2007). Most of the DDDM models described in the literature focused on the "basic" model of DDDM (Guss et al., 2013; Ikemoto & Marsh, 2007; Marsh et al, 2006). This may be due to most educators not having a background in quantitative methodologies or capacity to utilize advanced techniques, yet this could be also addressed by having expert support (i.e. master teacher, coach, or researchers) to review descriptive and inferences to reflect practices. Guss

and their team (2013) also highlighted especially in the early childhood programs (i.e. Educare model), such practice could help educators to review multiple perspectives of data that are captured by some of the evidence-based assessment tools as ERS or CLASS tools. There are claims the "basic" type of DDDM model is sufficient in the classroom and practical level as questions addressed in practice and perhaps less data is "more" in terms of preventing teachers' fatigue from too much data (Celio & Harvey, 2005; Herman & Gibbons, 2001).

The other implication that I would like to highlight is for policymakers and these are recommended by Marsh et al. (2006). DDDM is not a silver bullet for solving all problems in education systems that guarantee decision making processes (Marsh et al., 2006). Without careful consideration of infrastructure, knowledge, intentionality around how data collected will lead to improvements and actions, this would be considered a wasted opportunity as the process for transforming data, transferring data, collecting, analyzing, and building data archive for infrastructure costs not only financial capacity, but also time and labor from all actors from the system. Another implication that I want to highlight is capturing multiple sources of data. The most popular model of "basic" model of DDDM only captures certain type of information at a certain time frame. Having multiple check points and strategies for inquiring into multiple types and sources of data will inform a more balanced approach for decision making which would minimize a sole reliance for one data source (Copland, 2003; Guskey, 2003; Herman, 2002; Keeney, 1998). The other sources of data can be considered behavioral indicators (i.e. social emotional scales and assessments in early learning), process and inquiry data for inquiring quality of teacher interactions and instructions (Marsh et al., 2006).

Another implication for policymakers includes attention to same amount of priorities put on taking action based on data on top of collecting and analyzing data. Marsh et al.

(2006) pointed out analyzing data and interpreting data for actions are "two different steps" and "taking action is often more challenging and might require more creativity than analysis" (p. 10). Yet there is still lack of evidence around taking actions and providing such support such as professional development and training opportunities for educators. Providing resources and support such as professional development and resources for local and expert reviews will further enhance the processes for DDDM.

Finally, the last implication that I want to address is building cohesive and nurturing partnership between educators, policy makers, and researchers in the system. A long-term, mutually beneficial collaboration is one that promotes the production and use of rigorous research about problems of practice that are intentionally organized (Coburn, Penuel, & Geil, 2013). Collaboration holds promise for improving the relevance of the research produced, the use of research by organizations, and outcomes for children (Coburn et al., 2013). Creating such a culture of collaboration and partnership will enhance relationships among implementation partners and advocate the actors in the system for a culture to use more DDDM processes. As Tseng (2017) noted, *"*Research-practice partnerships can address persistent challenges by producing new knowledge, building capacity, and informing action" (p. 1). I believe the goal of our education system is not just providing more opportunities for DDDM. We are using DDDM as a means so that a change can be addressed while facing difficult challenges in the system such as more accountability and less funding driven from federal, state, and local level (Downer, 2013). Building such a relationship first would enhance not only DDDM, it also enables implementation partners to think about and discuss what is our goal for DDDM for system initiatives and changes.

In this chapter, I discussed an overview of DDDM, how different models of DDDM are displayed in K-12 and early learning system, factors enabling and prohibiting DDDM, and implications for practitioners and policymakers how DDDM can play a critical role in

our system. For the last chapter of my literature review, I will articulate one of the unique structures of Washington QRIS that how CQI and DDDM are infused in our coaching system.

Coaching in Early Learning

For this section, I will cover the current coaching framework applied in the Washington statewide QRIS, and how researchers describe effectiveness of coaching and professional development in the early childhood education system. According to Candace Bixler (2018), "What we are doing right now in education is like bringing together successful coaches from varied sports, basketball, gymnastics, football, tennis, and swimming to develop a winning team when we haven't even determined the sport or the playing field" (p .1). As I reflect on this statement, I felt the comment resonated with the limited information available from literature; on the other the hand, this brings an opportunity for educational researchers to synthesize what's known so far about coaching. There is a consensus in the early childhood system that high-quality professional development yields improved teacher instructional practices that leads to child level outcomes, and coaching - one of the activities of CQI - enables change at a QRIS program level by creating a culture of sustainability, curiosity, and proactive decision making using data (Diamond & Powell, 2011; Dickinson & McCabe 2001; Goffin & Barnett, 2015; Howard et al., 2014; Snyder et al., 2015; Tarrant & Huerta, 2015).

From a broader perspective, coaching can be described as "partnering with clients in a thought-provoking and creative process that inspires them to maximize their personal and professional potential" (International Coach Federation, n.d.). In the early childhood context, the National Association for the Education of Young Children (2011) defines coaching as:

> a relationship-based process led by an expert with specialized and adult learning knowledge and skills, who often serves in a different professional role than the

> recipient(s). Coaching is designed to build capacity for specific professional dispositions, skills, and behaviors and is focused on goal setting and achievement for an individual or group (p. 11).

The definition from NAEYC (2011) was similar to the definition of Practice-based Coaching (PBC) suggested by the federal Head Start agency Early Childhood Learning and Knowledge Center (ECLKC). PBC is one of the commonly used frameworks for coaching in the early childhood context as well as in the Washington Early Achievers system (DCYF, 2020; Keller, 2017). ECLKC (n.d.) defines PBC as "a professional development strategy that uses a cyclical process" (p. 1). This process supports teachers' use of effective teaching practices that lead to positive outcomes for children. PBC occurs in the context of collaborative partnerships.

Interestingly, the definitions above all highlighted partnerships and building relationships, yet did not articulate how to build collaborative partnerships. For me, it seemed clear that coaching is a process that occurred between a coach and a coachee. Yet there was not a specific definition for professionals in the early learning settings who are not a part of federal programs such as Head Start. As stated by multiple researchers, there is a need for consensus around defining what's considered coaching in QRIS (Artmen-Meeker, et al., 2015; Boller et al., 2015; Joo, Magnuson, Duncan, Schindler, Yoshikawa, & Ziol-Guest, 2020; Paulsell et al., 2013). But why is coaching considered important activity for continuous quality improvement in early childhood settings?

Examples present in the early childhood settings suggest a mixed bag of results. For instance, in Head Start programs, Howard et al. (2014) reported three areas of positive effects of coaching including teacher practice, classroom quality, and child outcomes. Teacher practice is one area of study where positive impact can be observed from coaching. Twenty two studies examined by Aikens and Akers (2011) found a positive association between

coaching and classroom instruction. For instance, one quasi-experimental study (Fiene, 2002) cited by Aikens and Akers (2011) noted that center-based teachers who received mentoring and coaching for over a period of four months gained improved teacher sensitivity and effective discipline compared to the control group. Another randomized control study for observing teachers' practices on language and literacy instructions (i.e. phonics, phonemic awareness, and oral language development) suggest teachers who received coaching for nine months provided more linguistic feedback and modeling to children than the participants in the control group (Wasik & Hindman, 2011). Other studies provided content-specific classroom instructional practice measures including the impact of math and science coaching to improve facilitation of mathematical thinking (Whittaker, Kinzie, Williford, & DeCoster, 2016) and enhancing teachers' literacy instructional skills (Bratsch-Hines, Carr, Zgourou, Vernon-Feagans, & Willoughby, 2020; Buell, Hooper, Hallam, & Han, 2018; Neuman & Cunningham, 2009).

Classroom quality was another area where coaching can demonstrate positive effects (Howard et al., 2014). Twenty seven out of 31 studies that Isner's team (2011) examined provided positive impact on early learning environment quality which can be observed by Early Childhood Environment Rating Scale (ECERS) (Harms et al., 1998) or Classroom Assessment Scoring System (CLASS) (Pianta et al., 2008). One of the studies (Conroy & Sutherland, 2018) also found that teachers who have received coaching increased their sense of self-efficacy over time compared to those who did not receive coaching. Conroy and Sutherland (2018) also noted that the observed challenging behaviors of children decreased and overall engagement among children increased which created an overall positive classroom environment.

Child-level or learner outcome is considered the one of the ultimate goals of coaching (Howard et al., 2014; Pierce & Buysse, 2014). However, findings present some coaching

interventions do not affect child outcomes (Sabol et al., 2013; Sabol & Pianta, 2014; Hong et al., 2014). For instance, Cusmano et al. (2006) presented a multigroup comparison study of teachers participating in coursework training and coaching for phonological awareness. The results suggest little to no difference was found between teachers in the treatment group and teachers in the comparison condition with no coaching and training (Cusmano et al., 2006). The literature review examined by Aikens and Akers (2011) also reported 21 out of 35 examined studies provided child outcomes. However, the authors cautioned readers as these studies included coaching as one of the activities under the umbrella of professional development and it may be true that coaching alone does not provide much evidence in child level outcomes (Aikens & Akers, 2011).

Coaching in early learning settings is usually administered with a training or a professional development session (Artman-Meeker, Fettig, Penny, Braton, & Zeng, 2015). No reviews have examined other contextual factors such as how coaches prepare specific coaching components and strategies (Artman-Meeker et al., 2015); indeed, full information on coaching is often missing to understand the contextual variability in a setting (Aikens & Akers, 2011; Isner et al., 2011), and even if the study provides coaching features (Snyder et al., 2015), it is still unclear which coaching strategies have been employed in which degree and dosage that impact child-level outcomes (Bean, Draper, Hall, Vandemolen, & Zigmond, 2010; Gamse, Jacob, Host, Boualy, … Rosenblum, 2008).

On the other hand, there is a body of literature that presents consensus around what is considered effective coaching practices to improve teacher-level and learner-level outcomes (Pierce & Buysee, 2014). According to Pierce and Buysee (2014), the components of effective coaching practices include 1) *Observation*; 2) *Modeling* (also referred to as demonstration); 3) *Performance Feedback*; and 4) "*Alliance-Building Strategies* also referred to as "relationship-building strategies" (p. 4).

Observation (i.e. life observation, self-observation, or video recording) is concerned with monitoring teacher practice in a learning environment or a classroom setting. Pierce (2015) defines the primary purpose of observation as engaging a coach to provide coaching practices such as modeling or providing performance (Kretlow & Bartholomew, 2010; Neuman & Cunningham, 2009; Stormont & Reinke, 2012; Snyder et al., 2015). Observation creates a natural environment for a coach to collect data on a teacher's use of evidence-based instructional practices or it may provide opportunities to model an evidence-based practice to teachers (Pierce & Buysee, 2014).

Modeling occurs when a coach demonstrates a practice (Pierce, 2015). Modeling is typically used by a coach when a teacher does not use an evidence-based instructional practice with the learner or does not implement that practice. Pierce and Buysee (2014) described the primary purpose of in-person modeling as helping the teacher understand how the accurate use of teacher practice impacts the performance of the learner (Kretlow and Bartholomew, 2010; Neuman & Cunningham, 2009; Winton, Snyder, & Goffin, 2015).

Providing performance feedback entails the coach's presentation and dissemination of observed data to the teacher on their teaching practice (Pierce & Buysee, 2014). Providing feedback is highly effective for improving instructional practices in early learning settings (Diamond & Powell, 2011; Hemmeter, Snyder, Fox, & Algina, 2016; Shannon, Snyder, & McLaughlin, 2015; Snyder et al., 2015) and it is considered most effective when it is "specific, positive, timely, and corrective, if warranted" (Pierce & Buysee, 2014, p. 5). Visuals including graphs, charts, and oral feedback are considered one of the most frequently used formats while delivering feedback (Solomon, Klein, & Politylo, 2012) and can be an effective method to develop goals, action plans, or to support teachers to engage in problem solving processes for implementing new practices (Shannon et al., 2015).

Finally, alliance building strategies (or relationship-building strategies; see Pierce & Buysee, 2014) play a critical role in building positive relationships between a teacher and a coach. A strong alliance builds a solid foundation for teachers and coaches to work together as a dyad (Ippolito, 2010; Neufeld & Roper, 2003; Shanklin, 2006; Snyder et al., 2015; Wehby, Maggin, Partin, & Robertson, 2012). In the early childhood system, the alliance building is often referred to as "collaborative partnership" (Snyder et al., 2015, p. 135), a cornerstone for effective and productive coaching and for building relationships across coaches, teachers, and families (Basu et al., 2010; Rush & Shelden, 2011). Examples for building collaborative partnerships include utilizing interpersonal skills (Ippolito, 2010; Neuman & Wright, 2010; Walpole & Blamey, 2008) and collaboration skills (Neuman & Wright, 2010; Shannon et al., 2015; Vanderburg & Stephens, 2009; Walpole et al., 2010).

Despite the growing body of coaching literature suggesting findings in improved teacher practices, improved classroom quality, and child level outcomes, the current body of literature lacks information regarding how coaches interpret observations and share findings with coachees (i.e., teachers, directors, providers, etc) towards continuously improving instructional practice. As coaching is often examined along with other types of professional development strategies (Howard et al., 2014), the currently available studies also lack findings around what coaching are considered effective strategies especially in QRIS programs (Boiler & Maxwell, 2015; Fox, Hemmeter, Snyder, Binder, & Clarke, 2011; Paulsell et al., 2015).

Finally, it seems most important to understand the perspectives and decision-making processes of QRIS administrators and leaderships perceptions around coaching and how they use data on coaching to execute policy, business decisions, or allocating resources for additional support for teachers and instructional staff in a classroom. Although one study (Smith, Robbins, Schneider, Lee Kreader, & Ong, 2012) examined interview results of 17

statewide QRIS technical assistants, the majority participating programs sampled in the study were regulated childcare centers (91%) whereas in Washington, 59% (2,271 out of 3,845 programs; DCYF, 2021) of Early Achievers participating sites are FCCs. The population and programs that we serve in Washington may or may not benefit from findings from literature as majority of programs does not have such infrastructure nor capacity supported from the state agency. As identified earlier, the state currently does not have guidelines nor support for collecting of additional data sources (i.e. child level outcomes) unless the programs are considered state-funded programs (i.e. ECEAP). This political context makes it difficult for professionals in QRIS from pursuing DDDM at a program level. In addition, in depth quantitative and qualitative inquiries on investigating collaborative processes across QRIS, licensing programs, K-12 system, state-funded programs, and city-based universal pre-K programs could potentially benefit by employing such approach to highlight types of events and success stories in program/entity level cases as a case study and this will provide sequences and relationships happening in various systems-building contexts (Kauerz, 2020).

In sum, coaching plays a crucial role as a catalyst to improve teachers' teaching practices (Artman-Meeker, et al. 2015; Buell et al., 2018; Bratsch-Hines, et al., 2020; Neuman & Cunningham, 2009). While it is still unclear how or to what extent coaching yields child-level outcomes in QRIS settings (Hong et al., 2014; Sabol et al., 2013; Sabol & Pianta, 2014; Smith et al., 2012), evidence suggests as a component of CQI, coaching can improve classroom quality (Conroy & Sutherland, 2018; Isner et al., 2011; Neuman & Wright, 2010), which is positively associated with child-level outcomes. There is a need to clarify what is the data available for inquiring coaching processes as well as how coaches and system stakeholders use such information for better decision-making processes. In the current study, I hope to address if there is a way to learn about how DDDM plays a role among

different actors of QRIS and I hypothesize majority of the DDDM activities occur between coach and a coachee as a part of Practice-based Coaching.

Methods

This section will address the following criteria to demonstrate which type of mixed-method research that I have used in the research as well as the following information, including research questions, research design, participants, data collection and analysis, and validity, reliability, and methodological integrity of the current study.

Research Questions

As a reminder, the intent of the study is to inquire about the current state of the early learning system (Early Achievers) while the revision and transition of the QRIS system is in review (Fiscal Year 2020-21). For the current study based on the concerns and ideas reflected from the literature, I want to understand if the existing resources and data illustrated the overview status coaching in Washington State – a primary means for DDDM in the Early Achievers context. The current study addresses the following research questions:

- RQ1: What is the overall state of the coaching workforce in the Washington State Early Learning system including the number of coaches, caseloads, and the characteristics?
- RQ2: What are the characteristics of coaching activities reported on the statewide Web-based Early Learning System?
- RQ3: In what ways do the perspectives from Early Achievers partners explain the quantitative results reported on the statewide WELS database?
- RQ4: What are perspectives from QRIS implementation partners for improving the current system for supporting coaches?

Research Design

For the current study, I used a mixed methods sequential explanatory design which consists of two phases: quantitative followed by qualitative (Creswell, Plano Clark, Gutmann, & Hanson, 2003; Ivankova, 2005). In the sequential explanatory design, the researcher first inquires, collects, and analyzes quantitative data which are in a numerical form. The qualitative (text/string) data are collected and analyzed after the initial sequence and helps to explain, elaborate on, or validate the quantitative results derived from the first phase of the analysis. The qualitative phase builds on the quantitative phase, then the two phases are connected or converged in the intermediate stage of the study. The rationale for this approach is to inquire about macro level understanding of quantitative data and its subsequent analysis to understand the general sense of a research problem (Ivankova, Creswell, & Stick, 2006). Ivankova et al. (2006) added "the qualitative data and their analysis refine and explain those statistical results by exploring participants' views in more depth (Creswell, 2003; Rossman & Wilson, 1985; Tashakkori & Teddlie, 1998)" (p. 5).

The goal of mixed methods research is to strengthen and expand the study's analysis and its findings which then contributes to published literature (Schoonenboom & Johnson, 2017). Johnson, Onwuegbuzie, & Turner (2007) defines mixed research as the following:

> Mixed methods research is the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches (e. g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration (p. 123).

Greene, Valerie, and Graham (1989, p. 259) classified five purposes for applying mixed methods for research in the field of social sciences. These include:

- *Triangulation:* Convergence, corroboration, correspondence of results from different methods;
- *Complementarity:* Elaboration, enhancement, illustration, clarification of the results from one method with the results from the other method;
- *Development:* Use the results from one method to help develop or inform the other method, where development is broadly construed to include sampling and implementation, as well as measurement decisions;
- *Initiation:* The discovery of paradox and contradiction, new perspectives of frameworks, the recasting of questions or results from one method with questions or results from the other method; and,
- *Expansion:* Extend the breadth and range of inquiry by using different methods for different inquiry components.

Since the goal of the current study is to inquire into and validate the status and how existing data displays QRIS implementation activities (i.e. coaching) in different sub-systems of Early Achievers and learn about how and why the existing data values and reflects the perspectives of implementation partners, the sequential explanatory design matched the needs of the research approach. Schoonenboom and Johnson (2017) stated that this approach "heightened knowledge and validity" as well as supporting legitimation of the process by validating multiple sources (p. 110). The approach also supports the validity and integrity of the empirical evidence (especially from the quantitative results) as due to the current global COVID-19 pandemic, secondary data collection was one of the only feasible methods to conduct the current study, which may degrade the quality and reliability of the empirical evidence. I hope the qualitative data presented by interview participants further articulates what is occurring within the Early Achievers coaching system (See Table 1 for data collected for the current study).

Participants

Administrative and support professionals (n=22) working in the Early Achievers implementation partner sites were invited to participate in the latter part of the study as case study participants. Out of 22 professionals, a total of six coach support administrators and training specialists in the partner agencies agreed to participate in a 1-hour Zoom interview. The participants were considered the primary implementation team members for designing, informing, and supporting the vision of an integrated support system among Early Achievers coaches across all subsystems. Participants were considered implementation team members providing oversight and administration of coaching and continuous quality improvement (CQI) (Tout et al., 2013). Despite the participants in the current study were not directly serving as Early Achievers coaches in the system, they possessed sufficient qualifications and understandings around coaching and CQI among programs participating in the Early Achievers. They were currently serving as coach support professionals across all three subsystems in Early Achievers including Child Care Aware of Washington, Cultivate Learning, and Early Childhood Education and Assistance Program (See Table 6 for more information on participant demographics of the current study).

Recruitment

Before each interview, I informed participants about the following information: 1) Overview/motivation of the study; 2) Purpose and procedure of the interview; 3) Dissemination plan for the draft and final deliverable; 4) Risk and benefit of participating in the study, and; 5) Verbal consent followed by collecting demographic identifier/descriptors including race/ethnicity; current role in the Early Achievers partner agency; years of experience in the current position; years of experience in the early childhood position; and specialty in coaching support network agency (See Appendix F for more information on consent form and recruitment letter). Participants selected for the current study are considered

a representative sample of the early childhood professionals as all participants (n=6) in the current study were White females from non-Hispanic backgrounds with more than 20 years of experiences in the early learning field (Kisker et al., 1991; Saluja et al., 2002). All of them were currently supporting Early Achievers coaches in their own subsystems. These activities include onboarding and training coaches, support coaches on creating and reflecting continuous quality improvements including setting goals and action plans and disseminating information regarding partner conversations across all three Early Achievers implementation agencies to coaches.

Data Collection

Quantitative data (WELS)

I collected two sets of quantitative data via secondary data collection. The first data set represents coaching activity data (n= 2,757 sites) queried from WA DCYF Web-based Early Learning System Data Warehouse (WELS-DW) Notes cube (DCYF, n.d.). The WELS - OLAP database was a primary source for Early Achievers coaches to enter information regarding quality improvement plans (i.e. co-created coaching goals and action plans with coachees) and types/objectives of coaching activities on a daily basis (DEL, 2015). OLAP is a certain classification of a database which enables educational organizations to support implementation of business intelligence (Subotic, et al., 2013). Originated from E.F. Codd, a British mathematician in the 1970s, OLAP is one of the most complex architecture to understand due to "the need to intimately understand the business as well as a vast array of IT areas of specialization involving data architecture, reference data, master data, data governance, data stewardship, data discovery, data in motion, and a variety of associated disciplines" (Luisi, 2014, p. 189). Subotic's group (2013) referenced Codd's foundational work to present the relational data model and became one of the most popular types of databases in the today's world of relational databases which allows users of a database to

query information of multiple dimensions including time, measures, and value of selected measures. Similar to the findings from literature, as states do not systematically collect information on how early childhood education programs collect and use such data (Zweig et al., 2018), I created a WELS data pipeline for the purpose of the current study (see Figure 2).

Quantitative Data (Coach Demographics)

The second data set represents coach demographic reports and roster data sets from Child Care Aware of Washington (CCA of WA) the Department of Children, Youth, and Families Early Childhood Education and Assistance Program (ECEAP). In general, the coaches supporting continuous quality improvement described in the literature tend to have levels of experience and education that are higher than the teacher in an early learning program (Isner et al, 2011). As coaches play a critical role in implementing and disseminating CQI practices, having coach demographics information would help researchers and policymakers in multiple ways. Having a generalizable snapshot of a particular demographics will support implications around resource allocations for CQI as well as understanding the infrastructure needs of Early Achievers. This would support community planning and revision process for Early Achievers that are currently happening and allocate training and professional development support that further enhance the use of evidence-based coaching practices.

In addition to the coach demographics, I also acquired a series of Coach Framework Training participant information from the University of Washington Professional Learning and Coaching team (from 2015 - 2020). Since the coach workforce data sets collected by agency representatives included individual level information that can be later linked to WELS database for further analysis, representatives from CCA of WA raised concern about sharing this; instead CCA of WA data team shared a pre-populated report in a PDF format (see Appendix E for more information). For ECEAP programs, per information provided by the ECEAP representative, the ECEAP system currently does not collect any demographic

information for coaches or directors who share coaching duties yet expressed their interest in collecting such information in the future. The intent of collecting such information would help illustrate how much support infrastructure is currently available for teachers to utilize the established coaching system for DDDM. It is also important to note that Washington is one of the nine states in QRIS participating states that coaching is required activities for continuous quality improvement (Isner et al., 2011).

Qualitative Data (Interviews)

For the latter sequence of the study, six interviews via Zoom platform were conducted between April 20 to May 12, 2021. Despite the original intent of the research being to address thoughts, perspectives, and concerns from Early Achievers coaches (see Appendix D for original interview questions for Early Achievers coaches), Early Achievers implementation partners across programs declined my request due to: 1) conflict of interest around the research questions being evaluative on identifying coaching practices among Early Achievers coaches and 2) concerns around coaches' time commitment due to COVID-19 outbreak to maximize workforce time commitment for supporting child care professionals. Despite the initial request being denied, the network partners were willing to conduct 1-hour semi-structured interviews for the current study.

After each interview was held, I reviewed the interview recordings within 48 hours by segments based on the timestamp collected from the Zoom transcription system in the Words format. The transcripts were also shared with all participants via a secured system (ShareFile program). Once the initial transcription was completed, I utilized a general inductive analysis approach (Thomas, 2006) for the current study.

Interview Questions and Procedures

The following open-ended questions were asked in the beginning of the interview session:

- From your own perspectives, please provide your perspectives on what's captured on the WELS system (Figure 4, 5, and 6 were shared with the participant prior to the interview).
- Do you feel WELS is gathering what's considered intended information for the Early Achievers system? Please share your perspectives.
- If there's a magic wand, in the next 3-5 years, what suggestions do you have to the state QRIS system and implementation partners in regards to collecting and managing coaching-relevant data and coach support system?

The interview participants were recruited via e-mail from the researcher three weeks prior to the data collection phase with instructions and the above research questions. The interview was semi-structured, and participants shared information other than what was formally asked throughout the interview. This may be since the interview participants and I had established professional relationships over the past ten years in the Early Achievers system. Some of the follow-up questions were asked after the first two questions were introduced, including "What are some of the characteristics that you have seen from coaches as successful implementation practices yet it is not addressed on WELS?" and "Could you share challenges of the current system that's particularly affecting your agency?" The intent of these additional two questions was to 1) seek system-level reflections from multiple vantage points and 2) inquire into case-specific scenarios uniquely related to the role of each Early Achievers implementation partner.

Data Analysis

Quantitative Data (WELS)

A descriptive analysis on 1) frequency based on types of coaching activities; 2) frequency based on coaching objectives; and 3) average time spent on coaching objectives were conducted. As over 30 variables were recorded, the following presents measures of the

top five reported coaching objectives (DEL, 2015, pp. 31-34) addressed in the current analysis (see Table 3 for all variables included in the current study):

Correspondence represents records for phone calls and emails for or planning, scheduling/cancelling appointments, etc.

Data input represents records for coaches and coachees entering data on WELS and other data sources provided by a contractor, district, or a site level (i.e. ELMS, MERIT, Schoology, Teaching Strategies GOLD, etc).

Learning environment refers to coach efforts to ensure that learning environments are well-organized, clean, safe and well-managed, and are full of social and emotional support, instructional interactions and materials that stimulate children's thinking and skills which may include using the Environment Rating Scales as a resource to inform practice.

Resource Linking refers to coach efforts to support providers as they find resources beyond the scope of coaching, such as links to food assistance programs for families, childcare assistance for families, appropriate counseling services for staff and/or families, technology and information services like libraries and computer labs and training services through various agencies, etc. This also may refer to coach efforts to support providers to find resources that support their Early Achievers goals, such as resources found in the WELS library, the Coaching Companion, resources identified or created by the coach, community resources identified by the coach or the provider, etc.

Once the data collection was complete, I conducted a series of descriptive trend analysis and data visualization by adopting a Business Intelligence (BI) analysis approach via Tableau – a computerized support for outlining a set of concepts and methods for business decision making processes (Guran, Mehanna, & Hussein, 2009; Nylund, 1999). BI software is used in

educational organizations to reduce the complexity of administrative management and sometimes applied for statistical analysis of data warehouse which contains large amount of data (Namana & Venkatesh, 2017). The following fields were queried in WELS-DW to analyze measures of coaching objectives:

*Site Type Name**:*** Text variable describing the characteristic of an Early Achievers program including Family Home, Child Care center, and ECEAP;

Note Objectives: Coaching objectives selected by a coach from drop down menu of 30+ categories including administrative items such as *data input*, *travel time, grant or award assistances;* practice-based coaching activity items such as *goal setting/action plans, collaborative partnership/parallel process, live classroom/teacher observation, Community of Practice, etc;*

Site note count: Raw counts of coaching objectives reported on the WELS – Notes cube, and;

Site note duration: Hours of coaching objectives reported on the WELS – Notes cube.

Data visualization (WELS)

Stacked bar graphs (Wellman & Lipton, 2004) were used to display comparisons and change over time for measures such as type of coaching activities (i.e. coaching visits, in class visits, e-mails, travel time, virtual meetings, and webinars) from 2014 to 2021 school year. *Heatmaps* (Healy, 2019) were used to display frequency of measure including frequency of coaching objectives (i.e. correspondence, instructional support, relationship building, goal settings and action plans, etc) and average time spent for each coaching objective from 2014 to 2021 school year.

The WELS data set did not include manuals, documentation describing variables available in WELS, nor how data quality check was conducted on coaching logs. This could be in fact due to the upcoming revision of the Early Achievers system (2021) as well as the

retirement of WELS which is projected in July 2021. WELS will be substituted by WACompass, a Salesforce platform effective mid-2021. All measures in the data sets were treated as raw string values (frequency of text data or selected item from a dropdown menu) and described into either count of frequency or precalculated field (i.e. average time spent on coaching objectives) as structured in the system. Extraction of individual cases were prohibited by DCYF and I was able to access the data set using application programming interface via restricted connection to Microsoft Analytic Services.

Data Analysis (Coach Demographics)

By outer joining (Rockoff, 2017) the data sets acquired from ECEAP programs and Cultivate Learning via RStudio tidyverse package (Wickham, Averick, Bryan, …, Yutani et, 2019), I was and link matching records by a primary key (i.e. Full name of a coach) for calculating proportion of ECEAP coach workforce completed Coach Framework Training. The code for this process is presented in Appendix B. I also calculated the retention rate of Early Achievers coach workforce in CCA of WA and ECEAP. Adapted from principal period rates in demography (Preston, Heuveline, & Guillot, 2001) (i.e. the crude rate of in/out-migration between times *0 and T),* the retention rate was Early Achievers coach demographics was calculated by below calculation:

The Crude Retention Rate of Coach Workforce between times 0 and T:

CRR[0, T] = Number of returning coaches from Year 0 / Number of coaches in Year T

Calculating the retention rate of the workforce may explain the trends in lack of information around coach overview and lack of in-depth engagement in coaching practices. As above three quantitative data analysis may present some values to the status of coaching system in Early Achievers, this does not provide a holistic understanding of what practices are currently adopted by coaches nor how the system values and capture the intended beliefs that partner

agencies provide to the system. I decided to inquire additional information by interviewing system actors of Early Achievers as described in the *Participant Recruitment* section.

Data Analysis (Interviews)

For analyzing qualitative interview data sets (n=6), I adopted Thomas's (2006) general inductive approach for developing codes for the current analysis by following below steps (p. 241):

- *Category label*: Create a word or short phrase used to refer to the category. The label carries inherent meanings that may or may not reflect the specific features of the category.
- *Category description*: State a description of the meaning of the category, including characteristics, scope, and limitations of the category.
- *Text or data* associated with the category: Describe examples of text coded into the category that illustrate meanings, associations, and perspectives associated with the category.
- *Links:* Each category may have links or relationships with other categories. In a hierarchical category system (e.g., a tree diagram), these links may indicate superordinate, parallel, and subordinate categories (e.g., "parent, sibling" or "child" relationships). Links are likely to be based on commonalities in meanings between categories or assumed causal relationships.
- *The type of model* in which the category is embedded: The category system may be subsequently incorporated in a model, theory, or framework. Such frameworks include an open network (no hierarchy or sequence), a temporal sequence (e.g., movement over time), and a causal network (one category causes changes in another). To be consistent with the inductive process, such models or frameworks represent an end point of the inductive analysis. They are not set up prior to the analysis. It is also

possible that a category may not be embedded in any model or framework (See Figure 3 further illustrates the general process of inductive analysis).

For the current study, two rounds of qualitative coding were conducted. In the first round, I applied values coding to explore participants' adaptive and technical challenges on how the Early Achievers system values coaching in a system. Values coding is a process for applying codes to qualitative data (i.e. interviews) that show *attitudes*, *beliefs*, and *values* of participants (Gabie & Wolf, 1993; LeCompte & Preissle, 1993; Saldaña, 2016). Despite the values of participants may not be the absolute truth or reflections of how coaching plays its role in Early Achievers, values coding can provide insightful information and describe into the current adaptive challenges across subsystems in Early Achievers. An *attitude* is about how we think about ourselves, other people, things, or ideas (Saldaña, 2016). Shaw & Wright (1967) described an *attitude* as a part of "a relatively enduring system of evaluative, affective reactions based upon and reflecting the evaluative concepts or beliefs, which have been learned." A *belief* is about experiences, knowledge, morals, prejudices, or other perceptions about a social phenomenon (Saldaña, 2016). It is often considered embedded or attached to oneself and considered as "rules for action" (Stern & Porr, 2001, p. 28). A *value* is the importance and fundamental that we attribute to ourselves, other people, things, or ideas (Saldaña, 2016). It is moral codes, principals, or situational norms that people live by every day (Daiute, 2014). Attitudes, beliefs can be changed and perpetuated via social interactions, cultural, religious, or political associations (Charon, 2013; Lieberman, 2013). In addition to the adaptive challenges, the initial coding process also generated themes on technical challenges (Heifetz & Linsky, 2002) which included use of data system, capacity for reflecting the data captured on WELS, and resources (i.e. funding, documents, procedures, trainings) for supporting coaches on continuous quality improvement, evidence-based

coaching, and data-driven decision making processes at a program level (See Figures 8, 9, & 10 for concept maps yielded from with-in case analysis).

After conducting an initial reflection of interview transcripts, the categories on Table 2 were developed for the current analysis by analyzing the context of each perspective via cross-case analysis as participants represented perspectives of three different Early Achievers implementation partners in the second cycle of coding by recoding the initial codes. The current study applied *pattern coding* based on the categories that identified similarities among coded data in the first round (Saldaña, 2016). As a way of grouping summaries of data from the first cycle of coding, pattern coding allows a researcher to identify smaller number of categories, concepts, or themes (Saldaña, 2016). Pattern coding is appropriate for condensing large amounts of data into smaller segments, developing major themes from data, examine social networks and patterns of human relationships, and generating common processes and themes for understanding cross-case analysis (Creswell, 2007; Miles, Huberman, & Saldaña, 2014; Stake, 1995; Yin, 2009) (See Figure 11 for cross-case analysis findings). Three meta categories were generated after the round of cross-case analysis which includes system-level, agency (meso)-level, and coach (individual)-level categories. Each level of meta categories included subcategories of adaptive and technical factors. The relationship of these categories presented networks as categories interplayed in "complex pathways to suggest interrelationship (Saldaña, 2016, p. 279)." The creation of meta categories allowed generalizable transfer to other comparable context (Saldaña, 2016). As distinctive features from each interview participants' agencies described different challenges as subsystems of Early Achievers, yet similar patterns were identified to inquire what factors have contributed negative views towards the current version of Early Achievers and its impact on coaching.

Validity, Reliability, and Methodological Integrity of the Study

In the field of mixed-methods research, validity issues (i.e. quality) are still questioned across the board (Oweugbuzie & Johnson, 2006). Yet, there are several ways to address these issues. Zohrabi (2013) described *content validity* as a "type of validity in which different elements, skills, and behaviors are adequately and effectively measured" (p. 258). Since the current research employs the secondary data source that are self-reported coaching activities and demographic data entered by Relationship-based Professional Development specialists (coaches) in the field into the agency level database (i.e. CCA of WA or ECEAP) and the WELS OLAP database (DCYF, n.d.), the quality and validity of the data source can be misinterpreted or unclear.

The other validity question to address for the current study involves *external validity.* *External validity* is questioned how findings from a research study can be generalized in other settings or subjects (Burns, 1999; Zohrabi, 2013). Zohrabi (2013) quoted from Nunan (1999): "Is the research design such that we can generalize beyond the subjects under investigation to a wider population?" (p. 17). The findings from the current study could inform other statewide QRIS. As the interest of population (scope of population) in this study are administrators and coach support professionals among Early Achievers partners in Washington, attention is needed when interpreting the findings of the current study for implying practical changes or future studies in other state.

Reliability should also be addressed in a mixed-methods study. Burns (1999) points out, "Could an independent researcher reproduce the study and obtain results similar to the original study?" (pp. 20-21). Zohrabi (2013) notes that these issues of *external reliability* can be addressed by including: 1) the status of the researcher; 2) the choice of the informants; 3) the social context, situation, and conditions; 4) the analytic constructs and premises including definition, units of analysis, and premises; and, 5) methods of data collection (LeCompte &

Goetz, 1982; Nunan, 1999). This could be prohibited by documenting and describing the processes for first round and second round coding procedures especially for the qualitative phase of the current study.

Internal validity is another threat that can be described as if another researcher obtained the same data from the original study, will the reporting of the findings generate similar findings as the original study? (Burns, 1999). Zohrabi (2013) states the threat of internal validity could be also prevented by having perspectives from multiple researchers, examining the data set with peers, recording the data mechanically (i.e. interviews for the current study was recorded via Zoom and transcribed via Zoom AI), and using low inference by readily quantifying categories or behaviors.

To address most of the above threats and concerns, the section below will describe my intentionality as well as my positionality to establish methodological and contextual integrity of the study. As a former pre-K teacher serving in various settings (i.e. private, Head Start, and a public school K-8 program), I had the privilege to work with all of the interview participants in the past as a team lead, data analyst for the state Department of Education (Washington Office of Superintendent of Public Instruction [OSPI]), graduate student intern at Child Care Aware of Washington (CCA of WA) network office, as well as a current Research Head of Cultivate Learning evaluation and coaching/professional development team.

As a reminder, the intent of the study is to inquire about the current state of the early learning system (Early Achievers) while the revision and transition of the QRIS system is in review (Fiscal Year 2020-21). I also want to address due to the global COVID-19 pandemic, at the time of this writing, as of July 2020, 14% of childcare sites are currently closed, suspended, or permanently closed compared to pre-COVID-19 in the state of Washington (CCA, 2020). This brings down the number of childcare sites available for access in

Washington from 4,839 sites to 4,178 sites. After the current research study was approved by the Washington State Institutional Research Board (WSIRB) under the project code Project Code 2019-039: Partnership for Pre-K Improvement: Washington (January 2021), several inquiries were made to state QRIS implementation partner network offices (DCYF-QRIS, DCYF-ECEAP, and CCA of WA). Per guidance from the network office officials as well as the current circumstance, I felt it was not feasible or humane to interview actors on the front line such as teachers, childcare professionals, family child care owners, coaches, and instructional staff who were giving their best to support the community during the hardship. The study may not be at its ideal status as I hoped, yet the current study contributes to stakeholders at a state level to inquire and reflect on moments of celebration for a better system in the future.

Findings

In this section I will report main findings from the study including results from the quantitative sequence and qualitative sequence. As recommended by mixed methods researchers (Brown, 2001; Creswell, 1994; Lynch, 1996; Zohrabi, 2013), I will articulate results based on how the outcomes from the current study are similar to and/or different from other related studies, theories, or frameworks. Findings will be illustrated by the order of research questions constructed for the current study. The first two questions will address findings from quantitative data and the latter two questions will display findings from qualitative data.

RQ1. What is the current status of Early Achievers coaching system? (i.e. coach demographics, caseload, and completion rate of coach framework training)

Coach Demographics and Caseload – CCA

QRIS implementation partners Child Care Aware of Washington (CCA of WA) and Early Childhood Education and Assistance Program (ECEAP) reported in the 2020-21 fiscal

year that 316 Early Achievers coaches were either employed by CCA of WA or ECEAP programs across the state of Washington. Table 4 provides an overview of the Early Achievers coach workforce analyzed for the current study.

The number of CCA of WA coaches supporting Early Achievers programs decreased 5% in the 2020-21 school year compared to 160 coaches in the previous year. 152 coaches returned to the workforce in the current fiscal year. As each regional offices of CCA of WA employs Early Achievers coaches, the following information was reported by regional coordinators of CCA of WA network offices to the CCA of WA head quarter in March 2021. 28 coaches in Central Washington (18%), 17 coaches in Eastern Washington (11%), 59 coaches in King and Pierce counties (39%), 20 coaches in Northwest (13%), 16 coaches in Olympic Peninsula (11%), and 12 coaches from Southwest Washington (8%) all have returned to the workforce in the current school year.

It was interesting to note that the regional CCA offices were accountable for hiring coaches for supporting licensed Early Achievers programs. Despite the CCA coach workforce were directly hired by the regional offices, the network office was accountable for collecting, analyzing, and reporting the coach demographics and activity relevant information to the state department. This reminded the concepts shared by Coffman (2007) that CCA of WA had built infrastructure for such DDDM practices that support organization level outcomes. It also felt clear that the type of data CCA collected were mostly administrative or externally derived data (Firestone and González, 2007; Little et al., 2009) yet these did not include instructional or practice level activities. I am implying that this is not a bad kind of data; rather, additional data collection will be needed to understand how coaches support teachers on continuous quality improvement such as internally derived data for improving instructional practices (Little et al., 2019).

According to the dashboard information from the Early Achievers team (DCYF,

2021), as of April 2021, 3,845 sites are currently enrolled in Early Achievers including 1,574 center-based cares and 2,271 Family Childcare (FCC) programs. Despite no information was available to examine how center-based programs and FCC programs are distributed across each region of the state, each CCA of coaches were supporting on average 25.3 sites in the 2020-21 school year. This ratio for CCA coach caseload is considered one of the largest among available literatures (Artman-Meeker et al., 2015; See Figure 4 for more information). This was especially alarming to me as most of the studies included in the meta-analysis calculated a coach/teacher ratio whereas the current analysis represents a coach/site ratio of Early Achievers programs (Artman-Meeker et al., 2015). If the current study examined number of teachers in each Early Achievers site, the result of coach caseload would be much higher than the study conducted by Powell (2010a) at a rate of 29.33 teachers per coach. Per DCYF administrator, despite WELS contained a data set for workforce registry information (i.e. number of teachers at each site), yet these were not currently monitored nor linked to the program level data. I was also advised not to further use the information as the administrator reminded that support for WELS database is suspended due to the revision of Early Achievers and transition to another database to WACompass is currently in progress which will be hosted on the Salesforce platform.

The coach demographics of CCA of WA were different than representative samples of coaching workforce in other research studies (Artman-Meeker et al., 2015; Isner et al., 2011; Lloyd & Modlin, 2012). About 50% of the CCA of WA coach workforce (n=152) represented in the pre-populated report (Appendix E) were White/Caucasian. Twenty percent of CCA coaches were identified as Hispanic or Latino. Less than 15% of the CCA workforce represented coaches from African American, Asian American, or Alaskan/Pacific Islander Native. Experiences in the early childhood field represented homogeneous characteristics. 148 (98%) out of 152 CCA coaches have experiences in working in childcare settings. 121

(79%) out of 152 CCA coaches worked in the field over 10 years whereas 107 (70%) out of 152 CCA coaches reported they have less than 5 years of experiences as a Relationship-Based Professional Development (RBPD) specialist – a coach. As the term RBPD specialist was used in the system since 2015 (DEL, 2015) and coaches are expected to perform multiple roles in Early Achievers (Keller, 2017), the difference between a coach's experiences in early childhood settings and current role was not surprising. The above information may be beneficial to understand the demographics of coach workforce hired by CCA of WA, yet the findings did not yield additional information on how the number of coaches or diverse coaching population in CCA of WA promotes or hinders support for QRIS implementations. This was due to lack of site and program-level information available from state partners (i.e. DCYF) as noted by one of the former state officials, there is no contractual obligations for the state to collect any additional information other than what's currently shared from subsystems (i.e. CCA of WA. This deemed one of the examples from DDDM researchers (Guss et al., 2013; Ikemoto & Marsh, 2006; Marsh et al., 2007) that partnerships exist among system actors, yet there is no evidence that culture of data sharing beyond the contractual obligations exist for system level improvement (Kauerz, 2020; Paulsell et al., 2015; Tout, Isner, & Zaslow, 2011).

Coach Demographics and Caseload – ECEAP

164 coaches are represented in the ECEAP coach workforce in the 2020-21 school year for 418 ECEAP programs (State of Washington Open Data Platform, 2021). The number of coaches was higher than the previous school year when there were 140 coaches. On average, each ECEAP supported 2.55 sites across the programs. The result was much more feasible than the findings from CCA of WA coach workforce (1 coach:25.3 sites) as ECEAP coaches were hired by contractors of ECEAP programs. The structure of ECEAP programs provided internal coaching service model whereas the model from CCA of WA seemed

external support from coaches who are not always in the program.

The crude retention rate of ECEAP coaching workforce of the current school year compared to the previous year was 84.62% with the following information:

- Number of coaches in school year (SY) 2020-21: 164
- Number of returning coaches from SY 2019-20: 132
- Number of incoming coaches: 33
- Number of outgoing coaches: 8
- Crude retention rate of ECEAP coach workforce: 100% x [132/(164-8)] = 84.62%

As ECEAP coaches were mostly hired by contractors (i.e. school district) that have relative structural advantages compared to programs in licensed cares without associations or memberships with K-12 programs, I believe the retention rate of coaches in the ECEAP system were higher than those in CCA of WA. On the other hand, an informal conversation with one of the former ECEAP and Head Start teachers revealed more support meant more responsibilities for coaches and teachers. It seemed important to address the political and structural context of ECEAP based on the above information to understand the context behind this information (Coffman, 2007). In fact, from one of my past studies with ECEAP coach participants to inquire curriculum implementation fidelity among coaches, several coaches have claimed that despite the support, there were more pressures for ECEAP coaches in the past (Hwangbo, Votry, Joseph, & Boyd, 2019). Coaches stated in the past, not meeting the performance standards at the end of the year directly affect the districts' allocated slots for children participating in ECEAP programs. This context reminded me coaches were fearful not to meet the expected outcomes that without the performance, there would be no funding allocated for ECEAP programs in the following year, which may result in reducing educational staff members, and coaches were often first in line to be furloughed or fired (Hwangbo et al., 2019). Based on the previous study and information captured for the current

study, it was still surprising to see that there has been perhaps contextual change in the ECEAP system that prevented high percentage of coach turnover rate.

Additional descriptive analysis was conducted by joining two data sets (the ECEAP coach roster and the data set from Master Coach Training Tracker from Cultivate Learning) to answer the question, "What is the completion rate of ECEAP coaches in Coach Framework Training?" (See Appendix A. for detailed steps for data join in R). Per Master Data Coach Training Tracker (Cultivate Learning, n.d.; data available from 2015 to 2021 school year), 70 out of 164 ECEAP coaches (50%) in the 2020-21 school year have participated in the Early Achievers Coach Framework Training offered by Cultivate Learning. The participation rate has been slightly increased from the 2019-20 school year - 64 out of 140 ECEAP coaches (46%) - and this may be due to the transition of role among ECEAP coaches during COVID-19 to providing remote support instead of in-class visits. There was a brief period of suspension of communications of all training information due to staffing and furloughing at partner agencies in the beginning of 2020. The training – which used to be offered in-person – was shifted to a virtual synchronous (live) platform in the past six months and this may have increased the participation rate and accessibility to the training.

The result also seemed a bit surprising given the rigorous performance standard stated on the 2020-21 ECEAP performance guidelines (DCYF, 2020) Exhibit E, Section 4.a. stating that "coaches must attend the Early Achievers Coach Framework training within six months of hire… regardless of modified or full services" (pp. 25-26). The quantitative analysis based on the existing data sources suggests not all coaches in the state of Washington were trained on the Practice-based Coaching (PBC) framework, despite the framework being considered the backbone of the Early Achievers continuous quality improvement and coaching.

Attention is needed when articulating the current findings including structures within the subsystems of Early Achievers partners, employment status of coaches in different

agencies, policy context, and infrastructure that is currently placed in early childhood system in general. As validated by CCA of WA's data team and the ECEAP administrator, not all coaches in Early Achievers were employed full-time. For some cases, given that coaches were working for multiple contractors (i.e. CCA of WA coaches are contracted by an ECEAP contractor who had no access to ECEAP coaches from a school district), the number of caseloads per coach brings into question the feasibility and sustainability of evidence-based coaching practice in a dyadic relationship for data-driven decision making and continuous quality improvement. The current body of literature does not recommend what is considered feasible coach caseload, nor a "dosage" of time spent with coachees (Artman-Meeker et al., 2015; Smith et al., 2012; Keller, 2017). Yet based on the initial findings, I recommend that DCYF consider increasing the number of coaches in the workforce across the state or reduce the roles and caseload of coaches. This would a starting point for building a culture of continuous quality improvement that is sustainable and healthier than the current structure.

RQ2. What are the characteristics of coaching activities represented in statewide WELS database?

Type of Coaching Activities

Findings from the WELS notes cube showed that regardless of program type, the number of reported coaching notes has increased 1280% from a total of 9,185 notes in 2014 to 117,606 notes in 2019. The number of participating Early Achievers sites recorded on WELS has increased 130% from 1190 sites in 2014 to 2742 in 2019. Compared to pre COVID-19 era, despite the number of reported sites on WELS having decreased 16.27% in 2021, coaches have entered over 105,602 notes across all programs. (see Figure 5 for more information). Across all three types of programs (FCC, center-based care, ECEAP programs), most of coaching activities recorded on WELS presented an increased proportion of communication activities among coaches and providers such as e-mail and phone from 2016

to 2020, with a decreased allocation of coaching visits in the same time periods. As I reflected the large caseloads assigned to individual coaches across all programs, the findings were not surprising as coaches had less capacity and opportunities for implementing strategies from evidence-based coaching. For instance, 41.17% of the reported coaching activities were e-mail and phone calls in FCC programs and 33.14% in center-based programs in 2016. The proportion has increased to 81.33% in FCC programs and 75.46% in center-based programs. In other words, the majority of the activities a coach allocates for licensed programs were activities that could be viewed as relationship-building activities in the Practice-based Coaching model (CQEL, 2015; Snyder et al., 2015), yet this prevents coaches from spending time on known effective coaching strategies (Neuman & Cunningham, 2009; Pierce & Buysee, 2015; Wehby et al., 2012) including goal settings, observations, or providing feedback based on reflecting observations or documentation of instructional practices.

On the other hand, in the ECEAP programs, despite a similar trend of increased activities of emails or phone calls, the distribution of coaching activities was evenly represented from 2016 to 2019. Especially in 2019 before the COVID-19 pandemic started, coaches in ECEAP programs reported 25.95% of e-mails or phone calls, 33.94% for visits, and 37.16% for in and outside-classroom visits. Interestingly, the coaching records in ECEAP also represented participation in webinars throughout the 2016 to 2021 period ranging from 11.87% in 2016 to 8.45% in 2021. This could be due to the one of the ECEAP performance standards as coaches are required to document titles and dates of coach webinars in WELS (DCYF, 2021 on *PDTR-16 Coach role)*

During the COVID-19 era, coaches reported an increased number of activities on virtual meeting and use of Coaching Companion. In FCC programs, the proportion of virtual meetings increased from 2.06% in 2020 to 4.46% in 2021. A similar pattern was observed in

center-based programs as coaches have reported that 3.59% in 2020 and 10.89% in 2021 were allocated for virtual meeting sessions. Surprisingly, ECEAP programs represented a significantly increased number of virtual meetings from 14.09% in 2020 to 31.06% in 2021 as the proportion for any type of visits have been significantly reduced from 42.32% in 2020 to 16.63% in 2021. Limited information around virtual coaching is available to date: several studies have presented use of video-based technology or virtual coaching with written and verbal feedback can contribute to positive impact of coaching on teaching practices (Artman et al., 2015; Carnahan et al., 2013; Israel, Carnahan, Snyder, & Williamson, 2013). The trend in adopting online/virtual coaching seems inevitable due to the current global pandemic and I suspect these activities will be increased in the future.

The result from the reported types of coaching notes also showed promising evidence that coaches and coachees in the Early Achievers program continued to engage in continuous quality improvement virtually through the COVID-19 pandemic. On the other hand, prior to the COVID-19, decreased number of reported coaching evidence on effective coaching activities seemed concerning among family childcare programs and center-based programs. As the coach overview represents the current caseload of coaches in Early Achievers (especially among CCA of WA coaches), it seems impossible for coaches to continuously engage in strategies that are encouraged by Practice-based Coaching framework and providing experiences for providers and coaches to co-plan and employ cyclic improvement processes.

The other implication reflected from the findings suggest there is no additional data available for inquiring and understanding the inquiry processes of how coaches work with teachers. The inquiry model of DDDM certainly was not applied in the current study and I am suspecting the current infrastructure of the state system support the utilization of multiple sources of data including input data (i.e. demographics of student population), process data

(i.e. quality of instruction), process outcome data (i.e. student assessment scores), and satisfaction data (i.e. surveys from coaches, teachers, parents, or the administrators) (Koretz, 2003; Marsh et al., 2017).

Coaching Objectives

Additional in-depth analysis was conducted in the same data set to inquire into coaching objectives data (see Figures 6 & 7). Figure 4 represents the practice level information on 40 coaching objectives. The heatmap represents frequency of coaching objectives based on the saturation of a cell value - the darker the cell value represents, the more the coaching objective was reported by a coach at a site level. The top five reported coaching objectives are *correspondence*, *other, data input, learning environment,* and *resource linking* (See Methods section above for more detailed descriptions of each of these).

Prior to COVID-19, FCC programs reported a 4,727% increase in number of records in *correspondence*, 9,454% increase in *other*, and 378% increase in *data input* activities from 2016 to 2019. Similar patterns were examined in childcare centers as 182% increase in *correspondence,* 244% increase in *other* records, and 125% increase in *data input*. The findings may suggest that FCC programs across Early Achievers system may need additional technical support and communication efforts compared to the programs in care-based settings and school districts. Another interesting finding from the analysis represents reporting of *travel time* and *classroom observation*. In the same time period, the reported activities on *travel time* (2,049 records in 2016; 3,447 records in 2019) and *live classroom*/*teacher observation* (2,262 records in 2016; 3,455 records in 2019) shared similar trends of increased activities among childcare centers whereas in FCC programs, despite the *travel time* for coaches have increased over time for 401% (713 records in 2016; 3,572 in 2019), *live classroom*/*teacher observation* (341 records in 2016; 1,046 in 2019) was reported less than 30% of recorded compared to the recorded measures of *travel time.* Findings may vary due to

the program structure of center-based programs and FCCs as most centers have more than one classroom whereas FCCs often have one learning space for children in programs. Another factor that explains the findings present different needs or priorities examined from previous studies were captured as *Communities of Practice* or assisting programs with *business needs* were considered more popular coaching methods among FCC programs (Bromer et al., 2020; Zeng et al., 2020). The current data also provides similar result as *grant or award assistance* among FCC programs have increased 2,800% (461 to 3,277 records) from 2016 to 2019 as well as records of Communities of Practice have increased 2,864% (337 to 3,201 records) in the same period.

Among effective coaching practices, programs have all shared common trends of increased reported objectives around *goal setting/action plans* and *establishing the coach relationship.* For instance, in FCC programs, 685% of increase in *goal setting/action plans* (620 to 4.871 records) from 2016 to 2019 as well as 604% of increase in *establishing the coach relationship* (531 to 3,740 records) in the same time periods. Programs in childcare centers have reported consistent measure of *goal setting/action plans* by 64% increase and *establishing the coach relationship* by 75% increase. Another findings suggest childcare centers also adopted *reflection & feedback* as a measure of coaching objectives that are consistently reported on WELS (1,909 in 2016 to 2,295 in 2019) whereas FCC programs have shown 405 records in 2016 to 420 records in 2019. This may be another evidence based on Bommer et al. (2021) findings that professionals in FCC settings prefer to reflect and engage in coaching processes by other forms of practice such as CoPs addressed above.

Among ECEAP programs, records of coaching objectives available on WELS did not yield meaningful findings. There was a slight increase in *planning* from 2016 to 2017 (992 records to 1,078 records), yet most records seem to be fairly distributed across 2016 to 2019. The popular items addressed in FCCs and childcare centers including *correspondence, other,*

or data input increased over time. From 2016 to 2019, *Correspondence* increased 94%, *other* increased 196%, and measures of *data input* 103%. Other findings suggest coaches in ECEAP programs have 46% decreased records of *planning* yet it is still unclear why these patterns were occurring at ECEAP programs.

During COVID-19, despite the majority of the coaching objectives records having decreased, *travel time, live/classroom/teacher observation, and classroom modeling* are one of the least reported coaching objectives across all programs. For instance, in 2021, 31 records of *travel time* were reported among FCC programs, 4 in childcare centers, and 24 in ECEAP programs. *Live classroom observation* records also have decreased from 1,046 records in 2019 to 26 records in 2021 among FCC programs, 3,455 records in 2019 to 76 records in 2021 among childcare centers, and 340 records in 2019 to 36 records in 2021 among ECEAP programs. The result may suggest coaches have shifted priorities for supporting programs by continuously engaging with the professional via *correspondence* or *email* or due to the current revision of the Early Achievers system (DCYF, 2021) in addition to the global pandemic. Findings from the WELS records suggest minimum information about the nature of current coaching strategies initiated and implemented at a program level. This also reflected from findings from literature that cross-sector governance is another factor that current Early Achievers system is lacking (Coffman, 2007). This may hinder our state's ability to utilize multiple data sources for building capacity for teachers, coaches, and administrators to collectively engage in DDDM processes (Datnow & Hubbard, 2016; Halverson et al., 2007; Murnane et al., 2005). Our system currently reflects low level of data use which rely on the expertise of external partners for site level continuous quality improvement and coaching practices (Datnow & Hubbard, 2016; Halverson et al., 2007; Murnane et al., 2005). Additional information on coaching was identified from CCA of WA including site-specific coaching activity information yet CCA of WA data team was restricted

to share this data for the current study due to contractual restrictions with providers and the DCYF. In the following section, as I interpret and display findings from qualitative data, I hope the perspectives of Early Achievers implementation partners as well as their reflections of the WELS data to enquire if there is a culture of DDDM exist for CQI among partners.

RQ3 & 4. In what ways do the perspectives from Early Achievers partners explain the quantitative results reported on the statewide WELS database? What are the perspectives from QRIS implementation partners for improving the current system for supporting coaches?

For the final two research questions, I will share perspectives from six implementation partners across Early Achievers. As a reminder, for the current study, two individuals each from three Early Achievers partners were selected: 1) Child Care Aware of Washington (CCA of WA); 2) Cultivate Learning at the University of Washington (UWCL); and 3) Washington DCYF Early Childhood Education and Assistance Program (ECEAP). The first section will focus on findings represented by each individual agency as within-case analysis and followed by cross-case analysis to examine how perspectives presented by partners were similar and different.

Within-Case Analysis

Case from CCA of WA (Participants A & B). The major categories that emerged from the CCA of WA interview data were relationship among Early Achievers partners, data system, and coaching culture and philosophy. Participants openly shared their thoughts about the how coaching and culture of Continuous Quality Improvement (CQI) are reflected in the Early Achievers system.

Improvement in Partnership. Participants from CCA of WA viewed the collaborative partnerships and transparent communications among Early Achievers partners strengthen the coaching system and relationships among Early Achievers partners.

> Our partnership has really been great. Yes, we have also done building [revised Early Achievers] frameworks, all these external things including Cultivate Learning coming in and listening in. – Participant A on April 22, 2021.

Participants acknowledged that as the revision of Early Achievers system and frameworks are in progress, they shared positive views on frequent activities and opportunities for partnership yielded positive stance and relationship among Early Achievers implementation partners. One CCA of WA administrator mentioned, "Cultivate Learning team seems to be providing a positive change on training coaches including webinars, revising training contents, and how to understand QRIS." Despite the positive atmosphere addressed by participants, this was not always has been the case.

Negative views on WELS. Participants from CCA of WA shared that the current system including WELS does not capture metrics of coaching that validate the successful cases of coaching activities among CCA of WA coaches. Participants shared the following:

> How much data captured on WELS is eventually translating to relationship? I really don't think it's been designed to acknowledge and celebrate achievements [of coaches]. The system is really about providers, how do you login, how do you apply grants, does the application ping, does it talk to licensors. – Participant A on April 22, 2021.

> WELS is not designed for capturing *coaching* in the first place. – Participant B on April 22, 2021.

Both participants felt that there would be a better way to capture coach success and activities instead of utilizing the current database system. It sounded clear to me from the tone and nonverbal language among participants that this was not something in favor of their needs. Participants also mentioned that "it's frustrating" despite there being a lot of touch points yet the current system does not capture some of the coaching activities that CCA of WA

prioritizes such as business support for private and family childcare providers. Perhaps these topics are addressed in the current revision processes of Early Achievers and there are other areas.

Shift in Organizational Culture: Implementation of Transformational Coaching. Participants from CCA of WA noted that the approaches and philosophy for continuous quality improvement (CQI) and coaching has shifted to supporting providers by any means through using transformational coaching.

> CCA has adopted transformational coaching and worked with Constant Hine [external consultant] to work internally to work with coaches; We have also adopted a facilitated book study by Bright Morning [Elena Aguilar's organization] in the past year and coaching for equity with the coaching system – Participant B on April 22, 2021.
>
> We, as an agency, made it clear and intentional about anti-racism plus equity project. We took the national level equity coaching training with them (CCA coaches) and are partnering with all of them (CCA coaches) on a positive note. – Participant A on April 22, 2021.

Despite there being no literature on effectiveness of transformational coaching, participants' comments validated the organizational culture that CCA of WA emphasizes is on pushing for equity and coaching for providers in the Early Achievers that work with the internal partners, CCA of WA coaches. A participant also has stated the following:

> I have heard coaches were saying I miss coaching, but this is coaching. If you meet the needs of providers today, that is coaching - that is not Early Achievers coaching, but we are still coaching. You are checking in emotional well-being of people and what is needed today. – Participant A on April 22, 2021.

The above quote was a great example that illustrated the culture of CCA of WA that the priority in the agency is to support both coaches and providers for success. As I reflect themes addressed by CCA of WA participants, initiatives and infrastructure that were designed in the macro-level (i.e. Early Achievers system) did not seem to support activities occurred in meso (i.e. CCA of WA) or micro-level (i.e. coaches' perspectives on coaching). It seemed professionals in CCA of WA have found their own ways to implement coaching and continuous quality improvement practices by seeking support from external partners rather than internal partners within the Early Achievers network (. I also reflect the views of coaching has shifted among CCA of WA coaches. Coaches were following the steps of Practice-based Coaching framework by setting goals and action plans to prioritizing understanding the needs of coachees. This may be the initial stage at CCA of WA where the culture of coaching and CQI are shifting from what is known to be an evidence-based practice that are told by external entities to how CCA of WA coaches value best coaching practices that matches the needs of educators that CCA of WA coaches engage with.

Case from Cultivate Learning (Participants C & D). The perspectives from participants at Cultivate Learning shared explanation of why there's lack of evidence on culture of continuous quality improvement or data-driven decision making processes among Early Achievers coaches and programs. The major categories that emerged from the Cultivate Learning interview data were theory of change, purpose of data collection, and collaborative partnerships.

Lacking theory of change and logic model for coaching in Early Achievers. Participants from Cultivate Learning shared a concern around having neither a goal nor a theory of change for continuous quality improvement (CQI) and coaching within the Early Achievers system. One participant shared the following:

> With no conceptual framework to take hold of all information and if you cannot logically create the organization of anything, unless you know what the objective is, the conceptual framework is for this profession [coaching], I would not know where to begin… If you have a lot of outcomes in a conceptual framework, then you can identify activities that are going to lead to those outcomes. – Participant D on April 28, 2021.

The reflection from the participant resonated with me for hours after the interview. Within the current system, I do not recall a theory of change or logic model that can be referred to as a resource for coaches in Early Achievers. As the framework of Early Achievers is currently in revision process since 2018, it makes it harder for coaches, teachers, and administrators in the system to understand what the goal of coaching and its role in Early Achievers CQI processes. This further concerned one of the participants as one participant shared, "if you cannot identify specifically what your goal in changing teaching practices and cannot break that down that approach, coaching is not going to help you there."

Purpose for Data Collection. Interview participants from Cultivate Learning both shared concerns and comments around the data system. Coaching logs and objectives that are currently available from the state WELS database is considered overwhelming among participants:

> I do not look at WELS data anymore… I think it is harder to help providers and teachers to set goals when there have been so many stressors [entering data]. The other thing that really strikes me is how many different topics there are and how overwhelming that would be for a coach to figure out. – Participant C on April 28, 2021.
>
> It is meaningless right now. It makes me wonder what is our objective for collecting all these data and whether coaches are hired as vehicles to collect data. As participant

> C said, it is so vast that unless there is a document that a coach can reference and organize their case load. I am not sure how a coach can have their attention on growth. – Participant D on April 28, 2021.

Both participants have echoed that the current system lacks intentionality around what is captured now – in terms of data on coaching objectives – and does not help any stakeholders in the system. As one participant mentioned, no such intentionality or purpose exists in the current system, it seemed clear to me that system actors across Early Achievers do not have capacity nor guidance around CQI and DDDM.

What is Considered Collaborative Partnerships in Practice-based Coaching.

Participants have shared as the collaborative partnerships that is the core component of Practice-based Coaching [PBC] have not been clearly defined, the model does not quite resonate with needs of Early Achievers coaches. It incentivizes coaches to use other models of coaching. Both participants have shared the following:

> When you look at the National Head Start [PBC], they do have a little teeny bit on collaborative partnerships and it's very minimal compared to the other components of PBC [i.e. goal setting, action plan, and feedback]. I totally agree with Participant C, for example, Elena Aguilar for Coaching for Equity talks about beliefs and behaviors right and that's about talking with your teachers about their identity markers and how does that impact their work and all of those things that is not about changing their practices with children in terms of child outcomes. – Participant C on April 28, 2021.
>
> In practice-based coaching, collaborative partnerships is not clearly defined. Also there's no philosophy around collaborative partnerships means that you try to create a space for trusting, safe and environment to talk to your coach about private conversation. – Participant D on April 28, 2021.

The interview data from Cultivate Leaning also made me wonder as a lack of consensus around collaborative partnerships in PBC influenced the initial design of Early Achievers and its intended outcomes for continuous quality improvement. This did not help stakeholders and policymakers to discuss what are activities and resources that would support intended outcomes of PBC. The interview data also reminded me earlier example from a literature that if a leadership team in a district or a system emphasized and dedicated time for DDDM at a meeting, partnership colloquium, or as a part of professional development among teachers and administrators, this enhances the culture of CQI and DDDM across all actors within an agency (Ikemoto & Marsh, 2007). Yet what has been reported by the participants from the current study is a common issue within an early childhood system in that there is pressure to gather data about something, yet no support has been given for such initiatives for coaches and teachers (Little et al., 2019; Stein et al., 2013; Yazejian & Bryant 2013; Zweig et al., 2015). Based on the information shared by participants, it seemed that their concerns are around system level issues that lack a framework, logic model, or theory of change that leads to change for improvement. Participants throughout the interview seemed frustrated yet cautious about word choice and sharing their thoughts as they seem they did not want to point out what is not working within a system. Perhaps in the past, their viewpoints have shared among Early Achievers partners, yet it may have been ignored by coaching agency partners or leadership team at Department of Children, Youth, and Families.

Case from ECEAP (Participant E & F). Participants from ECEAP provided unique insights that were different than those from CCA of WA and Cultivate Learning. These include capacity for coaches, relationship among Early Achievers partners, and accessibility for data and DDDM.

Lack of Coaching Capacity in ECEAP. Despite all ECEAP programs being required to participate in Early Achievers from 2015, funding was not aligned with one of the required

activities among Early Achievers programs – coaching. Participants have shared the following:

> Coaching was unfunded mandate. We (DCYF ECEAP) had to require every contractor to have access to at least one coach to support the Early Achievers process [as a part of Early Achievers requirement]. But those coaches are often someone who was already an education manager or some sort of management level staff person in their program and it might even be the director. At some of our programs, the director is also the coach. – Participant E on April 29, 2021.

Due to preassigned roles in addition to the role as an Early Achievers coach, coach workforce in ECEAP programs may serve different roles from those full-time coaches from CCA of WA. One participant also shared that "It [coaching role in ECEAP] varies widely based on the size of the program and they do much more than Early Achievers coaching. I think that's where some of the complexity lies within coaching in ECEAP." This was also tied into one of the quantitative findings from the WELS database that the reported frequencies on different coaching objectives among ECEAP programs were relatively lower across all measures compared to those in childcare centers and family childcares settings. As both participants shared in the interview, coaches in ECEAP programs seemed to struggle with their own capacity for CQI and coaching for improvement due to lack of support from the system.

Strengthened Partnership Support. On the other hand, despite resources being constrained and scarce that as coaches wear multiple hats in ECEAP programs, participants shared the relationship and partnership efforts among Early Achievers implementation teams and ECEAP contractors have strengthen over the past few years. Participants have shared the following:

> The support coaches get with Early Achievers coaching specifically would be from DCYF, Cultivate Learning and CCA. The other support come from within their contractor level. – Participant E on April 29, 2021.

Another participant also shared that "We've invited them (ECEAP coaches and directors) to have a conversation so that they have opportunities to share their concern Definitely the relationship, I think, is the biggest piece [for change]." It was not surprising that support for coaches in ECEAP programs came from multiple streams of Early Achievers partners. At first, I thought this would hinder the ability for coaches and teachers to engage in CQI and DDDM practices. Then when I hear from interview participants that they have engaged in echoing the exemplar models and challenges from ECEAP program perspectives, this enhanced and strengthened the partnerships among ECEAP programs. It created a venue for ECEAP programs to share their success stories as one of the interview participants recalled, "I heard from one director who was also the coach she did everything for their very small program and they broke CLASS [observation tool] down into small chunks and talked about a piece every week."

Capacity and Support for DDDM across the System. Finally, what seemed clear from both administrators of ECEAP is that they were eager to have a support system, team, or resources for DDDM. Towards the end of the interview, Participant E and F noted:

> The biggest thing for me [if I had a magic wand to change the current system] is having one data system that everybody could input into so that we actually have consistent accurate coach data to begin with. Because right now that data feels very skewed towards licensed childcare programs, and I think CCA has some great data on their coach workforce and coach needs because of the system they've implemented for tracking all of that. We need that as a state level to really get all the demographic data, the needs, the education level, all of those pieces. For me that is step one. We don't

> know what we have, because we don't have combined data that that matches [with everything]. – April 29, 2021.
>
> I would want to know what the needs are from coaches in our system so that we can then provide professional development opportunities and Professional Learning Communities and support that are going to be relevant to their needs. – Participant F, May 12, 2021.

It was clear that both participants articulated the needs for having a federate data system not to just collect the information, but to utilize the information for making further decision on what professional development opportunities and resources can be allocated to coaches in the ECEAP system. This reflected the atmosphere of organizational learning that such intentionality among actors will focus on solving problems and incorporate long term investments as described by interview participants, opportunities for professional development (Firestone & González, 2007). When I first interviewed participants from ECEAP, I was expecting more negative nuance and comments towards the current system since participants mentioned that ECEAP is perceived as a subsystem of Early Achievers. Participants have also added the performance guidelines of ECEAP do not match with guidelines in Early Achievers, which historically has been one of the biggest concerns among coaches in ECEAP. This makes it harder for coaches to align intended outcomes designed by either standard. I believe having two conflicting systems further supported the desire for having a federated data system as developing an integrated data system that store multiple information is viewed as a silver bullet, yet programs in previous studies have shown lack of utilization of data rather than access to data (Little et al., 2019). Despite the political and organizational context, I felt refreshed and hopeful that administrators from ECEAP provided valuable insights on acknowledging what is currently lacking and insights on what could be improved within a system in the future.

Participants from three Early Achievers implementation partners reflected the status and diverse needs of subsystems within the Early Achievers system. Despite there being lack of evidence of CQI or DDDM among Early Achiever partners, the data from with-in case analysis implied different needs to address CQI and DDDM to build a high-quality early childhood system and coaching system. This includes having a purpose and theory of change for inquiring why we collect data for improvement, the needs for having a statewide support hub for DDDM relevant activities, and a system that appreciates multiple coaching approaches across programs. On the other hand, participants have also shared that hopes for the Early Achievers revision have further strengthen the relationships among partners. Patterns across participants have shown there are several concurrent and network interactions are occurring and I will highlight these key themes in the following section.

Cross-case Analysis

In this section, I will present overlapping themes from implementation partner interviews that echoed among all partners in to three sections: 1) Themes that have emerged at a system level to an agency level; 2) Themes that have cascaded within the agency level, and; 3) Themes that influenced from practice level to agency level (See Figure 11 for more information).

Theme 1: Acknowledgement on lack of support from system level escalated negative perspectives towards Early Achievers coaching initiative. Four themes emerged from the system level simultaneously influenced the perspectives among participants at Early Achievers implementation partners. Two adaptive challenges (i.e. expectation on coaches on data collection and emphasis on child level outcomes) and two technical challenges (i.e. lack of goal in coaching and lack of support for coaches on caseload management) were shared among interview participants.

Expectation on Data Collection. Participants have shared expectations on coaches regarding collecting multiple sources of data have become inconsistent and overwhelming. One participant has commented:

> I think the first thing that comes to my mind [if I had a magic wand], is involving coaches in figuring out what makes the most sense to you [on coaching activity data collection] … looking at that list of coaching objectives, it is overwhelming and it's not helping people to organize. – Participant C on April 28, 2021.

Interview participants acknowledged collecting coaching activities is necessary yet worried the expectation of data collection has been unclear and outrageous. One of the participants described "I am not sure whether coaches are hired as vehicles to collect data or to coach educators." Another participant also described another type of collecting coaching activities as coaches are "keeping things on physical notebooks" because it helps them to justify their work during an on-site monitoring visit during ECEAP program audit periods. The participant acknowledged "they (the coaching records) are not getting documented in WELS consistently." This clearly narrated Early Achievers participants acknowledged the current system lacks guidance and expectations on what data and who should collect which types of data for informing coaching practices and change.

Emphasis on Child Level Outcomes rather than Celebrating Coach Success. Several participants have also mentioned that the current system does not capture success factors and examples that coaches bring to programs. Participants from interviews shared:

> How much data captured on WELS is eventually translating to relationship? I really don't think it's been designed to acknowledge and celebrate achievements [of coaches]. The system is really about providers, how do you login, how do you apply grants, does the application ping, does it talk to licensors. – Participant A on April 22, 2021.

> I get it - that it [Early Achievers] is all driven by funding, and it is all focused on "child outcomes" and "provider focused." There is an impression that "yeah yeah yeah coaching drives that [child-level outcomes] but we don't want to hear more about it [coaching]. – Participant B on April 22, 2021.

The needs for celebrating coaches' success were echoed mostly among CCA of WA participants. At first, I thought this seemed bizarre as the intended recipient of Early Achievers are children in Washington state who participate in Early Achievers programs. Then when I reflected then number of programs that CCA of WA coaches currently provide support across Early Achievers programs in Washington, it was understandable. Despite the coaches have diligently support data entries on WELS, there was no easy way to link what activities or coaching approaches were associated with program level outcomes including assessment scores or how many stars achieved on the Early Achievers level. In addition, a previous study has shown that despite there is an evidence among Quality Rating Improvement System states to embed CQI as required activities, it often lacks support for sustainability such as providing financial incentives for programs, teachers, and coaches as well as funding for continuous professional development (Mathias, 2015).

Support for Coach Caseload Management. Lack of coach support and caseload management were other themes that were shared by participants. One of the participants shared that "there are minimum 20 facilities to 50 facilities on a licensed care for a CCA coach whereas 20 caseloads for ECEAP coaches." Despite the number of caseloads were varied based on the coaches' employed agencies, participants have shared similar concerns around challenges among coaches in their programs. One participant shared the challenge as an ECEAP administrator:

> Coaches in ECEAP often have multiple roles. We require every contractor to have access to at least one coach to support the Early Achievers process… it (caseload)

> varies widely based on the size of the program and just their internal structure of what that coach does that they do much more than Early Achievers Coaching. They do that and other duties. I think that is where some of the complexity lies within coaching in ECEAP. – Participant E on April 29, 2021.

As findings from literature suggests coaches supporting the implementation evidence-based practices support eight teachers on average, the amount of pressure and caseloads Early Achievers coaches face deemed unrealistic and harsh. This could be also due to the following factor suggested by interview participants.

Lack of Goal, Logic Model, and Understanding on How Coaching and CQI Plays its Role in Early Achievers. Participants have all shared that the current system does not illustrate how coaching play its role in Early Achievers. One of the participants shared a powerful comment regarding ways to change the current structure:

> The kind of support [that I want to receive as a coach and professional] is "help me recognizes ways to see what I can do differently" with supportive dialogue. It's not my boss measuring my performance with metrics. It is about trying to celebrate and reflect what can be done. – Participant A on April 22, 2021.

As I reflect the interview data from participants on system level challenges, I believe the lack of goals and theory of change on how coaching plays its role in Early Achievers are associated with domino effects of above three adaptive and technical challenges on expectation on data collection, lack of moments for coach success celebration, and lack of support on coach caseload and roles. As the system was forced to scale and improve in the past few years to focus on required activities itemized on Race to the Top grant (U.S. Dept. of Education, 2009), Early Achievers implementation partners may have seen the challenge as things that needs to be accomplished rather than opportunities for further collaborations to enrich the system. If the achievements of goals and meeting grant application requirements

were considered the first few years of Early Achievers described in the system level, the creation of new value partnerships and capacity to leverage existing resources are what is happening in the agency-level in the past few years.

Theme 2: Hopes and Partnerships among Agencies for the Upcoming Early Achievers Revision. Relationship and partnerships were themes that reflected from all participants which strives the current revision of Early Achievers. The themes were overlapping across two properties as agency partners were engaging in conversations around how partners build a better support system for coaches and 2) different perspectives on utilizing coaching strategies.

Initiatives to better support Early Achievers coaches and coaching system by partnership activities. In the past, few partners in Early Achievers have shared concerns around relationships among Early Achievers implementation partners. One participant has commented that Early Achievers was not a great fit when it was first introduced in early 2010s. The following presents the quotation from the participant:

> I know there's some people who say, you know that it [Early Achievers in ECEAP] was a great fit, but ECEAP providers did not think that, and so it immediately created a contentious relationship and it created a mentality that pitted… it created that us [ECEAP] and them [CCA of WA] mentality of kept things as it is and there was judgment that resulted in on both sides of what Child Care Aware staff and coaches and regional staff thought about ECEAP sites and then also what ECEAP sites and directors and team thought about Child Care Aware. I think it shows the bifurcated system that we are trying to change – Participant F on May 12, 2021.

Similar patterns observed from Participant F were observed from other interview participants. Some participants mentioned that due to lack of partnership and collaboration effort in the past, it created delays in producing deliverables such as training modules or not having “solid

coach onboarding process." On the other hand, participants have shared different thoughts on the current effort for Early Achievers:

> It would amaze me we've had so many efforts for years to bridge those [relationship building] you know to make those bridges and I just don't… I mean, I see it happening in some places and it's almost like we just don't really learn from it that we've had so many efforts for years and now it's finally happening. – Participant C on April 28, 2021
>
> Our partnership has really been great. Yes, we've also done building [revised Early Achievers] frameworks, all these external things including Cultivate Learning coming in and listening in "what is needed yesterday" but they are addressing and very "emergent" what is considered on top today, and that's what's addressed today and there's no "year-long" training topic, yet we have to shift and pivot whatever the landscape it is. – Participant A on April 22, 2021.

Reflections from participants shared two distinctive yet similar perspectives on relationship and partnership. At first, relationship among implementation partners did not seem to be working due to the addition of Early Achievers as an overarching system on top of the preexisting system that everyone was a part within their own boundaries. As one participant mentioned, this may have resulted in creating an unintentional consequence that mentality among partners became demotivated and somewhat created the reflection of bifurcated goals. This was similar to the example presented by Isner et al. (2011) that QRIS guidelines were in place without considering pre-existing system features or agencies. And yes, in the past, the Early Achievers system seemed to lack opportunities for partnerships and acknowledging the process of building bridges for strengthening relationship among partners which is considered a factor and a catalyst for enabling CQI and DDDM (Coburn et al., 2005; Spillane & Thompson, 1997).

While existing research has covered how coaching improves instructional practices or classroom quality (Diamond & Powell, 2011; Dickinson & McCabe 2001; Goffin & Barnett, 2015; Howard et al., 2014; Snyder et al., 2011; Tarrant & Huerta, 2015), little is known regarding practical strategies on how to support coaches other than broad guidelines for workforce support or support for those who support coaches and programs. As things have changed among partners on collaborations and partnership activities, the initiatives described from interview participants no longer represents a siloed system within a subsystem. This may be due to an unintended consequence of experiencing COVID-19 with the scheduled revision of Early Achievers framework and this allowed participants to be flexible around their perceived views on the system as well as the partners. This was one of the examples described by Guss et al. (2013) and Yazejian & Bryant (2013) as partners were creating intentionality and research-policy-practitioner partnerships (Coburn et al., 2005; Henrick, Cobb, Penuel, Jackson, & Clark 2017). This would bring not only program level changes, but also system level changes eventually (Guss et al, 2013; Yazejian & Bryant, 2013). Interestingly, some participants were already showing promising reflections as one shared "I'm excited for the changes that are happening in Early Achievers and it feels more like a continuous quality improvement process than it did before, where it felt very like high stakes and punitive."

Different Perspectives on Coaching. The momentum among participants have also changed among Early Achievers partners regarding utilizing different coaching approaches based on the needs of programs. Participants shared different thoughts on what is offered now and utilizing different coaching approaches:

> CFT - Coach Framework Training - if you really implement that to fidelity, you should only work with eight to ten providers. That is only one coaching approach of many. – Participant B on April 20, 2021.

> Other types of coaching approaches like co-active, transformational coaching for equity all of these: they are rooted in a philosophy or an ideology or something that connects to the larger context of the coaching situation… I think coaches, who are wise, gravitate to these other approaches, but those other approaches are not as focused on changing practices – Participant D on April 28, 2021.
>
> It is all about adding more of equity to that whole coaching process, how do we build that system. And I think work is happening and it is not that nothing has been done, but I think it's going to be it's a long process – Participant E on April 29, 2021.

Reflections from participants suggest that the current approach of endorsing practice-based coaching may not be the most preferred approach in the current system. This could be due to the to the agency-specific constraints (i.e. coach caseloads or coach roles) or other contextual factors including desire to address equity as coaching topics. Some mentioned coaches were more likely to "follow convenient practices or coaching approaches that matched the needs of the practitioners." Low frequency of Practice-based Coaching activities may or may not concern the stakeholders and this could be up to Early Achievers implementation partners. As researchers suggest, one-time training (i.e. Coach Framework Training) does not yield to full implementation of a practice (Garet, Porter, Desimone, Birman, & Yoon, 2001; Joyce & Showers, 2002; Knight, 2009; Lloyd & Bangser, 2009; Raver, Jones, Li-Grining, Metzger, Champion, & Sardin, 2008). If the goal of the system is to encourage evidence-based coaching practices, the governing body of Early Achievers could provide more opportunities for coaches to practice and engage in Practice-based Coaching activities. As one participant added, "I wish there was a graphic or anything that points to use this particular coaching approach when you are in this situation."

The other notion that occurred to me after reading the comments from participants is having a flexibility built into the system that appreciates multiple approaches of coaching

practices. Despite there being no evidence that using multiple coaching approaches at a program level is considered superior to applying a single coaching approach, it's worth noting that providing a structured yet flexible approach for implementation partners would enhance a culture of CQI and DDDM (Confrey & Makar, 2005; Hammerman & Rubin, 2003). For instance, partner agencies could leverage existing resources by discussing which coaching approaches used among coaches seemed working better than utilizing practice-based coaching as a sole model of coaching approach. There may be barriers to address such as training, yet this would bring intentional practices on having conversations among partners regarding which coaching approaches are most applicable to their programs rather than forcing the use of an evidence-based approach that may or may not be implemented (Confrey & Makar, 2005; Hammerman & Rubin, 2003).

Theme 3: The need for inquiring the Early Achievers version of data-driven decision making (DDDM) culture and coaching based on the needs of coaches are needed more than ever. After all participants had moments to read and reflect on descriptive information represented from the quantitative sequence, most of the concerns and comments above reflected the infrastructure challenges around intentionality and purpose of collecting data for decision-making processes especially for coaches at the front line.

> I think the first thing that comes to my mind, is involving coaches in figuring that out so it's not top-down, so it's not like, "Okay, here we are. DCYF v. CCA decided and this is what you have to input every day or this is what you have to collect." Instead, asking them [coaches] what makes the most sense to you. – Participant C on April 27, 2021.

> I think the biggest thing for me, from my perspective… is having one data system that everybody could input into so that we actually have a consistent and accurate coach

> data to begin with. Because right now, data feels very skewed towards licensed childcare… We need that as a state-level to really get all of the demographic data, the needs the education that all of those pieces. – Participant E, April 28, 2021.

Participants have stated multiple standards, policies, or procedures to follow in addition to having a data system that is complex to navigate. The system became uncoordinated across all parties of the Early Achievers system which may have caused the contentious relationship reflected earlier by a participant (Tout et al., 2011). Perhaps the reason I was not able to see holistic information about coach workforce and its activities are not around which rules or policies are in place; rather, the relationship among implementation partner agencies are the primary factors which will boost and create a culture of DDDM (Little et al., 2019).

Successful implementation of a coaching strategy includes sets of expectations, frameworks, and controlled caseloads that are feasible and manageable for coaches to intervene at a site level. Regarding the issue of "infrastructure" (Halle et al., 2013), as reflected by some of the participants, the QRIS was implemented on top of the currently established layers of system, which makes it harder for professionals from oversight and administration agencies to the agency level policies to the expectations from QRIS (Metz & Bartley, 2012).

As I also reflected in earlier comments, participants' perspectives validate that the WELS system does not capture coaching activities that are addressed across different programs and subsystems of Early Achievers. Contextual information addressed above can be harder to consolidate in an OLAP-based database (Subotic et al., 2013) as the primary function and goal of the system is to project business outputs for stakeholders to make decisions. Although Business Intelligence analytics is one form of data-driven decision-making processes (Lemire et al., 2012; DCYF, 2021), the current system seemed the exact

replication of Deming (1986)'s PDSA cycle to address variabilities in the engineering and manufacturing fields rather than the art and complexities that go into coaching in the early learning settings. It would be easy to query how frequent coaches have entered certain coaching objectives, yet this did not yield useful information on inquiring the context and processes of coaching happening at a program level.

Participants also reflected how coaching might look like in the new system. Some participants posed positive comments whereas other participants shared concerns:

> I think one of the things that we've done is maintaining that level of communication, so we really tried to keep folks informed. - Participant E on April 28, 2021.
>
> Cultivate Learning team seems to be providing a positive change on training coaches including webinars, revising training contents, etc. including 'How to understand QRIS? How do navigate providers through journey system and other support soft skills and 30/60/90-day checklists – Participant A on April 20, 2021.
>
> We're also in this revision [QRIS and coach system]… Moving to the virtual environment around a practice and coaching practice where people need to practice that is challenging – Participant C on April, 27, 2021.

As it became inevitable for individuals to work in a virtual environment over the past year due to the COVID-19 pandemic, participants have acknowledged and appreciated the information provided by Cultivate Learning on the Early Achievers revision processes. This surprised me as the governing body of the Early Achievers is DCYF whereas the hub for information for coaches and providers to engage in the Early Achievers process are distributed by channels that Cultivate Learning offer such as webinars, trainings, or the Coaching Companion tool. Despite the literature not explicitly linking power dynamics and relationships among entities in QRIS – usually this topic is addressed vis-à-vis teacher-child relationships (Erwin & Kipness, 1997; Lee & Recchia, 2008; Sebanc, Pierce, Cheatham, &

Gunnar, 2003) – it seems important to note that the expected role and power possessed by each agency among Early Achievers partners may vary compared to the agreed consensus on Early Achievers guidelines or contractual documentation. Especially from the perspective of participants who shared concerns around the virtual system and Early Achievers revision, it is worth noting that the current system does not hold a structured process and guidance for CQI of how coaches are onboarded nor what support system are in place for them. This may affect the performance of coaches, which may result in not observing sufficient records of Practice-based Coaching items in WELS or other data sources.

In conclusion, based on perspectives reported by my six research participants, Early Achievers – particularly its coaching system – is facing some of the challenges identified by the systems initiatives framework in the early learning context (Blase & Fixsen, 2011; Coffman, 2007; Tout et al., 2013). Participants were concerned that the current system does not fully capture the art and science of coaching practices across different subsystems of Early Achievers. Participants also noted that the current data system is overwhelming and unclear on what the intent and purpose of the data collection is. On the other hand, participants have also reported that the communication processes and relationship building activities have strengthen partnerships among partners. Several practical strategies were recommended to address in the future iterations. As I wrap up the current section, one of the strategic suggestions from Tout et al. (2013) seemed feasible next steps for system improvement:

- Form implementation teams to provide an accountable structure to address what is the system's intent of professional development (i.e. coaching) strategies;
- Develop communications protocols to communicate progress and celebrate success on actions, decisions, and agreements made in the progress;

- Consider key questions and address those during each stage of the implementation cycle; and,
- Institute continuous improvement cycles by implementing the Plan Do Study Act (PDSA) cycle (DeFoe & Barnard, 2005; Deming, 1986; Shewhart, 1924) from a practice level and system level.

Participants have expressed excitement around how the revised Early Achievers system will shape the role of coaches and coaching in the upcoming years. Despite there being a minor concern around not having purposeful planning, a theory of change, or a logic model for the upcoming system, participants have commented on wanting more opportunities for celebrating how the uniqueness each coach brings will improve the current system.

As I wrap up both quantitative and qualitative findings of the current study, data available from the statewide WELS database and information shared by interview participants yielded insufficient evidence to inquire and fully understand the overall state of the coaching workforce and characteristics of coaching activities in Early Achievers as a component of CQI. The WELS system governed by the Department of Children, Youth, and Families limit capability for users to query program specific information and the original intent of the database was not created for inquiring into CQI practices at a program level, but rather as a monitoring tool to assess input data (i.e. frequencies or hours of activities spent on certain objective) self-reported by coaches. Other types of input variables such as coach demographics were held by one subsystem (CCA of WA) among partners, yet this also was not considered a universal practice among partners. As noted in an earlier conversation with one of the former Department Early Learning executives who was not able to interview for the current study, complex political atmosphere and contractual boundaries that are different across partners in the system makes it even harder for inquiring which data sources are currently held and captured by which partners.

During the second phase of the current study, multiple perspectives from QRIS implementation partners were shared to improve the current system. As the revision of the Early Achievers system is happening now, it was evident that despite all partners having different demands and needs for the upcoming system, partners value strong relationships and partnerships thriving across the system. The results from the current study imply that the effort for building a QRIS is challenging. Yet, the increase sense of belonging and strengthened partnerships initiated new value partnerships (Sagawa & Segal, 2000).

Discussion

Early Achievers have evolved through multiple iterations from Seeds to Success to the current revision of Early Achievers. As researchers, policymakers, and educators are still in search for understanding impacts of evidence-based coaching on system level outcomes, the current study highlighted the characteristics and status of coaching among Early Achievers programs via a mixed-methods approach.

The findings from quantitative strand did not present how different components and context of coaching activities were implemented at each subsystem of Early Achievers. These include how initial goal setting and action planning occurs, how needs assessment is conducted, or how observational data collected during coaching visit are reviewed during a coaching visit (Artman-Meeker et al., 2015; Coburn et al., 2007; Domitrovich, Gest, Jones, Gill, & DeRousie, 2010; Feldman & Tung, 2001; Snyder et al., 2015). On the other hand, findings revealed Washington has one of the most unique composition of coach workforce represented compared to other early childhood systems. Around 50% of the CCA of WA coach workforce (n=152) were people of color. Coaches were supporting over 25.3 programs across the state which was one of the highest reported caseloads among previous studies (Artman-Meeker et al., 2015). The findings also revealed that across all types of programs (FCC, center-based care, ECEAP programs), an increased proportion of communication

activities among coaches and providers such as e-mail and phone from 2016 to 2020, with decreased allocation of coaching visits in the same time periods reported on statewide database system. The results from quantitative strand implied without system level support, infrastructure, or theory of change on building a culture of data driven decision making process and theory of change, partnerships may exist among system actors. Yet, there is no evidence that culture of data sharing beyond the contractual obligations exist for system level improvement which would eventually lead to program level improvements (Guss et al., 2013; Ikemoto & Marsh, 2006; Kauerz, 2020; Marsh et al., 2007; Paulsell et al., 2015; Tout et al., 2011). Despite multiple sources of data were captured in the Early Achievers system, the utilization and sharing of the current data sources were limited which hindered abilities to inform Early Achievers implementation partners for program improvement for future.

The findings from qualitative strands explained the messiness of networks among Early Achievers partners with emphasis on how evidence-based coaching activities are not reflected in the current state system in the current model. Participants shared the culture of "organizational learning" have evolved through continuous partnerships and relationship building activities among implementation partners during the current revision phase of Early Achievers (Firestone & González, 2007, p. 152). Rather than asking for accountability, resetting norms and expectations across all partners in Early Achievers is enhancing the mutual partnerships and accountability for building positive atmosphere for continuous quality improvement (Byrk et al., 2011; Firestone & González, 2007; Wohlstetter et al., 2008). By identifying norms and expectations of what needs to be collected and addressed, the actors in the system are currently navigating options for what are feasible ways to support coaches across all care settings. These include implementing other coaching models such as equity-focused coaching and transformational coaching models. In part, similar to the findings from Little et al. (2019), this could be viewed as a lack of trust and buy-in from

coaches on implementing an evidence-based coaching model (i.e. Practice-based Coaching). By conducting the current study, I saw opportunities for contributions to the early childhood systems theory and provided analytical constituent to acknowledging interrelationship activities and partnerships that occur in various systems-building contexts.

Limitations

The findings from the current study should be interpreted with the following limitations. First, the information collected during the quantitative sequence are secondary data sets previously collected from other entities (i.e. CCA of WA, Cultivate Learning, or DCYF – ECEAP). Specifically, the information captured on WELS data set on types of coaching activities and objectives are self-reported records entered by coaches. As the current system does not provide training, technical assistance, or any form of professional development for coaches, the data available on WELS may not truly reflect the actual coaching practices implemented at a site level. Due to lack of support, it might increase the probability of errors in data collection and entry process. As process of collecting and utilizing data is not instinctive among coaches, professional development and ongoing support for coaches should be addressed. These include professional development support on collecting, using, and interpreting observational data prior to, during, and after a coaching visit for coaches and administrators who provide coaching support at a program (Guss et al., 2013; Sandall et al., 2004; Smith et al., 2012; Snyder et al., 2015; Little et al., 2019).

Second, the findings from qualitative analysis represents viewpoints of Early Achievers coach support professionals not coaches. I emphasize that findings in the current study remain true to participant reflections and thus are subject to participant bias. In future research studies, by inquiring perspectives from coaches, administrators, and teachers, this would allow researchers from describing the status of the existing statewide system as it is to a vision and hopes for ideal coaching system to be in the future (Coffman, 2007; Tout, Metz,

& Bartley, 2013). This would also allow how the system actors would set up goals and outcomes for the intended recipient (i.e. children) of an initiative and the data gathered based on goals and outcomes would accelerate the scalability of a system.

Finally, in the data analysis phase, I adapted a general inductive analysis approach to synthesize adaptive and technical factors that are expressed by six interview participants as the research questions for the current study inquired system-level perspectives (Thomas, 2006; Heifetz & Linsky; Kauerz, 2020). The approach may reflect one's needs on current Early Achievers system on supporting coaches and coach agencies, yet it did not further investigate how coaches or coach agencies support processes of coaching activities at a program or a classroom level. Instead, designing interview questions that investigate practical challenges among coaches can be considered for future studies. This includes inquiring methods for data collection for coaching (i.e. "Describe the data collection methods used in your classroom"), process for instructional planning (i.e. "Describe your process for developing activity plans"), purpose for data collection (i.e. "What are you required to do in terms of data collection?"), or coaching needs in a classroom (i.e. "Is there anything about your present method of data collection that you would like to change?") (Sandall et al., 2004, p. 165). This would increase the likelihood of describing the implementation processes of practitioners which then can be translated into inquiring context and components to improve programs and services as well as political will and policy changes (Tout et al., 2013).

Recommendations for Future Research

The current study guides several areas for future research. An alternative design for future research could be considered once the pandemic is past and the revised Early Achievers system is in place. Investigating the networked improved communities among Early Achievers partners, efficacy of communities of practice, and other collaborative processes that intentionally bring together stakeholders of Early Achievers would contribute

greatly to understanding early childhood systems building (Byrk et al., 2011; Kauerz, 2020). These include social network analysis which lays out communication processes and influence on decision making processes (Carolan, 2014) or sequential equation modeling (Kline, 2015) which can identify factors among coaching activities that are associated with QRIS outcomes (Boller & Maxwell, 2015; Lloyd & Mollin, 2013; Smith et al., 2017; Zaslow & Tout, 2014).

I also believe more attention is needed on how Early Achievers implementation partners implement the notion of research-practice partnerships (RPP) (Bryk et al., 2015; Coburn et al., 2013). Inquiring what dimensions of RPP are presented in an early childhood system would create a natural partnership opportunity among practitioners, policymakers, and researchers. These could include presenting and sharing data and supporting each other on translating different types of data to information, so that it can be used for planning, quality improvement, and suggesting actions for next steps. I see potential among Early Achievers partners as we collect a lot of information; I believe we just have not used our talents across the system yet to distinguish trends, identify moments for defects or improvements, and strive for excellence by collaboratively working together to celebrate our success for the next iteration of Early Achievers. As Ikemoto and Marsh (2006) said, "DDDM in practice is not necessarily as linear or continuous as the diagram depicts" (p. 110). However, I believe our partners are ready for another round of challenge to investigate the following question: What is considered the working coaching system that encompasses continuous quality improvement and data-driven decision making (DDDM) processes in the Washington Early Learning System?

Conclusion

The focus on utilizing data to inform decision making process for continuous quality improvement in early childhood system is inevitable. As actors across Early Achievers system collect multiple sources of data, the current revision of Early Achievers could be

utilized as an opportunity for change in the system. Partners in the Early Achievers system could prioritize utilizing data and sharing institutional knowledge that are currently available to a greater capacity. For instance, a follow up conversation with administrators in the Child Care Aware of Washington revealed that the agency built a capacity for DDDM by hiring two data specialists in their network offices. This enabled CCA of WA as the only coach support organizations among Early Achievers partner who collect coach demographics information in annual basis. On the flip side, the ECEAP administrators also revealed one of the unique characteristics of ECEAP programs as all teachers and coaches are trained and reliable on a child-level assessment tool (Teaching Strategies GOLD) (Heroman & Tabors, 2015). This allows educators and coaches in ECEAP programs to monitor and reflect child level progress throughout the year. I thought this was one of the perfect situations in which each partner had resources that other partners needed (Thomson & Perry, 2006). By creating a protocol or data sharing agreement, this would build a stronger connection among disparate data systems in Early Achievers system. It will further enhance the exploration of what factors have contributed for Quality Rating Improvement System level outcomes.

Finally, I want to emphasize sustaining a culture of organizational learning. The global COVID-19 pandemic brought opportunities for system actors to reflect and revise the next iteration of Early Achievers in Washington. As all stakeholders are interested in building and improving the current system, rather than asking for accountability, I hope implementation partners utilize this precious time for exploring both adaptive and technical challenges for system alignment. As the current study revealed some of the challenges addressed by coach support professionals, future studies could address in-depth analysis on collegial process and scaffolding among the workgroup members by asking the following questions: What are the measures of success over time in Early Achievers? How can different systems such as QRIS, ECEAP, and universal pre-K initiatives incorporate and best support

CQI as part of their standards and resource allocation? How can we best incorporate ideas of rapid cycling of changes, sustainability, and collective impact? Addressing these questions will enrich the opportunities for system actors, researchers, and policymakers to expand empirical, theoretical, and practical perspectives on early childhood systems. Perhaps the bigger question is, can we utilize this time as a window of opportunity? (Kingdon, 1986)

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List of Figures and Tables

Figure 1

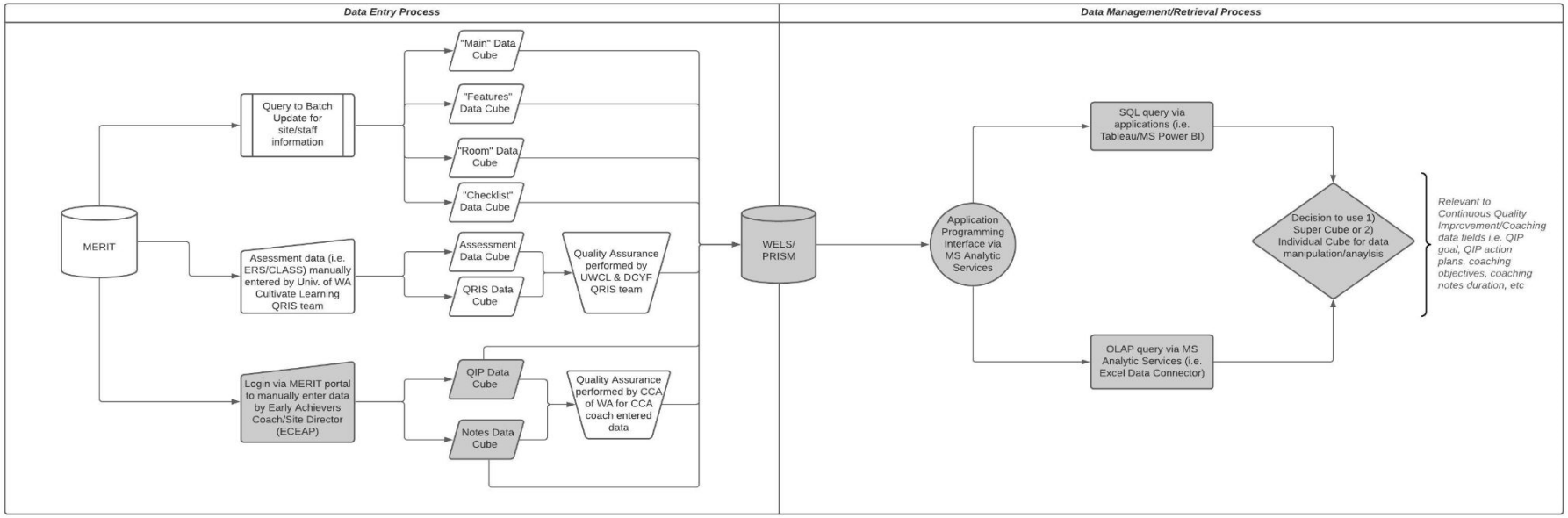
The Major Mixed Methods Design Types (Creswell, 2006, p.87)

Table 4.2 The Major Mixed Methods Design Types

Design Type	*Variants*	*Timing*	*Weighting*	*Mixing*	*Notation*
Triangulation	• Convergence • Data transformation • Validating quantitative data • Multilevel	Concurrent: quantitative and qualitative at same time	Usually equal	Merge the data during the interpretation or analysis	QUAN + QUAL
Embedded	• Embedded experimental • Embedded correlational	Concurrent or sequential	Unequal	Embed one type of data within a larger design using the other type of data	QUAN(qual) or QUAL(quan)
Explanatory	• Follow-up explanations • Participant selection	Sequential: Quantitative followed by qualitative	Usually quantitative	Connect the data between the two phases	QUAN → qual
Exploratory	• Instrument development • Taxonomy development	Sequential: Qualitative followed by quantitative	Usually qualitative	Connect the data between the two phases	QUAL → quan

Figure 2

WELS/PRISM Early Achievers Data Management Process Pipeline



Note. The access to WELS data set is currently restricted to Early Achievers network administrators and the raw data acquired for the current study will not be shared publicly; I inquired access to WELS via *Application Programming Interface* (API) - A set of ID and Password which enables access to the backend database of WELS: PRISM. The data set is scheduled to be retired in July 2021 and will be replaced by WACompass (TBD) - a *Salesforce* based database platform; MERIT (DCYF, n.d.) is the Workforce Registry and official system of record for early learning professionals in Washington State. MERIT is used for record and recognize the growth and achievements of the early learning field statewide (DCYF, n.d.).

Figure 3

The coding process in inductive analysis (Thomas, 2006, p.242)

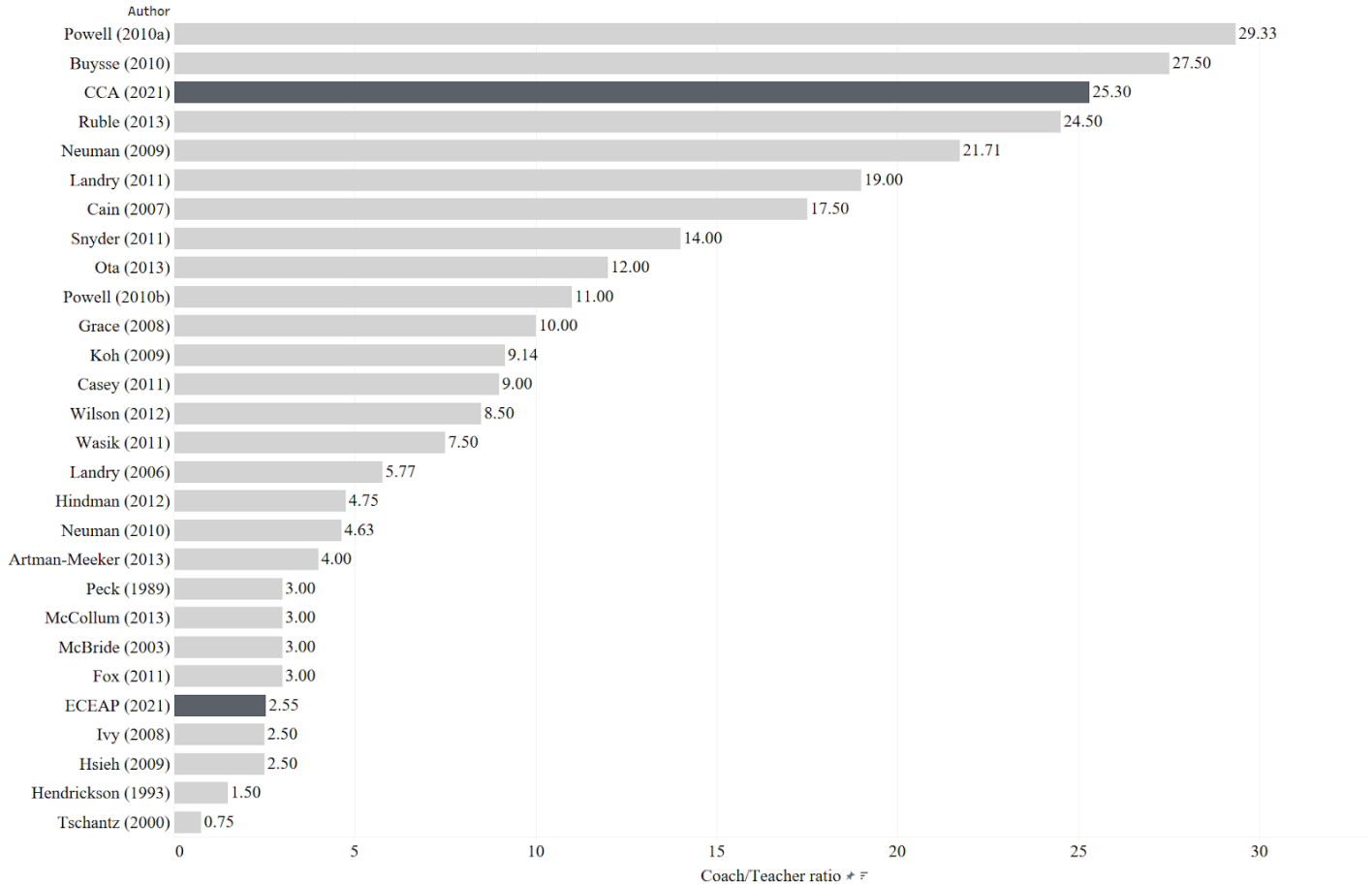
Table 2
The Coding Process in Inductive Analysis

Initial reading of text data	Identify specific text segments related to objectives	Label the segments of text to create categories	Reduce overlap and redundancy among the categories	Create a model incorporating most important categories
Many pages of text	Many segments of text	30 to 40 categories	15 to 20 categories	3 to 8 categories

Source: Adapted from Creswell (2002, p. 266, Figure 9.4) by permission of Pearson Education, Inc. (© 2002, Upper Saddle River, NJ).

Figure 4

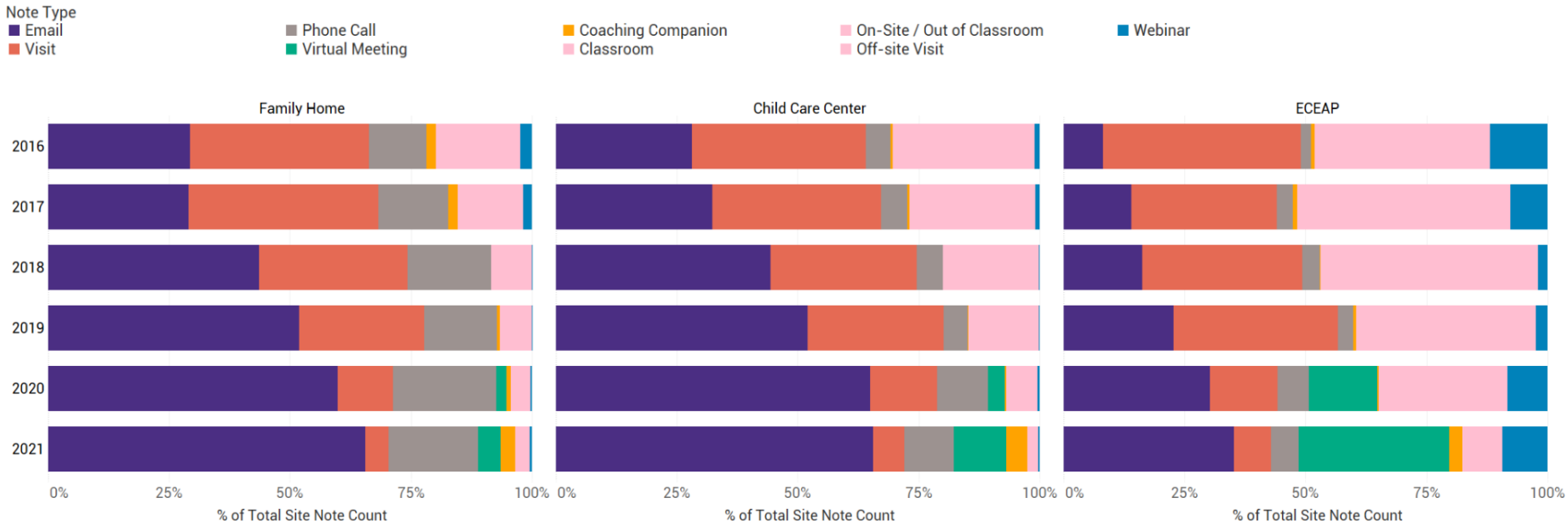
Coach caseload of current analysis in comparison to other reported measures (Referenced from Artman-Meeker et al., 2015)



Data retrieved from Artman-Meeker et al. (2015). *Applying an evidence-based framework to the Early Childhood Coaching Literature Note. CCA (2020) and ECEAP (2020)* highlights the results of current analysis of coach/site ratio. All other sites included in the analysis used coach/teacher ratio. *Avg. = 10.25 caseloads per coach; M = 8.00 caseloads per coach across reported studies.*

Figure 5

Reported Coaching Activities on WELS-PRISM-Notes Cube by Early Achievers Program Type (January 1, 2016 - May 12, 2021)

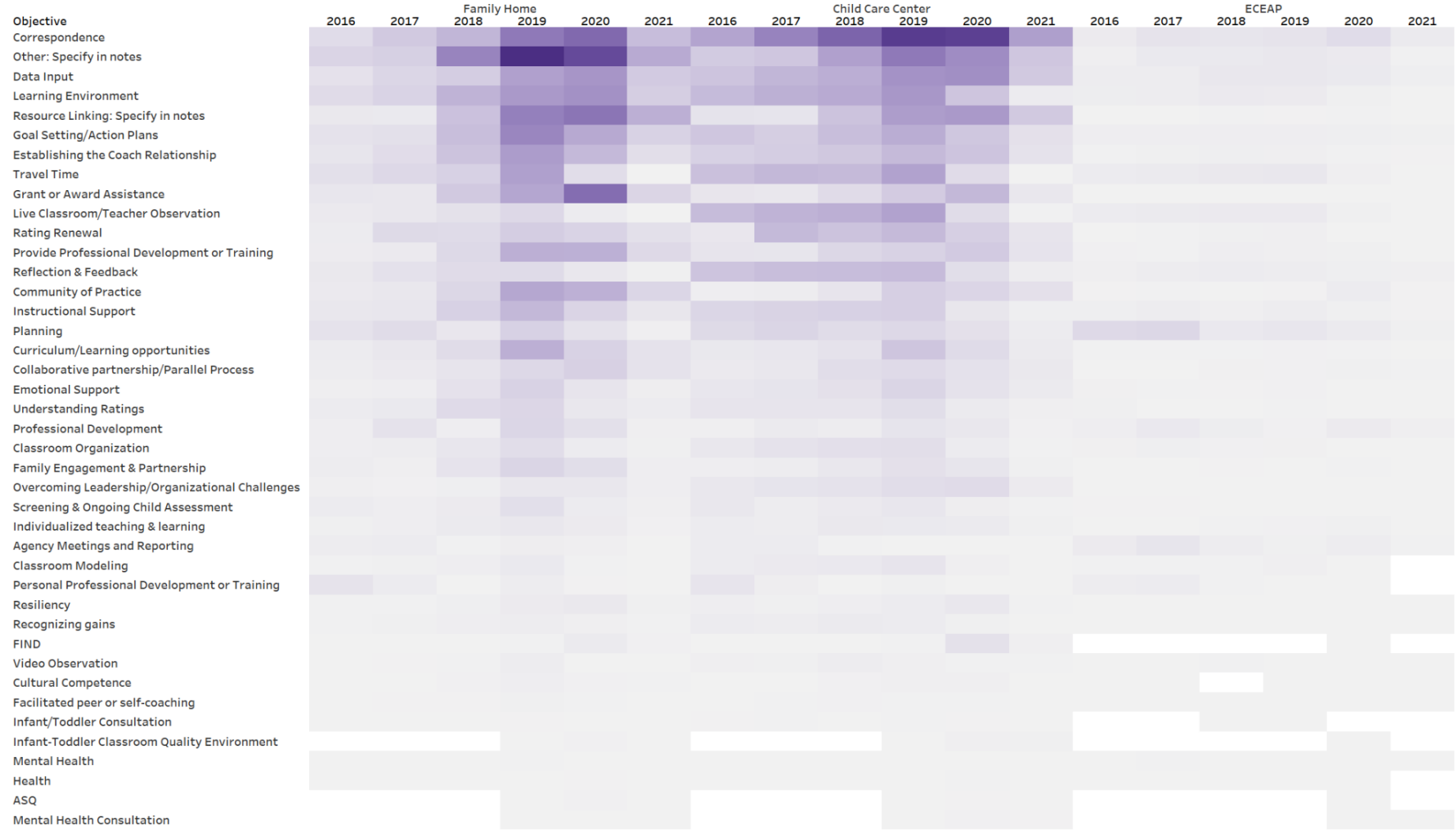


Data retrieved from Washington State Dept. Children, Youth, and Families Web-based Early Learning System (WELS)

Note. Figure 4 demonstrates the proportion of coaching activities reported per program type of Early Achievers visualized from WELS data set in a bar chart. ECEAP represents Early Childhood Education and Assistance Program funded by Washington State for children 3 and 4.

Figure 6

Reported Frequency of Coaching Objectives on WELS-PRISM-Notes Cube by Early Achievers Program Type (January 1, 2016 - May 12, 2021)

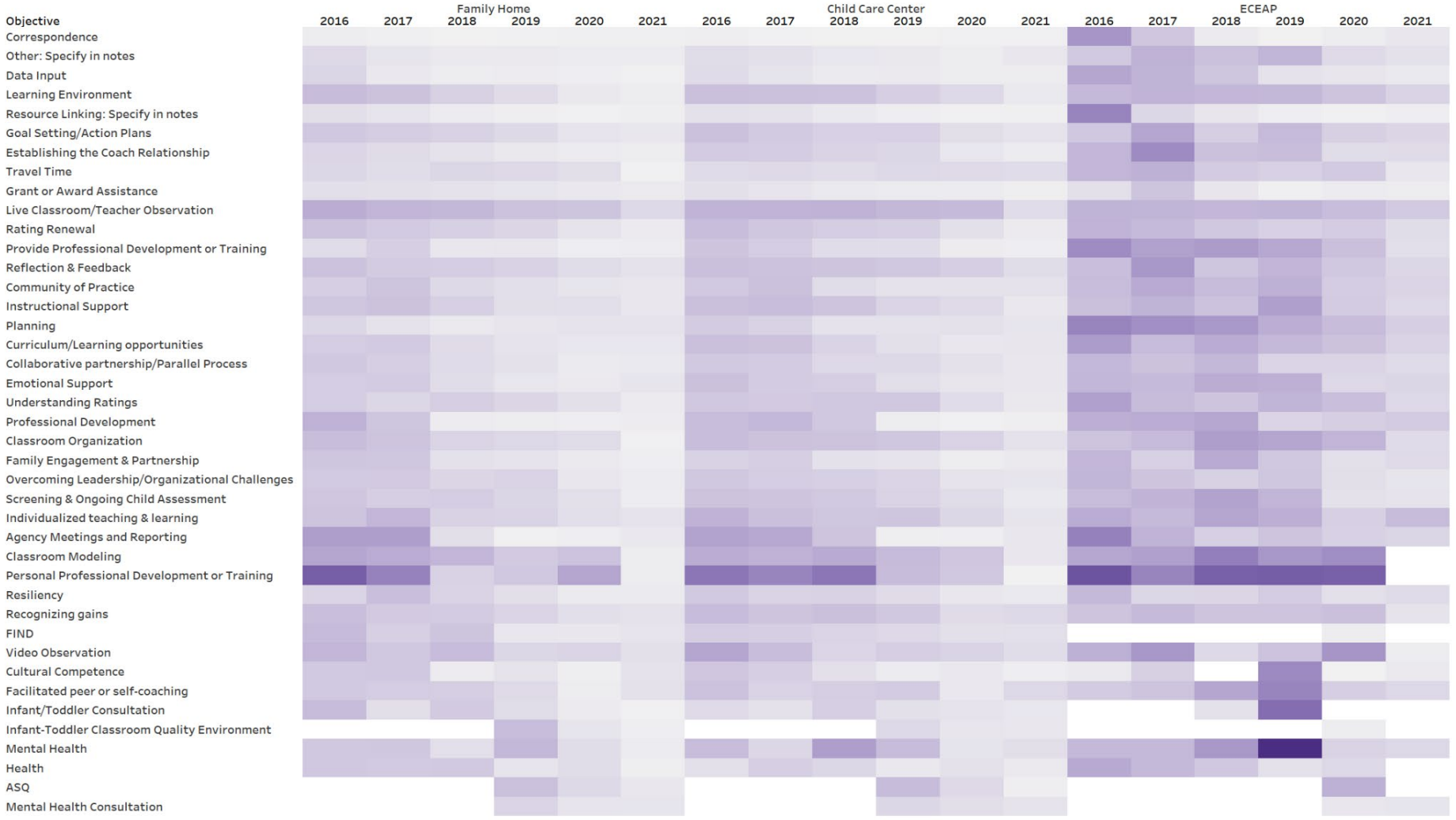


Data retrieved from Washington State Dept. Children, Youth, and Families Web-based Early Learning System (WELS)

Note. Figure 5 demonstrates the frequency of coaching objectives reported per program type of Early Achievers. The data set was queried from the statewide WELS database and visualized on a heat map. The color density represents frequency of reported coaching objectives. Darker cells present relatively higher rates of reported objectives compared to cell values across all three programs whereas the lighter color represents low frequency of coaching objectives. The site note count reported on this figure ranged from 1 to 10,663 records. ECEAP represents Early Childhood Education and Assistance Program funded by Washington State for children 3 and 4.

Figure 7

Reported Avg. Hours of Coaching Objectives on WELS-PRISM-Notes Cube by Early Achievers Program Type (January 1, 2016 - May 12, 2021)



Note. Figure 6 demonstrates the average hours of coaching objectives spent per program type of Early Achievers. The data set was queried from the statewide WELS database and visualized on a heat map. The color density represents average hours of reported coaching objectives. Darker cells present relatively higher hours spent on reported objectives compared to cell values across all three programs whereas the lighter color represents low average hours spent on coaching objectives. The site note avg. hours reported on this figure ranged from .25 hours (15 mins) to 8 hours. ECEAP represents Early Childhood Education and Assistance Program funded by Washington State for children 3 and 4.

Figure 8

Findings from within case analysis: Child Care Aware of Washington

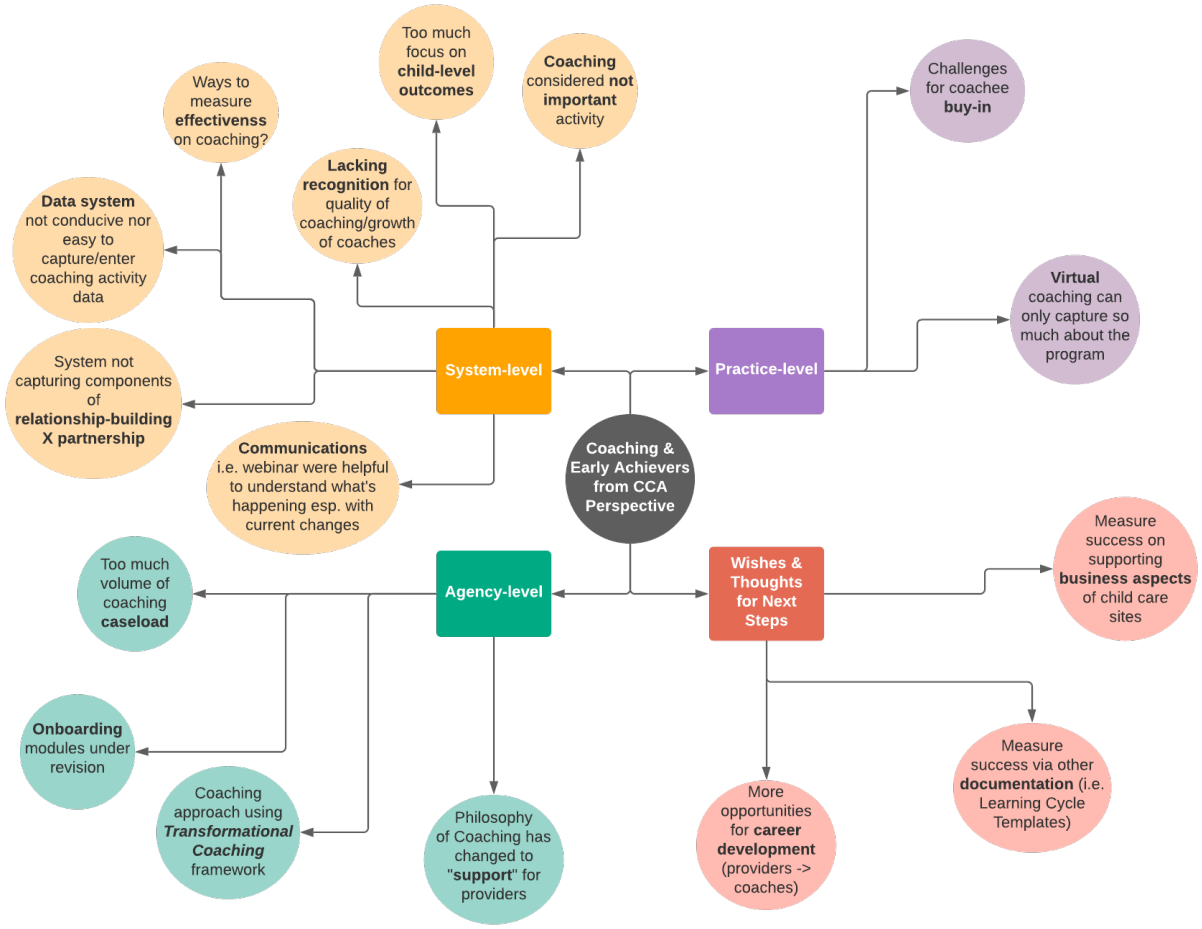


Figure 9

Findings from within case analysis: University of Washington Cultivate Learning

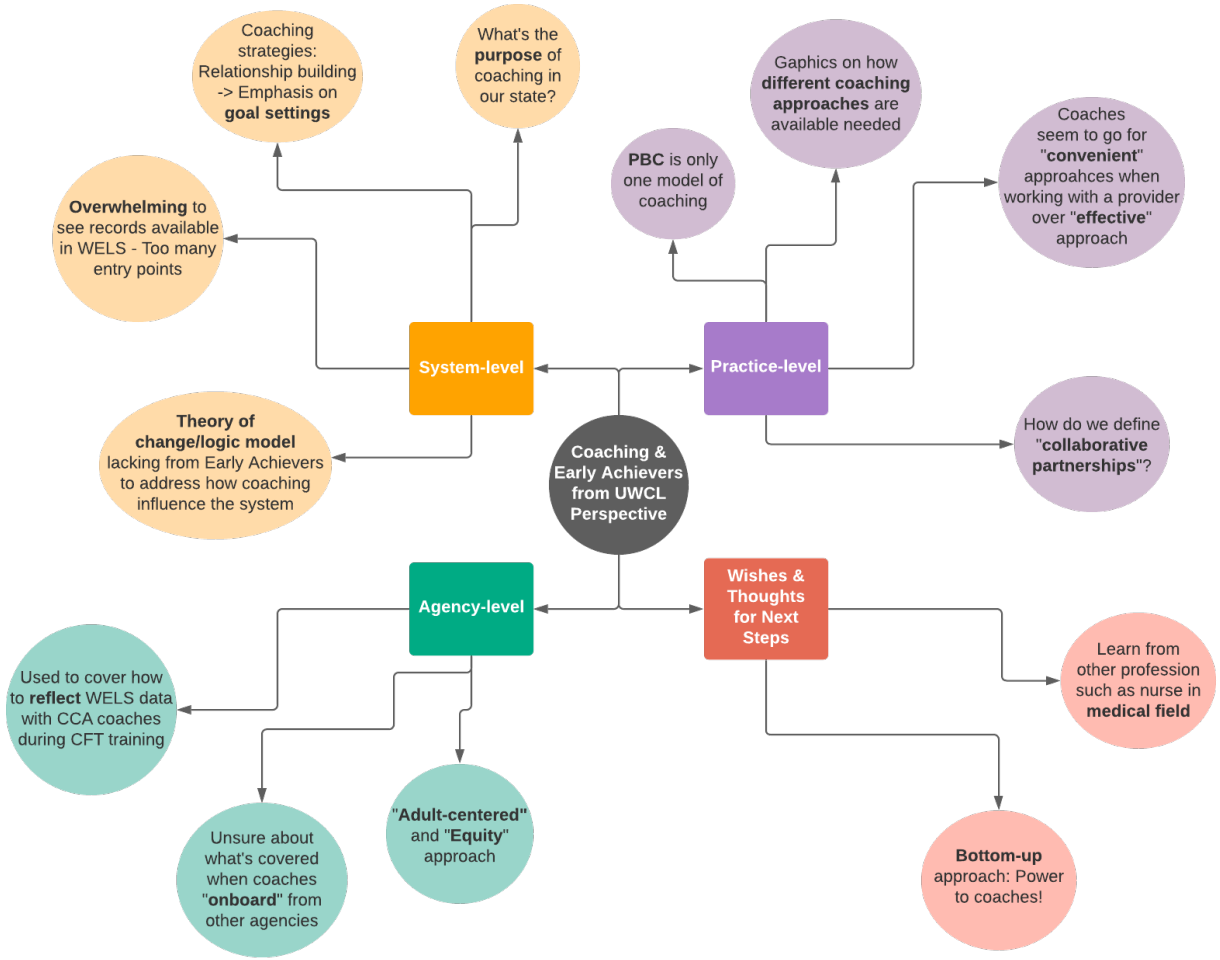


Figure 10

Findings from within case analysis: ECEAP

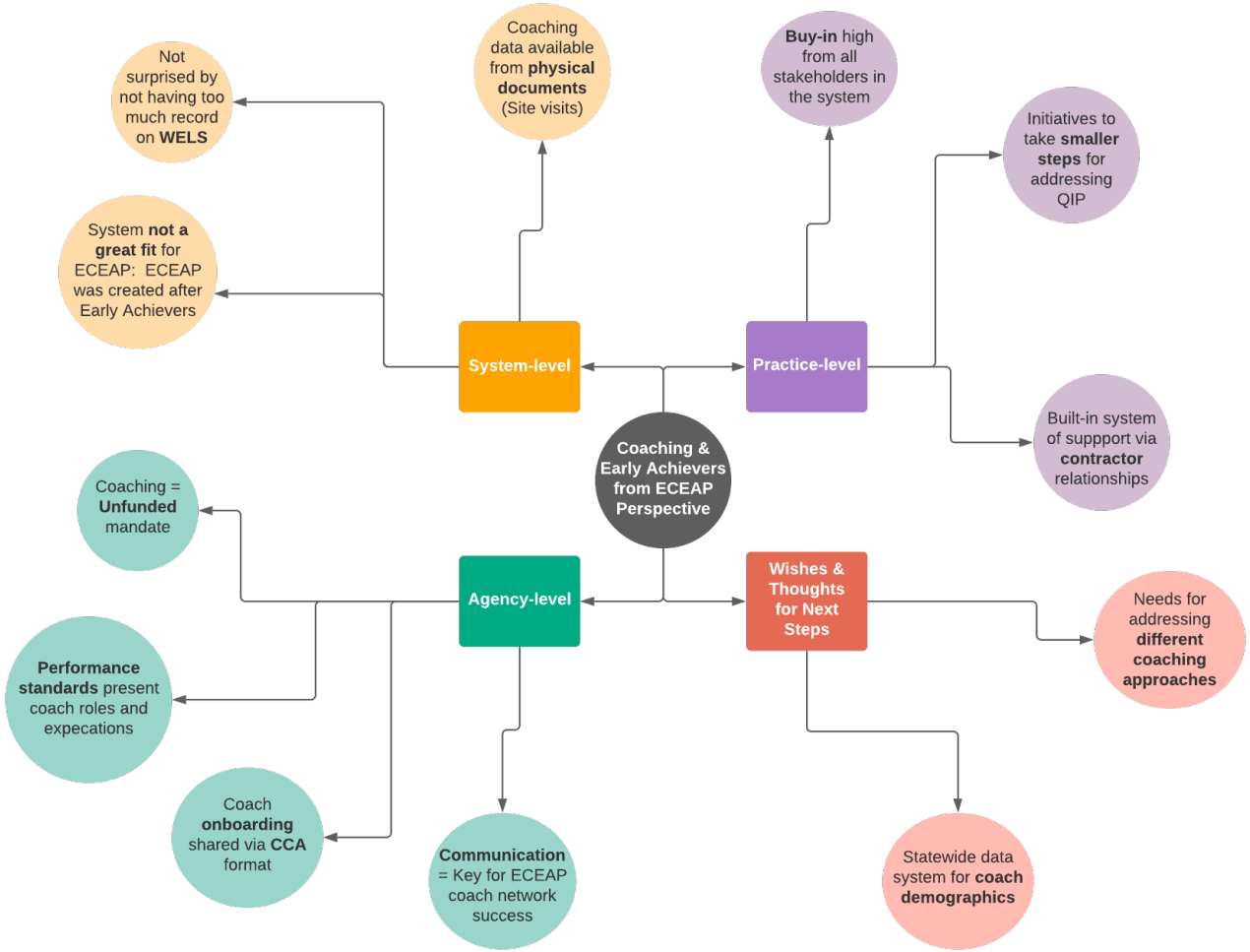


Figure 11

A diagram of coaching and continuous quality improvement challenges based on the Early Achievers partners' interviews based on cross-case analysis (n=6)

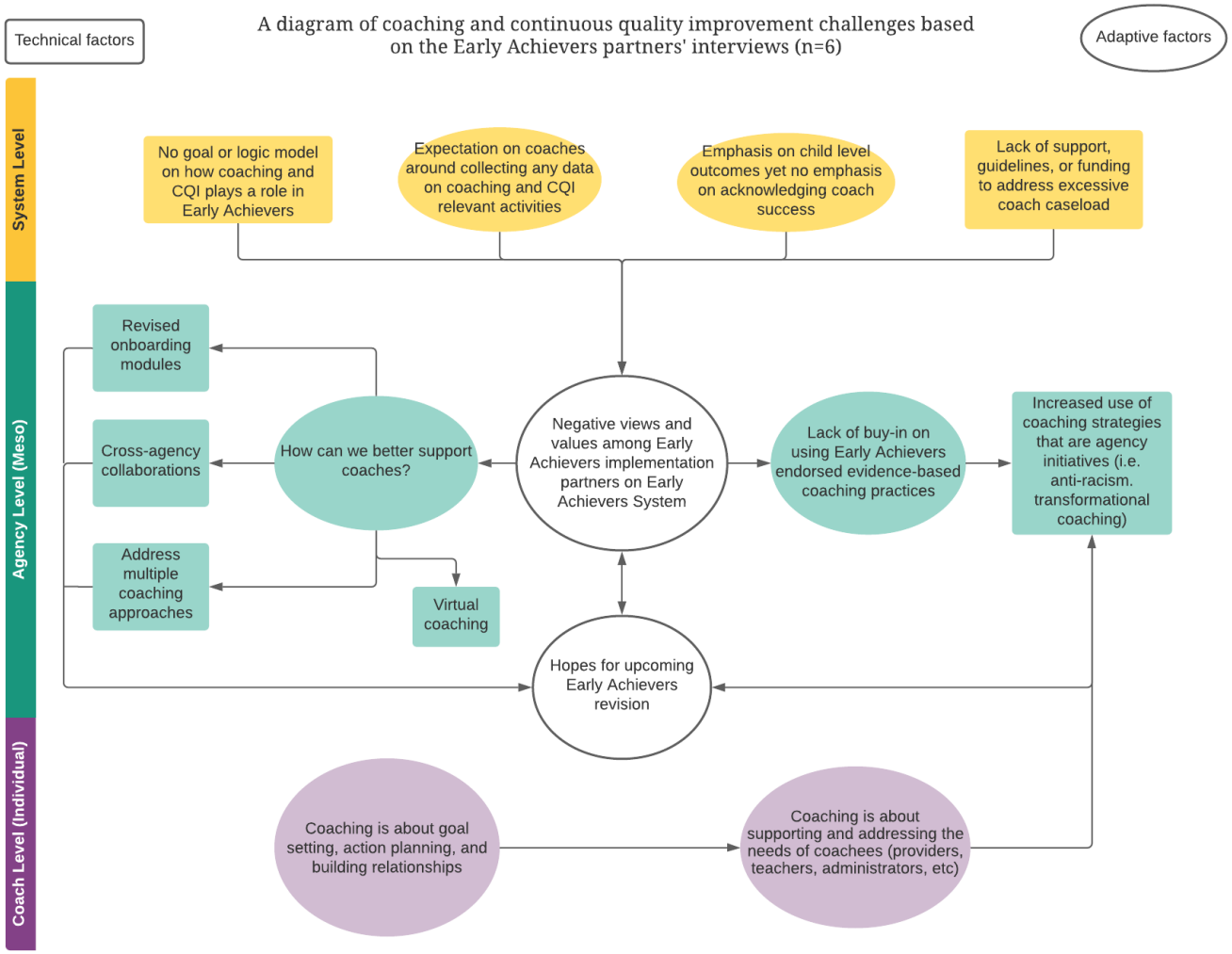


Table 1
Quantitative and qualitative data for current study (quan -> QUAL)

Type	Name	Description	Analysis plan	Corresponding RQs
Quantitative – Secondary data (quan)	Coach overview and demographics	Coach demographics information collected by coach agency in the state of Washington (CCA of WA); Raw data on ECEAP coach rosters (ECEAP); Raw data on Coach Framework Training participants (UWCL)	Data merge via R tidyverse package for descriptive analysis	RQ1
	WELS Coaching Notes	Descriptive information collected in the statewide WELS database for coaching activities such as types of coaching visit,	Descriptive trend analysis (i.e. overview of coach workforce characteristics; dosage of coaching at a site level; coach training completion rate)	RQ2
Qualitative – Primary data (QUAL)	Interview (n=6)	Interviews of professionals at coach support agency including CCA of WA, Cultivate Learning, and DCYF ECEAP.	Inductive analysis for highlighting themes from partner entity perspective (within-case and cross-case analysis)	RQ3 - 4

Table 2

Categories created for general inductive analysis based on Early Achievers implementation partners perspectives (n=6)
(Adapted from Heifetz & Linsky, 2002; Ikemoto & Marsh, 2006; Kauerz, 2020)

Category	Subcategory	Description
Technical	Data system	Comments/concerns/challenges around WELS database system and what data are captured in the system
	Capacity for agency to utilize DDDM	Comments/concerns/challenges around agency's capacity for DDDM
	Funding, tools, and resources	Comments/concerns/challenges around funding, tools, and resources for coaches and administrators for CQI and DDDM
Adaptive	Perceived validity	Comments/concerns/challenges around what data should be captured in Early Achievers
	Partnerships with external organizations	Comments/concerns/challenges around partnerships among Early Achievers partners
	Organizational culture	Comments/concerns/challenges around internal organizational cultures of an agency
	Policy context	Comments/concerns/challenges around policy context influencing implementation partners' willingness for CQI and DDDM

Table 3

Primary coaching objectives: Variables used in WELS analysis (DEL, 2015)

Objectives	Description
Classroom Modeling	Refers to coach efforts to intentionally demonstrate best practices for early learning in front of a provider. These efforts should be related to shared goals and action plans.
Classroom Organization	Refers to coach efforts to support the management of children's behavior, time and attention; three dimensions of CLASS behavior management (monitoring, prevention and redirection and behavior), productivity (runs routines to maximize time spent learning), and instructional learning formats (interesting activities and materials to maximize engagement and learning opportunities).
Collaborative Partnership/Parallel Process	Refer to coach efforts that build respectful, culturally competent, reciprocal relationships between coaches and providers toward the development of collaborative relationships. "Do unto others as you have them do unto others."– Jeree Pawl
Cultural Competence	Culturally responsive practice refers to coach efforts to promote provider cultural responsiveness, both personally and throughout the early learning site as a whole. This includes reflecting on practices to ensure cultures are respected and honored and cultural sensitivity is in place. This objective could possibly be achieved by using the Cultural Competence Screen or the Early Learning Guidelines, among other resources.
Curriculum/Learning opportunities	Refers to coach efforts to support high-quality, evidence-based curricula that is aligned with the WA State Early Learning Guidelines that provide learning goals and activities in key areas of child development: guidance on what to teach and how to teach it; interests and ideas of children; and the values of the community.

Objectives	Description
Emotional Support	Refers to coach efforts to promote the emotional connection between teacher and student, and among students, with warmth, respect and enjoyment communicated. This is in reference to four CLASS dimensions of a highly positive climate, teacher sensitivity, regard for student perspectives and low negative climate.
Establishing the Coach Relationship	Refers to coach efforts that help providers understand what coaching is, how they and their coach will interact and how to get the most out of coaching. Coaches will begin building this relationship by spending time in each site/classroom and learning about the provider/teachers in order to build trust and understanding that will be the foundation of the coaching relationship. This might include sharing resources like the Coaching 101 PowerPoint, the coaching brochure and/or other materials that explain the purpose and process of coaching. These efforts can also include meeting facility staff to explain a coach's role at the site.
Facilitated peer - or self-coaching	Refers to coach efforts that support providers to engage in the three-step coaching process (Goal Setting, Observation and Feedback.)
Family Engagements & Partnerships	Refers to coach efforts with the Strengthening Families Framework, and to advocate for engaging parents and other family members in positive, ongoing and goal-oriented relationships.
Goal Setting/Action Plans	Refers to the processes for initial, and on-going, goal setting and action planning, using the Early Achievers rating reports as a needs assessment. Goals should be clearly defined, measurable and achievable within a defined timeframe.

Objectives	Description
Grant or Award Assistance	Refers to coach efforts that support providers' access to grant or award funds by introducing available grants/awards, supporting providers as they complete necessary paperwork or procedures to apply for grants/awards and assisting providers in planning for and using funds to achieve Early Achievers goals.
Individualized teaching & learning	Refers to coach efforts to support the use of observation and ongoing, formative assessment of children's skills to intentionally plan instruction and activities that engage all children regardless of strengths and needs. It also refers to coach efforts to help providers design learning opportunities through daily routines to meet the individual needs of all children.
Infant/Toddler Consultation	This is intended for the Infant/Toddler consultation model. Please refrain from selecting this objective if you have not been given specific instructions for this purpose.
Instructional Support	Refers to coach efforts to help providers use discussion and activities to promote students' higher order thinking and understanding (concept development); quality of feedback to expand understanding and continued participation; and quality and amount of teacher's language modeling.
Learning Environment	Refers to coach efforts to ensure that learning environments are well-organized, clean, safe and well-managed, and are full of social and emotional support, instructional interactions and materials that stimulate children's thinking and skills. This may include using the Environment Rating Scales as a resource to inform practice.

Objectives	Description
Live Classroom/Teacher Observation	The term “observation” refers to the process of gathering and recording information about implementation of desired teaching practices during on-going classroom activities, routines, and transitions.
Other	Specify in notes. Please use this definition sparingly. Look through the other definitions to identify which one or two best describe the purpose of your coaching effort.
Professional Learning Community	This is intended for the Infant/Toddler consultation model. Please refrain from selecting this objective if you have not been given specific instructions for this purpose.
Provide Professional Development or Training	Refers to coach efforts that support providers to access and engage in professional development opportunities such as taking courses, STARS trainings, health and safety trainings, or other professional development opportunities. Coaches may conduct such trainings, or may refer providers to relevant trainings or agencies that can provide the trainings. This also can include supporting providers as they access a professional learning community. This does not include coaching itself. Trainings that coaches deliver to providers onsite are not eligible for STARS credit as this time, as they are part of coaching services.
Recognizing gains	Refers to coach efforts to celebrate completed goals and other accomplishments.
Reflection & Feedback	Refers to coach efforts to develop and sustain mutual consideration of the support strategies used and information gathered about teaching practices to identify successes, challenges and areas for additional improvement or refinement (i.e., reflecting on teaching practices.

Objectives	Description
Resiliency	Refers to coach efforts to assess, teach or support their use of any and/or all of the A.C.H.I.E.V.E.R. resiliency skills.
Resource Linking	Refers to coach efforts to support providers as they find resources beyond the scope of coaching, such as links to food assistance programs for families, child care assistance for families, appropriate counseling services for staff and/or families, technology and information services like libraries and computer labs and training services through various agencies, etc. This also may refer to coach efforts to support providers to find resources that support their Early Achievers goals, such as resources found in the WELS library, the Coaching Companion, resources identified or created by the coach, community resources identified by the coach or the provider, etc.
Screening & Ongoing Child Assessment	Refers to coach efforts that introduce, educate, explain and support providers' use of screening and child assessment tools. This could include helping providers understand what screening and assessment tools are, identifying and implementing the use of specific screening and/or child assessment tools and supporting providers to do objective child observations and note taking to document child development (i.e. video, pictures, and anecdotal notes about child learning).
Understanding Ratings	Refers to coach efforts to help providers understand their rating scores related to ERS, CLASS and the Early Achievers Quality Standards.
Video Observation	Refers to the process of engaging in focused observations via recording and/or reviewing recordings of providers in classrooms.

Table 4

Overview of Early Achievers coach workforce in the current study

Agency type	# of coaches in 2020-21 (% change from SY 2019-20)	Notes
CCA of WA	152 (-5%)	Instructional staff at licensed programs participating in Early Achievers including child care centers and family child care settings; Contracted via ECEAP contractors; Caseload normally higher than ECEAP coaches
ECEAP	164 (+15%)	Employed directly by ECEAP contractors; Often a director serves as a coach; The coach in ECEAP system serves in a multiple role including education coordinator, administrator, site supervisor, etc

Table 5

Overview of sites characteristics included in the coaching activity analysis

Year / Program Type	Family Home Care (% of program in the reported year)	Child Care Center (% of program in the reported year)	ECEAP (% of program in the reported year)
2016	379 (31.8%)	574 (48.2%)	239 (20.1%)
2017	565 (38.6%)	663 (45.3%)	234 (16.0%)
2018	1095 (54.0%)	777 (38.3%)	155 (7.6%)
2019	1606 (58.5%)	1004 (36.5%)	137 (5.0%)
2020	1654 (60%)	999 (36.2%)	104 (3.8%)
2021	1373 (59.8%)	858 (37.4%)	65 (2.8%)

Table 6

Demographic characteristics of interview participants (N=6)

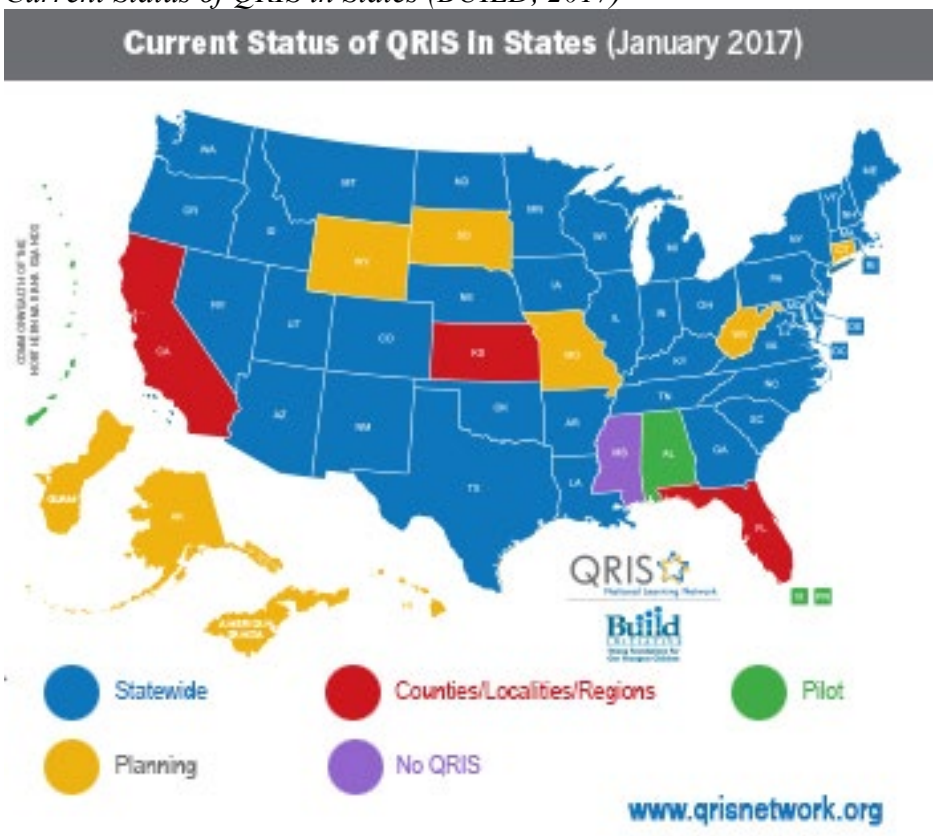
Participant characteristics	***n (%)***
Race/Ethnicity	
Caucasian / White / non - Hispanic	6 (100%)
Avg. years of experience in the current position	
1 - 2 years	3 (50%)
3 - 5 years	2 (33.3%)
5+ years	1 (16.7%)
Avg. years of experience in the early learning system	
20 + years	6 (100%)
Employer – QRIS Implementation partner	
Child Care Aware of Washington	2 (33.3%)
Cultivate Learning	2 (33.3%)
Dept. of Children, Youth, and Families - ECEAP	2 (33.3%)
Current role	
Trainer/Evaluation specialist	2 (33.3%)
Program administrator (Coach support)	4 (66.7%)

Note. Participant A, B, E, F: Program administrator; Participant C, D: Trainer/evaluation specialist.

List of Appendices

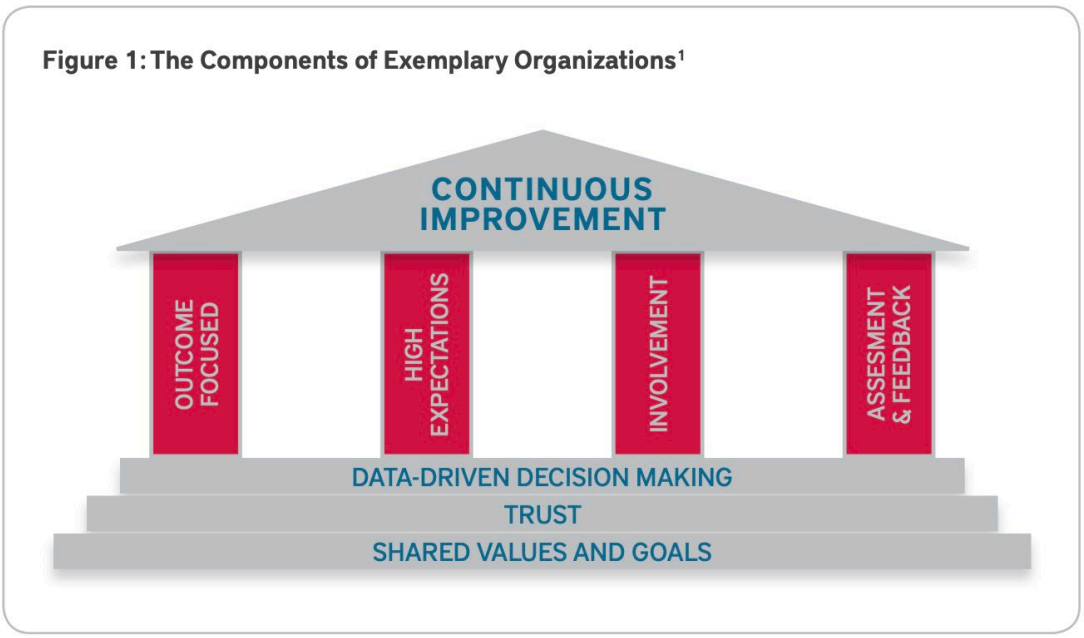
Appendix A

Current Status of QRIS in States (BUILD, 2017)



Appendix B

House Framework in Early Achievers (Keller, 2017) & House Framework in QRIS (BUILD, 2017)



Appendix C

Codes for R data join (Coach roster & training data) in RStudio

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    toc: true
    toc_float: true
    keep_md: true
published: false
---

```{r setup, include=FALSE}
knitr::opts_chunk$set(echo = TRUE)
```

# Step 1: Load packages
```{r}
library(readxl) # Excel file loading package
library(readr)  # CSV file loading package
library(tidyverse) # Data transformation package
```

# Step 2: Loading data sets
```{r}
rosterdata <- read_excel("Data/ECEAPCoachData_DCYFXPPIRP_2019-21.xlsx")
trainingdata <- read_csv("Data/CleanRoster_CFT_2015-2021.csv")

# Quality check
ls(rosterdata)
ls(trainingdata)
```

# Joining data set - next steps: Create a column for "Name" as a unique primary key(s)
```{r}
df <- inner_join(rosterdata,
                 trainingdata, by = "Name")
```

# Step 3: Data transformation: `Select` vars names
```{r}
dataFY1920 <- df %>%
  select("Region", "Name", "E-mail", "Training_StartDate", "Coach_FY1920Active",
"Coach_FY2021Active", "Completion") %>%
  filter(Coach_FY1920Active == "1") %>%
  filter(Completion == "1") %>%
  as.data.frame()
````
````

Data framed the 2019-20 coaches who have completed the Coach Framework Training.

```
dataFY2021 <- df %>%
  select("Region", "Name", "E-mail", "Training_StartDate",
"Coach_FY1920Active","Coach_FY2021Active", "Completion") %>%
  filter(Coach_FY2021Active == "1") %>%
  filter(Completion == "1") %>%
  as.data.frame()

# Data framed the 2020-21 coaches who have completed the Coach Framework Training
```

Step 3a: So... what did we find?

```{r}
count(dataFY1920) # 64 out of 140 (46%) ECEAP coaches in FY 19-20 have completed CFT
count(dataFY2021) # 82 out of 164 (50%) ECEAP coaches in FY 20-21 have completed CFT
```

Step 3b: Filter only needed variables by `select` fcn including the following:

* "Region"
* "ECEAP_Contractor_Name"
* "ContractorOrganizationID"
* "First_Name"
* "Last_Name"
* "CCA_affiliated"
* "E-mail"
* "Coach_FY1920Active"
* "Coach_FY2021Active"
* "Coach_FY2021Change"
* "Date_ECEAPCoachTraining"
* "Date_UWCFT"
* "Training_StartDate"

```{r}
finaldf <- df %>% select("Region", "ECEAP_Contractor_Name",
"ContractorOrganizationID", "First_Name", "Last_Name", "CCA_affiliated", "E-mail",
"Coach_FY1920Active", "Coach_FY2021Active", "Coach_FY2021Change",
"Date_ECEAPCoachTraining", "Date_UWCFT", "Training_StartDate") %>%
as.data.frame()
```

Step4:: Save it as a csv file

```{r}
write.csv(finaldf, "CFTRoster_ECEAP_042121.csv")
```

Appendix D

Interview questions – Coach & Coach leads (adopted from California Coaching Certification Task 2 Workgroup: the current state of coaching, n.d.)

Overview

1. Tell me how coaching currently works in your community.
2. What types of programs receive coaching? (e.g., centers, FCC, Head Start, public school facilities, etc)
3. Who do you usually coach? (Directors? Teachers? Teaching staff? Others?)
4. What happens in a typical coaching visit? Describe what happens when a coach visits a provider.
5. What are topics (content, focus) on which coaching is typically provided? How are these selected? (e.g., coach selects, teacher selects, director selects, co-selected based on program assessment, etc.)
6. How frequent are the coaching sessions (is it mandated or flexible)?
7. How long does a coaching session last?
8. Is the coaching session always face to face? If remote, describe
9. Do you use any forms of technology to document or facilitate coaching?
10. Does your organization provide a cultural and linguistic match between the coach and coachee? What success/challenges have you had on this?

Coach Skills and Training

1. What does an effective coach look like to you?
2. Do coaches have education or experience requirements? How was that decided?
3. How do you measure a coach's skill and value?
4. How is the impact of coaching measured? (tool, frequency, etc)
5. What initial onboarding do your coaches receive? Can you share training models, agendas, etc. for coach onboarding training?
6. What ongoing training and support do your coaches receive? Can you share training models, agendas, cost, funding source, etc.?

Lessons Learned

1. What positive outcomes have you seen come from coaching, specifically aligned with QRIS outcomes?
2. What have been your greatest challenges with coaching as an Early Achievers coach?
3. What changes would you like to see in the next iteration of Early Achievers?
4. What are your concerns about the change in QRIS?
5. If you had a magic wand, where would you want the Early Achievers system to be in 1 year, 3 years, or 5 years? Why?

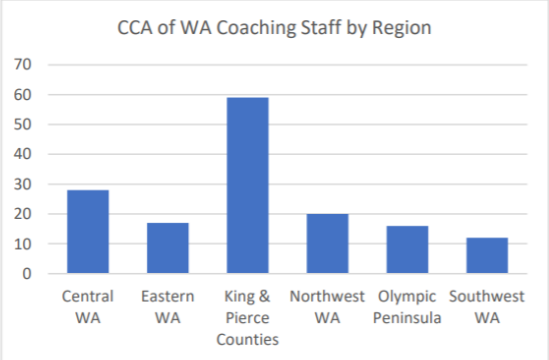
Appendix E

CCA of WA Coaching Staff Information (March 2021)

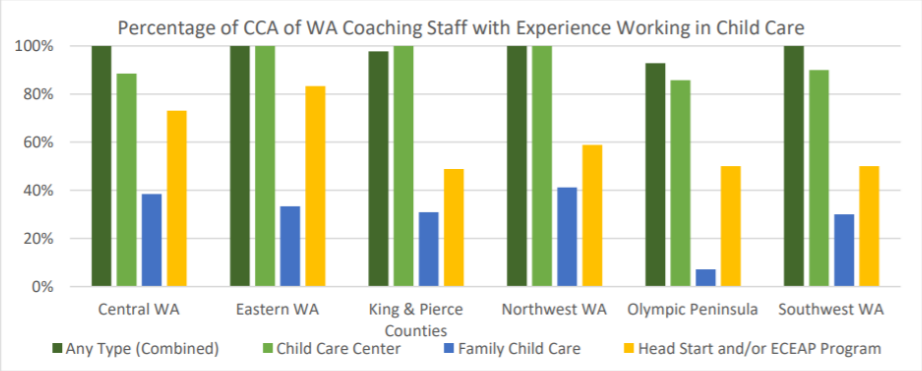
CCA of WA Coaching Staff Information

March 2021

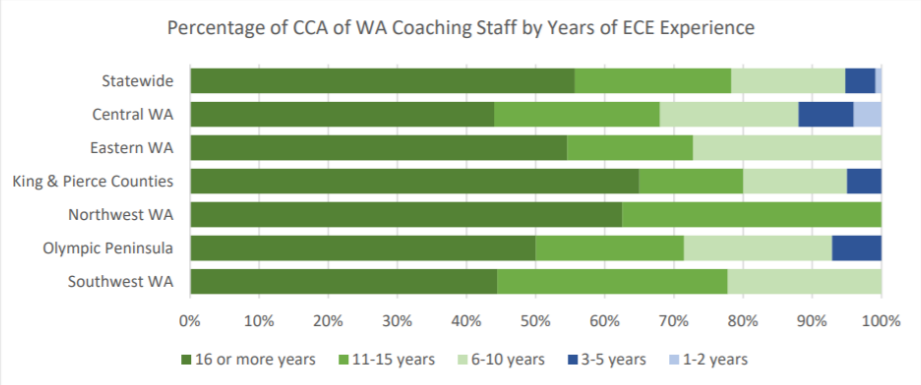
CCA of WA Early Achievers Coaching Staff	
Statewide	152
Central WA	28
Eastern WA	17
King & Pierce Counties	59
Northwest WA	20
Olympic Peninsula	16
Southwest WA	12



98% of CCA of WA Coaches have worked in child care.



79% of CCA of WA Coaches have more than 10 years of experience in early learning.

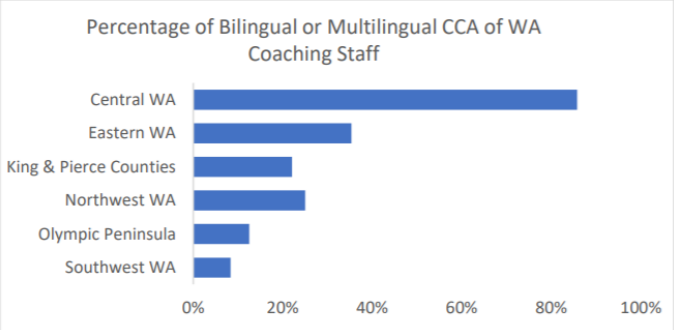


Data Sources: CCA of WA Regional Monthly Report February 2021; CCA of WA Coach Experience Survey August 2019 & March 2020 - Response rate 95%

CCA of WA Coaching Staff Information

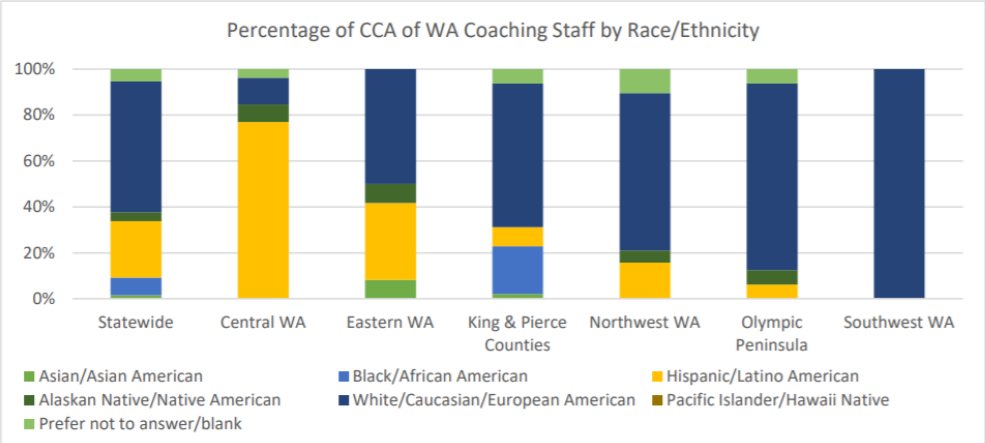
March 2021

34% of CCA of WA Coaches speak multiple languages.

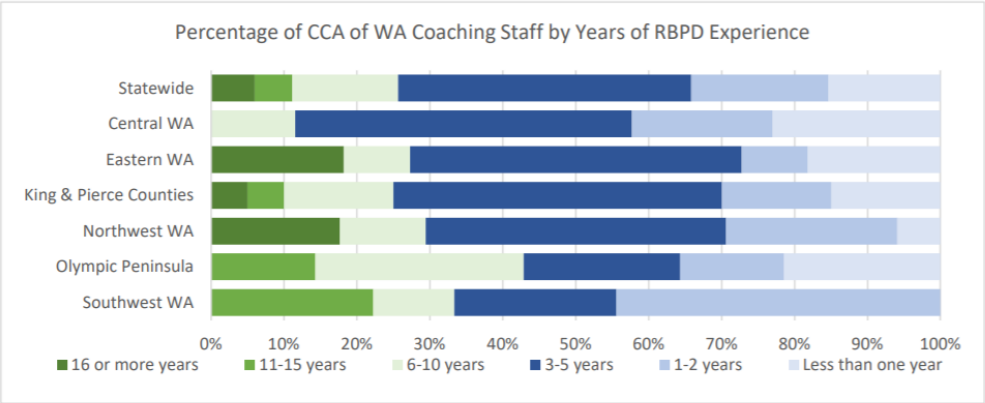


Other than English, the most common language spoken by CCA of WA Coaches is Spanish, followed by Somali.

CCA of WA Coaches reflect the diversity of their communities.



Most CCA of WA coaches have provided relationship-based professional development for at least 3 years.



Appendix F

Consent Form and Recruitment Information for Interview Participants

UNIVERSITY OF WASHINGTON

COLLEGE OF EDUCATION

Title of Study: Mechanics of Coaching: Inquiry of past, present, and future of coaching in Washington Quality Rating Improvement System

(WSIRB Project Code 2019-039 under *Partnership for Pre-K Improvement: Washington*)

Interviewee Consent Form – Dissertation

Investigator (Univ. of WA, College of Education)

Min Hwangbo, PhD Candidate in Learning Sciences & Human Development

Contact email for the study: foreverm@uw.edu

Advisors (Univ. of WA, College of Education)

Gail E. Joseph - Chair, PhD, Professor of Education | gjoseph@uw.edu

Sylvia S. Bagley, PhD, Director of Instructional Leadership | sbagley@uw.edu

Soojin Oh Park, PhD, Assistant Professor of Education | parkso@uw.edu

Crystal C. Hall, PhD, Associate Professor of Public Policy & Governance | hallcc@uw.edu

Statement of Purpose

We are asking you to be in a research study. The purpose of this consent form is to give you the information you will need to help you decide whether to participate. Please read the form carefully. You can ask questions about the purpose of the research, what we will ask you to do, the possible risks and benefits, your rights as a participant in the project, and anything else about the research and contents of this form that is not clear.

When we answer all your questions, you can decide if you want to participate in the study or not. This process is called 'informed consent.' We will give you a copy of this form for your records. Please do not hesitate to contact forevemr@uw.edu for any questions, comments, feedback, etc. I appreciate your time and dedication for your service in the field!

Purpose of Study

The study *Mechanics of Coaching: Inquiry of past, present, and future of coaching in Washington Quality Rating Improvement System* inquires ontological status – a status of where things are at – with the current Washington State Quality Rating Improvement System, the Early Achievers system coaching activities and workforce support. After a round of descriptive analysis of coaching information retrieved from the statewide early learning system data warehouse "WELS-DW," the researcher intends to interview stakeholders in the

system to validate and include the voice of system actors. These include coach support leads, administrators in the state, trainers, and coaches in the Early Achievers system.

Procedures

If you agree to participate in this study, you will be asked to do the following:

- Agree to participate in 1-hour call semi-structured interview with the researcher which includes:
    - From your perspectives, what are your thoughts on the information captured on the WELS system (particularly on Notes)?
    - Does that match with your belief, perspectives, and actual activities that you felt it's gathering what's considered intended information for the system?
    - If there were a magic wand, in the next 3-5 years, what suggestions do you have to the state QRIS system regarding collecting and managing coaching-relevant data?
- Agree to fill out the following form (last page of this consent form) which captures demographic information of interviewee

If you agree to participate in this study, the researcher will:

- Coordinate interview schedule with you at your convenience between April 19- May 5, 2021
- Prepare and share the transcript of your interview within 48 hours via an encrypted file transfer file ShareFile
- Prepare and share any deliverables of the study for your information and feedback before disseminating to the public including sponsors (Washington Department Children Youth and Families).
- Keep all information private and secure all data files of the study in a secured data warehouse C-Dash (operated by Cultivate Learning, College of Education, University of Washington).

The only time we will share identifiable information is in cases of suspected child abuse. By law, we must report these cases as early learning professionals.
You can choose to not participate, or stop participating, in the study at any time.

Risk, Stress, or Discomfort

Some people feel that participating in research is an invasion of privacy. We do our best to protect your privacy. The only people who will have access to your identifiable information are members of the study team who have signed an agreement to protect your privacy and keep your information confidential. Your name will be kept until data collection is complete and the data is organized at our office location. We will remove links to names from our records no later than December 31, 2027. All data will be kept indefinitely in a locked location that only project research team members can access. Your name will not be used in any articles we publish or presentations.
Whether or not you choose to be in the study, it will not affect your employment. No personal questions will be asked. You are free to stop activities at any time. If you have any questions, please contact us at foreverm@uw.edu.

Benefit

We hope the results of this study will help us understand how to better support coach workforce in the Washington early learning system.

Other Information

Participation in this study is voluntary. At any time during the study, you may choose to stop participating. Confidentiality of data will be maintained at all times, except in cases where child abuse is suspected. By law, such instances must be reported by the investigator. Sometimes, government or university staff review studies such as this one to make sure they are being done safely and legally. If a review of this study takes place, your records might be examined. The reviewers will protect your privacy. The study records will not be used to put you at legal risk of harm.

A consent form is attached. Please read it, sign it with your decision marked about participating, scan, and return it to a secured link that will be shared by the researcher. Please keep a copy for your records. Thank you for considering participation in this study. We think that our research will help create more opportunities for high quality early learning environments across the state. We will be happy to answer any questions you have. You can contact Min Hwangbo at foreverm@uw.edu.

Sincerely,
Min Hwangbo

Subject's Statement

The details of this study have been explained to me. I have had an opportunity to ask questions. I understand that the research team member listed above will answer future questions that I may have about the research study.

(First & Last Name Initials)
_____ I have received a copy of this consent form.

_____ I give consent for researchers to conduct an interview which includes recording, transcribing, and reviewing the data.

_____ _____ _____
_Printed name of participant Signature of participant Date

Your e-mail address:
Your role:
Your ethnicity/race:
Years of experience in current position:
Years of experience in early learning system:
What is your coaching specialty? (i.e. Data coach, Curriculum coach, Coach supervisor, Instructional leadership coach, etc):

If applicable, preferred pseudonym:
Other information that you'd like to share?: