On the Merits of Mixed Age Education: A Globalized Update

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Abstract

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Due to increasing global immigration and the recent proliferation of interconnective technologies, our world is quickly becoming inescapably international. As such, educators have a responsibility to prepare children for emergence into this world as competent global citizens. Leveraging the history, research findings, and philosophy of mixed age learning, this paper argues that mixed age classrooms are optimal learning environments for preparing children for engagement with urgent issues of global justice. Through the facilitating condition of regular facilitated interage interaction and peer tutoring in a family-like environment, mixed age learning has been linked to decreasing instances of social isolation, competition for power and status, and aggressive behaviors while simultaneously promoting prosocial behavior, cooperative collaboration, celebration of diversity, and the cultivation of interdependent self-awareness. These prosocial behaviors are also positively correlated to increases in academic achievement, addressing rising concerns in academic outcomes in the United States. In the end, empirical research is used to inform and buttress the author's strong opinion that, despite the increasing focus on academic standardization for administrative efficiency, mixed age learning is a promising environment for fostering the humanistic values and prosocial dispositions children need to emerge as critically engaged members of a global society.

On the Merits of Mixed Age Education: A Globalized Update

"Although humans are not usually born in litters, we seem to insist that they be educated in them" (Katz, 1995, p. 2).

Introduction (Part 1)

The age-stratified culture of the modern United States is largely a product of the past 200 years. This is the result of many complex and interconnected factors, including the size of communities, the specialization of work, the development of transportation, and the evolution of schools (Pratt, 1986; Cunningham, 2006; Savage, 2008). Since the beginning of human history, up until the industrial revolution, learning and teaching took place in family-type settings similar to the one-room schoolhouse of colonial America and medieval Europe (Kemmis, 2011). Due largely in part to the homogenous age grouping of students for administrative convenience in tandem with standardized testing, the graded model of education that we know today promotes mediocrity and averages, not fully realizing the potential of most learners that pass through it (Lipsitz, 1995; Kasten, 1998). Over the past 20 years, the public school system in the United States has introduced increasingly standardized academic testing that, despite good intentions, often constrains teacher's abilities to focus on non-academic (social and emotional) aspect of development. Together, homogenous age groupings and standardized testing are unnecessary obstacles that artificially limit the experiences children need to become contributing, nurturing, critically aware members of a democratic and global society. This is most true for our youngest students whose first educational experiences will lay the foundation for a life of learning (National Scientific Council on the Developing Child, 2007).

Specifically in the United States, interest in mixed age education in the US has waxed and waned over the last few decades. Nonetheless, researchers have demonstrated significant positive results in academic, social, and affective domains that favor mixed-age classroom groupings (e.g. Anderson & Pavan, 1993; Marshak, 1994; Pratt, 1986; McClellan, 1991; Veenman, 1995; Miller, 1994; Nye, 1995). This is primarily a result of the interdependent sense of family developed in the mixed age classroom as older and younger children live and learn together (Evangelou, 1989; Katz, 1995; Gaustad, 1996; Kinsey, 2001; Pardini, 2005; Song, Spradlin, & Plucker 2009). This produces fewer instances of antisocial behaviors (isolation, aggression, disruptive behavior, etc.) which are replaced with more prosocial[1] behaviors (sharing, turn taking, caring, nurturance and cooperation, etc.) through ongoing inter-peer role modeling and support, greater appreciation of diversity, and a developing awareness of one's self in and across contexts (Knight & Kagan, 1977; Pratt, 1986; Veenman, 1995; Evangelou, 1989; Katz, Evangelou, & Hartman 1990; Katz, 1995; McClellan & Kinsey, 1997; Kasten, 1998; Kinsey, 2000). These strengths of mixed age classrooms also dramatically lessen adversarial competition and normative pressures more commonly seen in age-homogenous classrooms, leading to cooperative behaviors that are more conducive to the development of the humanistic values and prosocial dispositions needed to succeed in our increasingly interconnected global world. In the intentional mixed age classroom, humanistic goals of communal solidarity benefit both the larger group and each individual through a reinforcement of the necessary interdependence of the human

[1] Prosocial behaviors are positive, voluntary actions that benefit others including helping, sharing, cooperating, and caring for or taking responsibility for others (Radke-Yarrow, Zahn-Waxler, & Chapman, 1983).

condition (see Adams, 1953; Zerby, 1961; Bronfenbrenner, 1970; Knight & Kagan, 1977; Pratt, 1986; Katz et al., 1990; Miller, 1994; Katz, 1995; Veenman, 1995; McClellan & Kinsey, 1997, and Kinsey, 2001 as discussed more in following sections).

At this point in our global history, our planet faces challenges of unprecedented magnitude and complexity (such as climate change) that, if not quickly and critically ameliorated, will undoubtedly result in our extinction (Thomas et al. 2004; Steffen, Broadgate, Deutsch, Gaffney, & Ludwig, 2014). In order to combat these challenges, scholars have called for introduction of classroom structures, teaching practices, and curriculum that are conducive to the introduction of themes of global justice into early childhood settings across the world (e.g. Pike & Selby, 1988; Hicks 2003; Elliott & David, 2009; Pearson & Degotardi, 2009; Dillon, Ruane, & Kavanagh, 2010; Bell, Jean-Sigur, & Kim, 2015).

Defined as an emergent higher order effect, education for global justice results from a set of necessary conditions rather than directly from a particular pedagogical approach as a first order effect (Gibson, Rimmington, & Landwehr-Brown, 2008). These conditions include learning experiences that make use of modern communicative technologies, foster prosocial disposition, develop perspective consciousness (self-in-context awareness), promote interdependent values, provide regular opportunities to collaborate with and care for others, as well as those that instill tolerance, sensitivity, awareness, understanding, and appreciation of diversity through cultural contrast alongside facilitated critical and metacognitive reflective practices (Hicks 2003; Gibson et al., 2008; Pearson & Degotardi, 2009; Johnson & Morris, 2010; Ruane et al., 2010; Bell et al., 2015). In line with the emergent nature of education for global justice, it is

critical to note that all models of global justice education are intended to be working, flexible, and open to reinterpretation and adaptation based on geographic and cultural considerations (Johnson & Morris, 2010). Though ultimately, the common thread that ties together all global justice oriented education is an intentional and sustained focus on the cultivation of our shared humanity through cooperative and caring engagement with issues that impact us all.

As a higher order effect, it is indeed possible to realize themes of education for global justice in any learning environment, regardless of the age composition of learners. Notwithstanding, I will highlight the considerable overlap between the effects of mixed age learning and the goals of education for global justice as I leverage evidence to suggest that experiences in intentionally organized mixed age learning environments are especially conducive to the development of the cosmopolitan perspectives associated with global justice. Through affording children more opportunities to learn and live in an interdependent and age-diverse environment, mixed age education fosters the humanistic values and prosocial dispositions needed for the progressive realization of global justice. Despite this, research and funding for investigating the role of global justice in early childhood is only slowly beginning to garner more serious attention, and research on mixed age education is at an all time low (Pardini, 2005). In response to decreasing scholarship in the field of mixed age learning, this piece aims to both inform and raise awareness of mixed age education, which in turn may be leveraged as a means of addressing our collective problems.

Foregrounding a dire sense of humanistic urgency, this work primarily examines the history and scholarly literature on mixed age education with a secondary focus on

how emerging themes of global justice overlap and intersect with this canon of mixed age literature. After first defining what is meant by "mixed age" in the context of this paper, I will then move to briefly entertain a discussion on the purpose of public schooling as I set the stage for pointing out some limitations of single-age learning environments. Following this, I will highlight the resemblances between mixed age education to pre-modern family grouping as I move to an in-depth review of the history of mixed age education from our days as hunter-gatherers to the present moment. This deep historical review will not only help dispel the notion that single-age is "traditional" (Beck, 2009), it will also serve as the foundation for a discussion concerning the effects of mixed age education on cognition and academic achievement. Moving from a focus on academic skills and knowledge, I will then consider the social effects of mixed age education as well as the impact of regular mixed age learning experiences on student affect and self-concept. In this section parallels will be drawn between the emerging literature on global justice in early childhood and the effects of mixed age education in terms of social outcomes and student affect as I make the case that mixed age education affords children opportunities to develop a number of cosmopolitan perspectives associated with global justice. Rounding out the paper the final sections will discuss implementation of mixed age programs, including strategies and activities for introducing elements of global justice, before concluding with an examination of limitations and a humanistic call to action. I answer the question: What role might mixed age education have in today's world of rapid globalization? Concluding that learning experiences in mixed age groups are key facilitating conditions for developing the humanistic values and prosocial dispositions associated with global justice. All research for this paper was found either

through the University of Washington's library research database (using search terms such as mixed age/multiage education, education for global justice, prosocial behaviors, sustainable development, etc.) or was gathered following the recommendation of a professor. All relevant research items were included when possible, that is, no research finding was discarded for lack of consistency with my central argument (such as Mason & Burns, 1996)

Introduction (Part 2)

The contemporary discourse on mixed age education is fraught with confusion and misinterpretations of what it means to be a mixed age class and what factors need to be present to be considered truly mixed age. While these inconsistencies have had little impact on findings related to social benefits, unclear definitions and inconsistent research methodologies have made analysis on cognitive effects more convoluted. Within the research community, some scholars (e.g. Veenman, 1995; Mason & Burns, 1996; Lloyd 1999; McClellan & Kinsey, 1999) attribute inconsistencies in research findings to inconsistent definitions of what is considered to be a "mixed age" classroom. While other researchers on the subject (Pratt, 1986; Anderson & Pavan, 1993; Nye et al., 1995; Kinsey, 2001) attribute inconsistent outcomes to weak controls for differences between experimental and control groups. At any rate, the many differences in how mixed age grouping is conceptualized and implemented directly limits researchers abilities to generalize about the academic impact of the mixed age model. Due to this, it is crucial to define the notion that is attached to the term "mixed age" within the context of this paper.

In their 1990 report for the National Association for the Education of Young Children (NAEYC) Katz, Evangelou, and Hartman define a mixed age classroom as one

that "places children who are at least a year apart in age into the same classroom groups" so as to intentionally "optimize what can be learned when children of different—as well as same—ages and abilities have frequent opportunities to interact" (p. 1). A key distinction between mixed age and multi-grade classrooms comes from the reasons why the classroom age grouping was set up in the first place. In his meta-analysis of 38 studies on mixed age education Simon Veenman (1995) points out that "multi-grade classes are formed out of necessity; mixed age classes are formed deliberately for their perceived educational benefits" (p. 319). Anne Bingham's (2000) publication echos this sentiment when she states:

> A multiage classroom is not two grades put together for convenience, nor is it a "combined" class in which separate curricula continue. A multiage class is a permanent class grouping of planned developmental diversity where that diversity is celebrated, valued as part of a natural community of learners, and is harnessed in subtle ways to support learning (p. 1).

Further confusion comes about when using terms connected with other organizational practices such as looping, split-grade, and combination classes. Looping is a practice where the teacher advances from one grade to the next with their students. While looping does offer potential benefits for children and teachers alike, the major difference is the student's age and grade levels remain homogeneous with looping and, while it is heterogeneous in a mixed age setting (Kemmis, 2011). The differences between a mixed age class and a split grade class are a bit more obvious. A split grade class is exactly what it sounds like, two grades being taught in the same class. This does not line up with the underlying mixed age philosophy because in many cases the teachers do not teach the

same curriculum across ages as they tend to teach 1st graders this, and 2nd graders that. Similarly, a "combined" class is one where the children in a class may be in two or more different grades, but where the curriculum is different for each child depending on grade level.

In this way, classrooms that are set up for administrative and economic purposes, or out of necessity due to low enrollment or population density, are referred to as multi-grade or mixed-grade. While classrooms that are intentionally formed to capitalize on the different experiences and capabilities of children across multiple ages are referred to as mixed age or non-graded classrooms. This distinction is especially important in how it directly ties to how a mixed age class can more effectively meet what we should consider the goal of education to be in our era of rapid globalization and technological advancement.

This distinction between education grounded in administrative efficiency versus education grounded in democratic progressivism is not a new one. In many ways, it gets to the core of a perennial conversation about what public schooling should be for. This debate is just as relevant today as it was over a century ago when prominent educators like Ellwood Cubberly and John Dewey struggled to create systems of public education that could realize what they envisioned the goal of education to be. Should schooling focus on rote skills based on the model of the industrial factory in order to prepare children for participation in the public workforce (Cubberly, 1916), or should it prepare children for engagement in democratic society through a focus on themes of caring, tolerance, and critical thinking through practical everyday activity (Dewey, 1916)? Though the contemporary debate on the purpose of schooling has certainly become more

complex and nuanced alongside the rapid expansion of public education, the debate between administrative efficiency and pedagogical progressivism still remains at the core of how we approach education in the United States.

Closer to our own time, modern scholars assert that before we can engage in a discussion on how to educate children, we must first ask ourselves what we want for our children and what goals we have for our educational system. Citing John Goodlad's survey of over 27,000 teachers, students, and parents, Kasten (1998) concluded that "people want more than just intellectual development from their schools; they also want attention to social, vocational, and personal emphases. They want school to be a nurturing, caring place" (p. 3). Echoing this assertion, scholars in the field of global justice assert that public schooling should prepare children for daily like in a world of inescapable intercultural interaction by focusing on skills that enable children to compassionately imagine what it might be like to be in the shoes of another through critical examination one's self and one's traditions (Nussbaum, 2002; Ruane et al., 2010; Bell et al., 2015). School should be a place where children are not only taught *what* to learn, but more importantly, *how* to learn in a way that allows them to critically engage with the world they are coming into. Primary school experiences should lay the foundation for lifelong learning. As such, it should give children the tools to become happy, contributing members of an increasingly global society. These tools include the ability to communicate effectively, cooperate and collaborate with a diverse range of others, and continually develop an awareness of themselves and others in and across diverse sociocultural contexts (see: Nussbaum, 2002; Hicks, 2003, Ruane et al., 2010; Tye, 2014; Bell et al., 2015).

Heterogeneous age groupings provide an environment that is more effective when it comes to fostering these fundamental aspects of human life in society, while being at least as effective as a single age classroom with regard to "hard skills" (math, science, reading, writing, etc.) (Pratt, 1986; Veenman, 1995; Kinsey, 2001). Although single-age classrooms typically provide adequate instruction in the standard subjects that are essential for academic progression as measured on standardized tests, I argue that they are often less able to address themes of perspective consciousness, interdependent collaboration, and inter-peer nurturance and caring. This is primarily due to single age classrooms being artificially encumbered by strict age segregation and the social effects that come along with it, as will be discussed in the following sections.

A distinguished researcher in the field of early childhood education, Lilian Katz, highlights a key issue of single-age classes in her finding that single-age groupings create "enormous normative pressures" on all children to possess the same knowledge and skills (Katz, 1995). As a byproduct of the normative pressures created in the single-age class, children who fail to meet the normative expectations tend to be penalized more intensely by other students, teachers and parents alike. This problem of normative pressure is compounded by federal mandates such as the No Child Left Behind Act (NCLB) that have been instrumental in pushing the public school system toward unprecedented levels of academic standardization based almost entirely on child age (U.S. Department of Education, 2001; Pardini, 2005; Song et al., 2009). To be sure, the "hard" subjects that NCLB made the focus of teaching are fundamental and necessary ingredients of education. But fluency in these areas of knowledge only sheds light on a narrow section

of the overall learning experiences our youngest learners need to engage as global citizens.

Along with creating detrimental and unnecessary normative pressures other researchers have also repeatedly demonstrated how children taught in single age classrooms have a higher likelihood of experiencing social isolation (Adams, 1953; Zerby, 1961; Pratt, 1986; Katz, 1995; McClellan & Kinsey, 1997), are more likely to be extrinsically motivated as they compare themselves to others (Katz et al., 1990, Miller, 1994; Veenman, 1995), and are generally more aggressive (Bronfenbrenner, 1970; Knight & Kagan, 1977; Pratt, 1986; Miller, 1994; Katz 1995; Veenman, 1995; McClellan & Kinsey, 1997). This information will be covered in far more detail in later sections, but it is worth mentioning here as yet another way in which single-age classrooms have difficulty cultivating a range of interdependent values and dispositions necessary for engagement with pressing issues of global justice.

Following in the philosophical footsteps of Dewey and Cubberly, Elkind (1989) envisioned two approaches to education with opposing aims: the first was to facilitate the development and personal construction of each child's knowledge and the second was to produce children who score high on tests of achievement (Song et al., 2009). Unfortunately, the emphasis placed on standardized grade-level curriculum has undermined development of skills that are not measured by standard tests leading the latter aim to largely overshadow the former. These problems arise more commonly in single-age classrooms where instruction is more often curriculum centered rather than child centered (Pardini, 2005). Though it is possible for a curriculum-centered attitude to guide teacher instruction in a mixed age class, the Director of the National Mixed age

Institute, Sandra Stone argues that it is much more common in a single age class. “If you're a 3rd-grade teacher, you tend to focus on, 'This is *what* I teach,'" says Stone. "If you're a mixed age teacher, you focus on 'These are the *children* I teach'" (Pardini, 2005, p. 2).

A focus placed upon what is being taught rather than who is being taught can also give teachers a false sense of security because they tend to rely on the same tools for teaching year after year. Teaching too easily becomes the following of a scripted routine that utilizes the same textbook, projects, and curriculum instead of adapting content and instruction to meet the needs of individual children. Professor Schatmeyer of Wright State University adds, “there’s no research that shows that gradedness helps children at all. In fact, if anything, it’s completely the antithesis of developmentally appropriate practices” (Pardini, 2005, p. 1).

In the modern standardized age-segregated classroom, the priority too often becomes raising annual academic test scores to some fictitious view of normative excellence. This misguided quest for basic skills is frequently counterproductive to helping children develop the social and emotional skills that lay the foundation for a life of learning on a global scale. Exploring the tension between Western individualism and building a caring community, Philosopher William Sullivan argues that our emphasis on personal identity and achievement makes skills of cooperation and caring an afterthought (Lipsitz, 1995). When teachers are forced into a narrow focus on covering curriculum deemed “necessary” for a particular age group, more essential educational goals empathy, cooperation, and appreciation of diversity are undermined even though they in no way detract from learning basic academic skills. In fact, these essential academic skills are

bolstered in a mixed age class that aims to educate all children in a family-like environment which foregrounds the importance of developing cooperative, tolerant, and nurturing behaviors.

The majority, if not all, of the social benefits seen throughout the scholarly research on mixed age education stem from this type of classroom's uncanny resemblance to both family and spontaneous groupings. This sense of family developed in the mixed age classroom results in fewer antisocial behaviors that are replaced with more prosocial behaviors through increased inter-peer support and exposure to a wider range of diversity (Katz et al., 1990; Veenman, 1995; McClellan & Kinsey, 1999). Increased peer support in the mixed age classroom also dramatically lessens normative pressures and competition commonly seen in age-homogenous classrooms, leading to cooperative behaviors (such as cross-age tutoring) that promote interdependent ways of interacting with the world (Katz, 1995; Kinsey 2000/2001).

Throughout human history, until very recently, family and neighborhood groupings have informally made up the bulk of children's socialization and education experiences (Kaestle, 1983; Pratt, 1984; Kemmis, 2011). In today's fast paced world, many young children are deprived of access to the kind of learning possible through contact with a wide age range of children. As more parents join the workforce, and more children enter into a childcare setting, it is more important than ever that children have access to family-like learning environments that emphasize the importance of developing prosocial behaviors (Reese, 1998). In the classroom that is not arbitrarily divided based on student age, children develop a sense of family with their classmates. As a result it is common to see more sharing, more turn taking, and more caring for one another (Pardini,

2005). In this "family of learners" children support and care for one another. Older children are given the opportunity to reinforce their own understandings as they teach and nurture younger ones, an interaction that both benefit from. For example, older children who have mastered a task such as tying their shoes can then assist younger children. The older child is afforded the opportunity to develop their patience, as well as the verbal skills necessary to communicate the process to a younger child, while the younger child learns both how to tie their shoes as well as how to be a caring role model when it comes to assisting other children.

Interactions such as these may seem insignificant when considered in isolation, but in an intentionally organized mixed age classroom they become an integral part of everyday routines. Collectively, these kinds of cooperative and caring cross-age interactions that come to form the foundational skills and prosocial dispositions that children will rely and build upon as they emerge from childhood and encounter the many urgent challenges of our present moment that can only be overcome through collective effort. Now, more than any other time in human history, we must nurture and capitalize on any and all educational strategies that prepare future generations to engage with pressing global issues that threaten our continuation as a species. Throughout the following sections I will show how mixed age education is not only more natural from a historical point of view, but how it lends itself to the development of the humanistic values and prosocial dispositions we need to cultivate in order to overcome increasingly urgent modern crisis'.

The History of Mixed Age Education

To better understand the status of mixed age education in its present context, it is worthwhile to track the history of the topic starting from the biological and evolutionary history of the human race through to where we find ourselves today. Evolutionary anthropology has demonstrated that we can learn much about that "natural" state of humankind through the study of modern primates as well as aboriginal societies that have survived into the modern world largely untouched by industrial and technological revolutions (Pratt, 1986; Volk, 2011). In his meta-analysis of 30 empirical studies on mixed age groupings between 1948 and 1981, David Pratt (1986) draws on evidence from ethnology, anthropology, and evolutionary biology to claim that modern practices of age segregation are a product of the past 200 years that are neither natural nor necessary. In his research, Pratt went to great lengths to account for selection bias and control of different grouping arrangements, dropping from his analysis any study that lacked a control group or did not present sufficiently complete statistical data to account for biases in selection. Further still, Pratt's deeply interdisciplinary approach lends credence to his practical and conceptual understanding of the issue at hand.

Studies of primates back this claim as they demonstrate that almost all of the 193 living species of monkeys and apes grow up in societies characterized by diversity of age. The context in which the young primates move from dependence on a caregiver to adulthood is within a mixed age playgroup among other members whose ages range from infancy to young adulthood (Pratt, 1986). Anthropological scholarship on the topic includes studies of approximately 180 hunter-gatherer societies that have survived into the modern age. The two aboriginal cultures that Pratt discusses at length are the Inuit people of Australia and the !Kung San people of the Kalahari desert. He notes that

hunter-gatherer societies such as these are divided into groups of 30-40 people with births spaced at least three years apart so that mothers only had one infant to care for at a time. Around the age of 18 months, infants join the larger playgroup where they primarily rely on and imitate the older children who take responsibility for the majority of their well-being and practical education. A typical group of children in a society such as this might include a 5-year-old boy, an 11-year-old girl, a 14-year-old boy, and a 2-year-old toddler (Pratt, 1986).

A child growing up surrounded by children and adults of all different ages was still the norm in medieval Europe and Colonial America (Kaestle 1983; Kemmis, 2011). Out of this came the common conception of the one-room schoolhouse seen prior to school reforms in the mid 1800's. This type of mixed age education came as the result of larger families and high rates of fertility and infant mortality, resulting in a wide variance of sibling age (Pratt, 1986; Kemmis, 2011). In the eighteenth century, mixed age education in the one-room schoolhouse was primarily done out of economic necessity, with a full-time teacher using individual and tutorial methods to instruct a group of 10-30 pupils from 5 to 14 years of age (Pratt, 1986). Despite being born through necessity, one-room schoolhouses are now seen as having been quite healthy forms of education, especially for the time period. Seasoned educators such as Robert H. Anderson, a professor of education at the University of South Florida, have described them as an "accidental prototype of nongradedness" that served children well. "Older kids helped younger kids and [in the process] got insights into how the human mind develops and grows" (Pardini, 2005 p. 2). This mode of education was still prevalent in the early 1900s, with one-room schoolhouses representing 70.8% of all public schools in 1918

(Kemmis, 2011). But legislation that began in the 1840s took strong hold of the public school system with the rise of industrialization, eventually leading to the factory model of age-segregated education we are familiar with today.

The move to graded education was started in 1843, when the Secretary of the Massachusetts Board of Education, Horace Mann, visited schools in Prussia that used a graded system. Upon his return he reported that "there is a no obstacle whatever... to the introduction at once of this mode of dividing and classifying scholars in all our 'large towns'" (Mann, 1844). Local school boards and committees responded to this report by aligning Mann's observations with industrial practices of the day, "The principle of the division of labor holds good in schools, as in mechanical industry" (Lowell School Committee, 1852). Mann also observed that the graded system of education promoted nationalism and streamlined education, successfully addressing the rapid population growth due to the many immigrants entering the country at the time (Hallion, 1994). Administrators such as Cubberly who saw Mann's ideas as aligning with successful manufacturing practices quickly accepted them and legislation soon followed that standardized age of school entry with sequential grade levels and age specific curricula.

Along with grade levels came other inventions designed to suit the needs of administrators and designed to emulate the factory model, making education cheaper, more bureaucratically efficient, and easier to monitor. Graded textbooks were first used in 1836, but expanded quickly to cover all subjects after Mann's legislation was introduced. Over time, these textbooks turned into the curriculum as "teachers and parents alike came to equate adequacy of pupil performance with the ability to use the book designed for their child's grade level" (Hallion, 1994, p. 3). This method of

streamlined instruction was indeed more convenient alongside the rapidly increasing population because teachers did not need to know as much themselves when they could rely on the same textbooks and curricula year after year. However, Anderson points out that what schools gained in convenience they lost in effectiveness, "Creating homogeneous groups never works," because, "it's artificial. In any group of 6- or 7-year-olds you already have a tremendous range of ability levels" (Pardini, 2005, p. 2). In short, just because children are homogenous in age does not mean they are homogenous in skill or development.

Though the concept of childhood began emerging during the 17th and 18th centuries through the education writings of philosophers such as Locke and Rousseau, the romantic view of children as innocent, fragile, and largely incapable clashed with the reality of child exploitation during the industrial revolution where children were commonly employed as miners, chimney sweeps, and factory workers (Cunningham, 2006). During this time, public schooling became a means for protecting children from the dangers of factory work while simultaneously preparing them with the skills needed for such work later in life. Thus, children came to be segregated from the general population for large portions of the day in schools (where they were further sorted by age) as each stage of life was increasingly characterized and divided by age (babies, young children, school age children, teenagers, young adults, adults, elderly, etc.) (Savage, 2008).

By the 1950's, the "generation gap" was widely accepted as a fact of life. Those over the age of 60 were segregated to homes for the elderly for their perceived social and economic marginality, and the standard environment for children became a suburban life

consisting primarily of middle-aged parents and school-age children (Pratt, 1986). This led to narrower age segregation in classrooms than ever before, "1918 the standard deviation of age in American Grade 9 classrooms was 14.1 months; in 1952 it was 8.6 months" (Pratt, 1986, p. 112).

Though many notable individuals opposed the shift to a strict graded model, they were not able to overcome the power of the age-graded movement. One of the first to be recorded speaking out publically against the change was C.W. Eliot, president of Harvard University in 1890 when he claimed that the "grouping together of children whose capacities are widely different" was not only "flying in the face of nature" but also the "worst feature of the American school" (Kemmis, 2011, p. 10). Even Dewey, who is considered the father of progressive education, believed that graded schools had become too "machine like" (Hallion, 1994). Despite the protests of progressive educators, the "school as factory" model was championed by school administrators like Cubberly and generally well-received by the public in the efficiency-focused era of industrialization. A statement by Cubberly (1916) serves to drive home the prevailing attitude of the time:

> Our schools are, in a sense, factories, in which the raw products (children) are to be shaped and fashioned into products to meet the various demands of life. The specifications for manufacturing come from the demands of twentieth-century civilization, and it is the business of the school to build its pupils according to the specifications laid down. (p. 338)

Though seemingly obvious today, Cubberly's industrial biases were not widely criticized during his time on account of them being widely agreed upon. These ideas face more critical criticisms today (e.g. Pratt, 1986; Katz et al., 1990; Kasten, 1998), but after over a

century of being normalized it is difficult to change systems that are now built deeply into the culture and language of schooling. Schools today still use the same terminology as factories; those in charge of school districts are known as superintendents, the same title used for those supervising factory workers. The grade levels that children pass through are analogous to an assembly line where quality control measures such as standardized tests check for uniformity, resulting in either promotion or retention. If any problems are found, more tests are administered as those in charge attempt to "fix" the child, with little regard given to evaluating the system itself. Though it is difficult to change such ingrained understandings of public schooling, over the past few decades scholars have begun to unpack this conception of schooling as a means of elucidating the fundamental problems it brings about.

Katz et al. (1990) brought this observation into a more public space when they stated, "To a large extent the organization of our schools seems to be based on a factory model, which uses an assembly line to subject homogeneous materials to identical treatments in order to yield uniform products" (p. 10). Other scholars (e.g. Kasten, 1998) have been quick to point out that the problem inherent in this observation is that the factory model of education operates under the assumption that children are "homogenous material", when in reality each child brings their own unique set of life experiences, prior knowledge, individual temperament, values, and dispositions. As Kasten (1998) bluntly puts it, "we educate children; we don't assemble combustion engines" (p. 2). Children are far more complex than machinery produced identically one after the other on the assembly line, we should not deceive ourselves into believing that the solutions to educating them are a simple or clear cut as the manufacturing of identical products.

Rather than trying to fit children into pre-constructed molds, the goal of education championed by progressive educators is to meet the needs of all learners as individuals. As such, the underlying aim of the free public education system ought to be founded on the principles of giving all children an equal opportunity to learn the skills to become critical and contributing citizens of the world. This certainly includes the development of academic skills like literacy, math, and science, but also skills that are not easily measured through standardized procedures such as empathy, collaboration, and tolerance. If we want the next generation to be critical consumers of information the education system must be flexible enough to meet every child where they are at across all developmental criteria. The notion that a certain percentage of failure is acceptable, as it is under the factory model with "defective materials", is intolerable. If a child is failing, they are not the ones who are broken or defective, it is the system that must change to meet their needs as individuals. In short, student failure is instructional failure.

Ignorance of these facts is no longer an excuse as it may have been in Cubberly's time. When it comes to educating young minds, we have access to a great deal more information than the generations who have preceded us. How we teach must change with the introduction of new knowledge. By relying on the same practices used a century ago we not only fail to implement what we now know, but we do a disservice to those children who are stuck in this dated approach to teaching and learning. Consequently, many in the field correctly assess this model as one where the needs of the student come second to the needs of the district to run their schools like an efficient business (Hallion, 1994). A key issue in this conversation is the failure to entertain serious ideas that would leverage new research to place the focus back on the individual children for the reason

that it would require more time and effort on the part of teachers and administrators, and thus be less cost efficient. As Anderson simply states: “The bad habits of the last 100 years continue to dominate the way people think about teaching and the way schools of education train teachers" (Pardini, 2005, p. 2).

The first attempt to challenge and expose the fallacies preached by the graded movement happened over half a century ago when John Goodlad and Robert Anderson published *The Nongraded School* in 1959. Republished in 1963, the two ignited the contemporary debate through documenting the variability seen within the same age group in terms of emotional, intellectual, and physical growth. Their main point of contention with the graded system was that “grouping children ‘homogeneously’ on the basis of a single criterion does not produce a group that is homogeneous to the same degree judged by other criteria...Teachers who proceed as though their class of gifted or retarded pupils were homogeneous are fooling themselves and cheating their pupils.” (Goodlad & Anderson, 1963, p. 17). Goodlad and Anderson’s book had an seemingly rapid and widespread influence. In the decade after its release, thousands of school districts claimed to include the non-graded philosophy in at least a portion of their schools. In hindsight, this seemingly immediate philosophical shift turned out to be what Pratt (1986) describes as “archetypal case of fashionable rhetoric concealing educational inertia”, as subsequent research determined that “although formal grade distinctions were often removed, the narrow age structure of classrooms usually remained intact” (p. 112).

The initial hollowness of these changes did not stop the movement from garnering more support as time passed, and in the 1980’s and 1990’s research on the subject soared to new heights. The force of the movement peaked in 1990 with the Kentucky Education

Reform Act. This act created a statewide ungraded primary program that put an emphasis on delivering mixed age and multi-ability learning experiences to all students so they could move from kindergarten to 3rd grade at their own pace (Pardini, 2005). This was furthered by additional government support in the form of regional service centers established in 1992 that included a primary program consultant to provide professional development to help school district personnel make the shift back to this more appropriate form of education. "It was so exciting to me," recalls Lois Adams Rodgers, who oversaw the ungraded primary initiative as deputy commissioner of the Kentucky Department of Education in 1990, "So often we put walls up around a grade level, even though within those grade levels you have a whole range of abilities [and] strengths. This was an opportunity to tear down those artificial barriers" (Pardini, 2005, p. 4). Michigan State Board of Education was next to announce a new grant initiative in 1994 to establish non-graded, continuous progress programs for students in mixed age classrooms. The following year, the Michigan Department of Education estimated that one in five districts had implemented the mixed age model. Three years later, more than half of the districts began or expanded upon their mixed age models (Song et al., 2009). In the 1990's it seemed as though the mixed age movement had generated enough momentum to slowly bring a more appropriate form of education to children.

Unfortunately, the structures supporting the movement began to give way in the late 1990's. In 1998 Kentucky preemptively relaxed its ungraded mandate as a response to administrators and officials who wanted more standardization in the way children were grouped (Pardini, 2005). A year later, state funding for mixed age programs in Michigan was stopped, and by 2000 the Michigan Department of Education cut off the initiative

and the encouragement of mixed age grouping entirely. “Although the mixed age classrooms were perceived to be quite effective in helping students make progress, a reason cited for their discontinuation in Michigan was the argument that they are not compatible with grade-level content and annual testing, (L. Hansknecht, personal communication, July 1, 2008)” (Song et al., 2009, p. 3) The grade-level standards and testing requirements were solidified further with the passing of the No Child Left Behind Act (NCLB) in 2001. This stifled the movement because of the extreme difficulty inherent in teaching to a variety of age groups while ensuring each child will match up to the specific standards required of their age by each state's accountability laws. “[President] Bush’s high-stakes testing has paralyzed the movement,” says Jim Grant, one of the country's best-known consultants and authors on the subject (Pardini, 2005, p. 1).

Supporters of NCLB claim that the reason for declining support of mixed age education had to do with the fact that it is more work for teachers due to the wide range of ages and even wider range of abilities of children in the class. They are correct to a certain extend, as Bruce A. Miller, senior evaluation advisor at the Portland, Oregon based Northwest Regional Educational Laboratory, describes the shift from a traditional to mixed age approach “an evolving, long-term change at the deepest levels of teacher beliefs about how humans learn” (Miller, 1994, p. 104). It is clear that teaching a class using the mixed age philosophy requires more teacher preparation and poses challenges that do not present themselves in an age-segregated system, but the restrictions posed by NCLB drastically increased the additional work required by teachers of mixed age groups. Dean of Vassar College, Christopher Roellke says that NCLB imposes a rigidity

that curtails the use of "more progressive curriculum reforms…When you start to have testing requirements placed at various age levels, it's much more difficult to provide flexibility when it comes to curriculum and [delivery] models. This is an example of how the law places constraints on and diminishes the opportunity for creativity at the local level" (Pardini, 2005, p. 7).

Another problem that comes about when holding mixed age education and NCLB side by side is that teachers and administrators feel the need to "teach to the test." Through NCLB's state accountability laws, schools that do well on standardized measures are awarded with a higher amount of federal funding (U.S. Department of Education, 2001). Thus, many teachers are driven away from the mixed age model because their jobs can literally be on the line when test scores are published publicly (Pardini, 2005). In light of these facts, it's no wonder why the mixed age movement was overwhelmed by NCLB despite the finding that "over time the [Kentucky] program was found to improve students' academic achievement, increase teacher's preparation time before classes and use of various types of assessments, and improve parents' involvement in their child's education" (Song et al., 2009, p. 3).

> "In the world of NCLB, learning is often diminished for children. Some children win and some children lose. Mixed age education, however, opens up learning for every child, providing an enriched learning environment within a family of mixed age learners. The opportunities are greater for learning, but more importantly, children are treated with respect for their individuality. Children are not seen as products coming off the conveyor belt, stamped with a test score, but

> children are human beings with emotions who are cared for and nurtured through a system that understands what learning is all about." (Song et al., 2009 p. 5)

Despite the obstacles to implementation, there remain some mixed age programs that have been able to weather the misguided standards imposed by NCLB as they continue to make use of the many benefits that are associated with mixed age learning. The relatively popular Montessori approach, the Open Education movement started in the 1960's, and Individually Guided Education that came about in the late 1970's all have managed to evolve in some way to cope with the demands of standardization (Pardini, 2005). Some individual schools have also successfully infused their curriculum to match the imposed standards. One such school is the Sycamore Elementary School in Claremont, California, which has utilized the mixed age philosophy ever since it opened in 1890. In the Crete-Monee School District in Crete, Illinois superintendent Roberta Berry says they expect to expand their mixed age program in the following years to continue to capitalize on the benefits they continually see for children in mixed age classrooms. Even after the loss of all government support, Kentucky superintendent Stephen Daeschner encouraged the teachers in his 98,000-student district to stick with the mixed age approach because of the positive result they were seeing. As a result, in 2005 about 85 percent of the primary grade classrooms in Jefferson County Kentucky remained ungraded (Pardini, 2005).

Proponents in the field are clearly still fighting to hold onto the last vestiges of this sensible approach, but they face staggeringly powerful organizational structures that favor political safety and administrative convenience. Since NCLB was signed into law virtually no new research has been done — and very little is being written on — the subject (Pardini, 2005). Jim Grant, founder and executive director of Staff Development

for Educators, recalls that a national conference on mixed age education about a decade ago drew 2,800 people, while a national conference on mixed age education would likely draw only around 600 people due in large to there being no central body designed to track the number of mixed age programs (Pardini, 2005). Even with ample empirical research into the effects of mixed age groupings there is no doubt that the practice is in sharp decline. The resurgence of the contemporary mixed age movement was not able to overcome the apparently overwhelming forces that worked against it, but it did provide a great deal of research that points to significant benefits to children placed in mixed age settings that will be covered in the following sections.

Considering the ample historical evidence found through research in anthropology and evolutionary history, alongside the empirical data gathered during the mixed age movement between 1960 and 2000, it can be confidently asserted that age segregated education is neither natural nor traditional. Rather, the evidence suggests that age segregation in schools was implemented primarily as a cost saving measure for the purposes of administrative convenience. Worse still, it is beginning to become clear that arbitrarily separating children based on age negatively impacts children's development through artificially narrowing the range of interage experiences they are afforded. This is of particular consequence when considering what the goals of education should be in order to foster the cosmopolitan perspectives needed to overcome the challenges we face as a global society. Through a review of the empirical research, the next section will show that mixed age education is at least as good as single age when it comes to "hard" academic skills as measured by standardized tests. Following this, it will be demonstrated that a mixed age educational environment can be more conducive to facilitating a wider

range of interage social experiences, and how such experiences can better prepare children for engagement in a time of rapid globalization and inescapably intercultural communication.

Academic Achievement

There are three overarching areas of interest when talking about the effects on children that result from participation in a mixed age grouping: academic achievement, social effects, and impact on student affect. While the findings on social effects and student affect strongly suggest a positive correlation to experience in mixed age learning environments, there exists more debate surrounding the relationship between mixed age learning and academic achievement. This debate stems primarily from differing interpretations of what it means to be a "mixed age" class and how researchers control for biases in selection throughout their inquiry (Veenman, 1995). In the case of cognitive effects it can be at least said that there are no apparent disadvantages when it comes to learning what are typically referred to as hard subjects (math, reading, writing, science, etc) in a mixed age environment so long as studies control for factors of selection bias, differential composition of study groups, and availability of classroom resources (Pratt, 1986; Veenman, 1995; Miller, 1995; Kinsey, 2001). Indeed, many convincing arguments can be made as to why children learn more and perform better in these subjects as a result of the social atmosphere provided through interage contact (e.g. Katz 1995, Reese, 1998; Kinsey, 2001). In contrast to the debate on cognitive effects that leaves space for nuanced considerations of context and interpretation, research on the social and affectual benefits that are fostered in an intentionally designed mixed age learning environment are far more reliable. They include decreases in aggressive and competitive behaviors, a better

attitude towards school, increased prosocial behaviors, fewer social anxieties, less social isolation, higher self-esteem, and greater self-awareness among others that will be looked at in greater depth after an analysis of the research relevant to cognitive effects.

Simon Veenman (1995) did one of the most well known pieces when it comes to evaluating the cognitive effects of time spent in a mixed age class. In his best evidence synthesis, Veenman compiled 56 different pieces of research that met strict methodological requirements, including: comparisons of experimental and control group, use of standard measures for cognitive and noncognitive outcomes, the mixed age classroom must have been in place for at least 1 year, the mixed age classroom was located in a regular (nonspecial) public school, teachers were not trained on dependent measures, and at least two experimental and two control teachers were involved in each study (Veenman, 1995/1996). With these criteria in place, he found no significant difference in the quality of instruction between mixed age and single age classes when controlling for class size, teacher training, and teacher experience (Veenman, 1995). In response to Veenman (1995), Mason and Burns (1996) claimed that instruction in mixed age classes was actually slightly less effective due to mixed age classes usually having higher achievers and more experienced teachers. Thus, they argued that the negative effects were masked by this selection bias (Mason & Burns, 1996). Unfortunately, this claim was not substantiated with the data from the studies Veenman reviewed. Instead this claim relied on studies from the US and Canada, and primarily on several interview studies of mixed age teachers from year-round California schools, which thereby distorted the reported findings (Mason & Burns, 1996) as Veenman's sample was global in its scope (Veenman, 1995/1996).

In his research, Veenman (1995) encountered many inconsistencies in research outcomes that he attributed to inconsistent definitions of mixed age education, while other researchers on the subject (see: Pratt, 1986; Anderson & Pavan, 1993; Nye et al., 1995; Kinsey 2001) attribute inconsistent outcomes to weak controls for differences between experimental and control groups. Notwithstanding, the core issue here is one of generalizability with regard to academic outcomes, which is made difficult due to due to the variety of ways mixed age grouping is conceptualized and implemented (Lloyd, 1999). Addressing some of these issues, a study by Ward (1999), which looked at data from two classrooms within the same school, having the same cultural make-up, same socio-economic status, and same teachers, reported results that show increases in cognitive ability as measured by mean test scores in math and reading by an average of three percentage points. Though Ward's (1999) sample size was limited to two classrooms, the fact that student demographic and classroom teachers were the same does give her study more validity in regard to factors selection bias, cultural variation, and socio-economic status.

Preceding these findings, research conducted by Pavan (1992), which examined 64 case studies that took place between 1968 and 1990 found that "of those studies, 52 (91%) indicated that for all comparisons, the non-graded groups performed better (58%) or as well as (33%) the graded groups on measures of academic achievement . . . only nine percent did worse" (p. 22). In Pavan's (1992) comparisons, she specifically broke down the data to look at the effects of mixed age education on at-risk students, reporting that the results of academic achievement tests were higher for at-risk boys, black students, underachievers, and students from families with a lower socio-economic status.

Echoing Pavan's (1992) findings more recent research by McClellan & Kinsey (1999) and Kinsey (2000, 2001) provides more conclusive evidence to draw from. They found that in studies that report significant achievement outcomes, children in mixed age classrooms demonstrate gains in language (vocabulary and literacy) as well as mathematics greater than the gain seen in children in single-age classes. Furthermore, she found that while these advantages are more significant for both high- and low-ability students, they were drastically more consistent among "blacks, boys, underachievers and students of low socioeconomic status" (2001, p. 1). What's more, in nearly every study that evaluated the long-term effects on mixed age students, the advantages were shown to increase the longer students remained in the mixed age program. As long as the classrooms in question employed developmentally appropriate and culturally responsive practices, children from mixed age classrooms demonstrated greater academic achievement in relation to their individual abilities when compared to students in single-age classes (Kinsey, 2001).

For these studies, data was collected regarding the prosocial, aggressive, and friendship behaviors of 566 first- through fifth-grade children from two suburban schools in the greater Chicago area and two schools serving the inner city Milwaukee. Using a rating scale of 27 items on a continuum (from 1=never to 4=usually) on teacher assessments of student behavior, subscales were developed around the variable of interest (including a prosocial subscale, a friendship behavior scale, and a verbal and physical aggression scale). All 29 teachers also completed several iterative "information surveys" about themselves and their classroom at set points throughout the study. With regard to the reliability of the teacher rating scale instrument, inter-rater reliability was measured in

previous research and found to be between .85 and .92 (McClellan, 1991). Similarly, the reliability of the behavioral subscales used was always between .86 and .92 (McClellan & Kinsey, 1999). In addition, because assignment to mixed- or same-age class configuration is often offered as a choice to parents, a pilot study (Kinsey, 1996) was conducted to investigate possible selection biases in parent choice. This study found no significant differences between families who chose mixed-age or same-age classroom placement. (Kinsey, 1996; McClellan & Kinsey, 1999)

In addition to the findings on prosocial displays based on gender and among "popular" and "unpopular" children, the statistical data gathered on differences between social behaviors in mixed age and same age classrooms offered a strong argument for how mixed age grouping predicts more positive prosocial and friendship behaviors and less aggressive behavior (McClellan & Kinsey 1999; Kinsey, 2000/2001). When mapped onto student academic achievement the data highlights two key factors that enhance academic achievement in the mixed age class. First and foremost, "the family-like atmosphere that reduces the incidence of social isolation and encourages risk taking that is associated with meaningful learning" (p. 2). Secondly, "the dynamic of the returning older students (who have more classroom and educational experience) engaging in cross-age interactions in learning activities" (p. 2).

These two strengths of the mixed age class are frequently seen in literature focusing on the social effects, but the positive correlation between learning experiences in the context of more a caring and cooperative pro-social environment and increased academic achievement outcomes is more meaningful than other studies that sought to solely investigate the cognitive effects. The social environment created in the mixed age

class contributes uniquely to the academic growth of student beyond the use of developmentally appropriate practices alone. In a creation of a classroom that fosters close relationships between students and teachers, scaffolding can be provided to students from both teachers and peers alike (Kinsey, 2001). This aligns closely findings in psychology concerning the interrelation between academic/cognitive development and social development as two sides of the same coin, where each aspect of development interacts with the other in a cyclical fashion (Kasten, 1998). Mirroring Kinsey's research, increases in academic outcomes for children in mixed age classes were reported by the spokesperson for the Kentucky Department of Education, Lisa Gross. After the Kentucky Education Reform Act was passed, the overall accountability index for 4th graders increased 13 points between 1993 and 1998. The accountability index, which addresses performance based achievement tests, also recorded gains in seven distinctly academic content areas (Pardini, 2005).

Based on the existing literature, the case for a positive correlation between the unique social environment created in mixed age programming and academic achievement can be tentatively made, particularly for students that face heightened adversity. Continued qualitative and quantitative research must be done in order to determine how meaningful this correlation is, and to what degree it is connected to the prosocial interactions fostered in mixed age classes. But future research must pay careful attention to how mixed age classes are selected and defined in order to assess which aspects of mixed age programs are most academically beneficial. As Thomas and Shaw (1996) conclude:

"…when programs are correctly implemented, students may attain higher

> achievement levels and improved social skills. But students in multigrade schools which fail to adopt effective pedagogical techniques tend not to perform as well as their counterparts in single grade schools. The lesson to be drawn from this is that in order for a multigrade school to work well teachers must master and use effective teaching practices, be supported through training programs, and have appropriate texts and materials at their disposal. (p. 33)

If this attention to detail is taken seriously, future exploration of the cognitive and academic outcomes seen in mixed age classes can build upon the empirical foundation provided by researchers like Pavan (1992), Veenman (1995/1996), Ward (1999) and Kinsey (2000/2001), and evidence can be compiled that can become as reliable as the research that has been done on social effects.

Social Effects

In contrast to the ambiguity that has come to be associated with research on the cognitive and academic effects, research that has addressed the social and affective benefits related to time spent in a mixed age learning environment is more convincing. In the scholarly community of mixed age researchers and practitioners, it is widely accepted that mixed age classes affords social benefits far superior to typical age-segregated classes when it comes to social development and self-affect (e.g. Katz et al., 1990; Veenman, 1995; McClellan & Kinsey, 1997). Veenman (1995) compiled a list of eleven benefits that are afforded in a mixed age environment:

- Students have a chance to form relationships with a wider variety of children than is possible in the traditional same-age classroom. This leads to a greater sense of belonging, support, security, and confidence.
- Teaching a diverse group of students demands individualized instruction.

- The development of a balanced personality is promoted by fostering the attitudes and qualities that enable students to live in a complex and changing social environment.
- The self-concepts of slower, older students are enhanced when they are asked to tutor younger students in class.
- More secure teacher-student relationships may be established as the student remains with the same teacher for two or more years.
- Fewer anxieties may develop because the educational atmosphere is conducive not only to academic progress but also to social growth.
- Mixed age grouping provides younger students with the opportunity to observe, emulate, and imitate a wide range of behaviors; older students have the opportunity to assume responsibility for less mature and less knowledgeable students.
- Multi-age grouping invites cooperation and other forms of pro-social behavior and thus appears to minimize competitive pressures and the need for discipline.
- Students in the lower grades can enrich their learning by attending to the material designed for the higher grades, while students in the higher grades can profit from opportunities to review the material designed for lower grades.
- Current concepts of cognitive development (e.g., the zone of proximal development and cognitive conflict) imply that children whose knowledge or abilities are similar but not identical can stimulate each other's thinking and cognitive growth.
- The multi-age grouping relaxes the rigid curriculum with its agegraded expectations, which are inappropriate for a large number of students. (p. 322)

Studies have repeatedly shown these effects as a result of mixed age interaction where opportunities for peer tutoring and cooperative learning in a family-like environment result in a wide range of meaningful outcomes with regard to student's social relations and affect towards schooling. Most salient among these outcomes are decreases in social isolation, competition, and aggression, as students are simultaneously afforded opportunities to gradually become more aware of the continuity of their own developmental progression. This, in turn, leads to a greater awareness of themselves in and across contexts as tolerance and appreciation of diversity naturally result from early exposure to a wider range of skills, abilities, and competencies. Altogether, this produces many short-term benefits with regard to classroom climate and student-teacher relationships. But more importantly, this kind of early learning environment is

instrumental in helping children develop the humanistic values and prosocial dispositions needed for engagement in a time of rapid globalization and cross-cultural interaction.

One of the most powerful facilitating conditions of the mixed age classroom is the access children have to peer tutoring and cooperative learning that spans a large range of ages, abilities, and developmental levels. This is most salient in the dynamic created when older and younger children are able to learn with the assistance of one another. Research on peer tutoring and cooperative learning has shown quite clearly that collaboration between children who are less able and more able ("novices" and "experts") benefits all interlocutors both academically and socially (e.g. Evangelou, 1989; Katz et al., 1990; Katz, 1995; Kinsey, 2000/2001). This is due to combination of factors, from the ways in which children are able to more effectively teach on one another's zone of proximal development when compared to adult teachers (Slavin, 1989), to the age-based expectations children have in one another from a very early age (Katz, 1995). Concurrent with the latter factor, role theory posits that when someone is placed in a role (such as a child acting as a teacher) the role is highly influential in shaping the behavior of the individual, as they have a tendency to live up to the expectations that others have in them (Kasten, 1998). Younger children will look to older ones for instruction, leadership, assistance, and sympathy while older children tend to see younger children as in need of their help and instruction (Veenman, 1995; Katz, 1995). In turn, "These mutually reinforcing perceptions create a climate of expected cooperation beneficial to the children, and to the teachers who otherwise feel they are doing all the giving… Increasing the age range automatically increases the number of teachers available, for

younger children particularly" (Katz, 1995, p. 3). In essence, the mixed age class becomes a class where everyone can be a teacher and caregiver to some extent both.

In an environment where children of different ages are mixed, younger children benefit greatly from engagement in complex activities set up by older children. Katz (1995) notes, "younger children are capable of participating and contributing to far more complex activities than they could initiate if they were by themselves. Once the older ones set up the activity, the younger ones can participate, even if they could not have initiated it" (p. 4). In these activities, younger children also develop new and more complex vocabulary through receiving maximum verbal stimulation from children who are older (Pratt, 1986). Thus, the most obvious benefit would seem to be the positive effects on younger children who are able to model the behaviors of older children, but the benefits of these kinds of interactions are at least as valuable for the older children in the class who are afforded an indispensable opportunity to teach and nurture.

Parents of older children commonly fear that their child will not be as challenged and learn less (Song et al., 2009) or worse that the more advanced student will be used or exploited in a mixed age class (Kasten, 1998). This concern is alleviated with the knowledge that the act of teaching something is a powerful contribution to the teacher's own learning. Teaching requires a deeper understanding of what is being taught because the teacher must synthesize their own internal understanding into language that can be understood by another who may have little to no experience with the topic. "The act of translating one's understanding into language is intellectually demanding. One must understand the concept, break it down into parts, describe it with words, and gauge the reaction of the recipient. The sum total of all this is deeper, unforgettable understanding"

(Kasten, 1998, p. 6). Not only does the child being taught receive an explanation that may be closer to their developmental level than one given by an adult, but the child doing the teaching benefits from the academic self-esteem, confidence, and knowledge reinforcement that come along with this new role.

In mixed age classrooms, this type of cross-age tutoring can happen both incidentally and explicitly. Adults can intentionally set up groups that include a variety of ages and abilities, but it may be more common that these types of interactions are short and spontaneous. Regardless of how these interactions are initiated, current concepts of cognitive development (e.g. the zone of proximal development and cognitive conflict) imply that children whose knowledge or abilities are similar but not identical can stimulate each other's thinking and cognitive growth (Slavin, 1987; Evangelou, 1989; Katz et al., 1990; Veenman, 1995). In these collaborative cross-age interactions, children are more likely to be operating in each other's zone of proximal development (see: Vygotsky, 1978) due to their close developmental proximity (Slavin, 1987; Evangelou, 1989). In this way, older children are less prone to making adult-level assumptions when teaching new subject matter. Also consistent with this are Piagetian theories of learning and development, which indicate that interaction between children at different levels of maturity is more conducive to disequilibrium, equilibration, and overall cognitive growth (Piaget, 1950). The family-like environment of a mixed age classroom is most conducive to this optimal intellectual development, as children are most comfortable taking the emotional risks necessary for deep engagement and intellectual work within a familiar community (Palmer, 1987; Kinsey 2001).

Overall, there is a convincing body of evidence that suggests children "think more, learn more, remember more, take greater pleasure in learning, spend more time on task, and are overall more productive in classes that emphasize learning in well-implemented cooperative groups rather than individualistic or competitive structures" (McClellan & Kinsey, 1997, p. 7) (see also: Ames, 1992; Johnson, et al., 1984; Johnson, 1991; McClellan, 1994). This strength is exemplified by the fact that the youngest students in the mixed age classrooms consistently outperform their same age peers in age-segregated classrooms, suggesting that the collaborative, cooperative, and caring structure of the mixed-age classroom is more conducive to meaningful learning all around (Pratt, 1986).

Across the research literature, the facilitating condition of mixed age grouping has also been linked to reductions in the occurrence of social isolation for both immature and typically developing children (Adams, 1953; Zerby, 1961; Pratt, 1986; Katz, 1995; McClellan & Kinsey, 1997). This is because while age is certainly a determinate factor of friendship, children will more commonly make friends with those who are at an equivalent level of development (Pratt, 1986). Based on this, it comes as no surprise that children will more readily find friends at their level in a mixed age environment. An important implication of this finding is that children who are socially immature will be less likely to be isolated when a variety of ages are present in the class. Further still, it has been demonstrated that the mixed age environment has a therapeutic effect on socially immature children. As Katz (1995) explains, "younger children will less quickly rebuff an older immature child than the child's same-age mates. Younger children will allow an older child to be unsophisticated longer than will his or her age peers" (p. 4).

Additionally, isolated, neglected, or withdrawn children have been shown to display significantly greater increases in prosocial behavior when paired with children younger than themselves (Furman, Rahe, & Hartup, 1979; Kinsey, 2001). Mixed-age groupings can also provide remedial benefits to at-risk children, as it has been suggested that children are more likely to exhibit prosocial behaviors (Whiting, 1983) and offer instruction (Ludeke & Hartup, 1983) to younger peers when compared to age mates (Evangelou, 1989).

In this way, younger children play a pivotal role in increasing the instance of prosocial behaviors and reducing the isolation of socially immature older children, evidenced by the fact that there are far fewer isolates found in mixed age classrooms (Adams, 1953; Zerby, 1961; McClellan & Kinsey, 1997; Kinsey 2000). Children who are able to get this practice of socializing with other children, will then benefit from increased social confidence, leading to an overall increase in social skills that can result in a greater acceptance by children of all ages (McClellan & Kinsey, 1997). This is an even more important aspect of the mixed age class when considering that childhood isolation is a significant predictor of later psychiatric disorder (Pratt, 1986). Clearly then, inter-peer support fostered through regular experiences with a wide range of ages and abilities is a facilitating condition of that not only ameliorates factors of social isolation, but also concurrently fosters a wider range of friendship opportunities while normalizing tolerance and acceptance of developmental diversity.

Not only does the dynamic created in cross age tutoring result in fewer isolated children, but in an environment in which caring for and helping each other become the norm results in an overall decrease in aggressive and competitive behaviors. In the mixed

age class, competition and aggression are replaced with increased harmony and nurturance. This classroom structure tends to invite cooperation and other forms of prosocial behaviors while minimizing competitive pressures (Katz et al., 1990, Veenman, 1995), while age-homogenous groupings tend to increase rivalry, competition, and aggression at the expense of altruism and cooperation (Knight & Kagan, 1977; Pratt, 1986; McClellan & Kinsey, 1997). With a focus on preformative academic goals through competition for power and/or status, single age classrooms have a higher likelihood of creating a learning environment where children who fail to meet the normative expectations are penalized more intensely by other students, teachers, and parents alike (Katz, 1995).

An anecdotal mixed-methods experiment carried out by Chase & Doan (1994) is illustrative of this point. Located in Maine, Chase & Doan carried out this experiment in self-contained classrooms as well as in Benton Elementary School. The data of interest were techniques of inter-group behavior facilitation, cooperative and competitive utterances and actions, instances of bullying and help-giving, social responsibility, sharing and turn-taking, and sensitivity to other's perspectives as coded both during and post observation. At regular times over the course of an academic year they randomly split children into mixed-age and same-age groups of three or more and gave them a task of working together to achieve a common goal. In a mixed-age group, the older children spontaneously facilitated the behavior of younger children, while in the single-age group those very same children had a tendency to be domineering and engage in "one-upmanship" as they competed for power and status (Chase & Doan, 1994; Katz, 1995). A similar pattern emerged in a subsequent study that analyzed the decision making process

within these groups. As the mixed-age groups went through the processes of reaching a consensus they used far more organizing statements and more leadership behavior than children in same-age groups. When the same children dealt with identical tasks in same-age groups, there were more instances of bullying behavior as well as less sharing and help-giving behaviors. The mixed age groups also show greater social responsibility and sensitivity to the perspectives of others along with smoother turn taking (Chase & Doan, 1994; Katz, 1995). In the mixed age class, harmony and nurturance very much replace competition and aggression that have a higher likelihood of stemming from strictly normative expectations (Miller, 1994; Katz, 1995; Veenman, 1995; Pratt, 1986; McClellan & Kinsey, 1997).

This is of particular consequence as the effects of childhood aggression can have severely negative consequences if left unchecked. In the classroom, research has demonstrated how aggressive and frequently disruptive children are more likely to be avoided and disliked by other children (Dodge, 1983; Hartup & Moore, 1990). Compounding this issue, Ladd (1983) found that over time children who are aggressive begin to associate more frequently with other aggressive children, resulting in the reinforcement and subsequent solidifying of these aggressive behavioral patterns. This should be of great importance to all educators, especially because aggressiveness and concurrent social rejection in childhood have been shown to be the most consistent predictors of serious difficulties later in life (Parker & Asher, 1987).

In the some of the most recent meta-analyses and comparative studies on mixed age and same-age classrooms (e.g. Veenman, 1995 and McClellan & Kinsey, 1997), aggressive, disruptive, and negative behaviors were significantly less likely to be noted

by teachers in mixed-age than in same-age classrooms. This finding is backed by Pratt's (1986) ethnological and anthropological research that concluded, "in all societies, aggression is more frequent among age-mates than in mixed-age groups" (p. 111). Even Urie Bronfenbrenner (1970), a developmental psychologist best known for his ecological systems theory, argued that the ever more common concentration of same-age peers is a major factor in the unusually high occurrence of aggressive, anti-social, and destructive acts in the United States. Because students in mixed age programs are typically together for at least two years, it is no surprise that there is a reduction in aggressive behaviors and an increase in prosocial behaviors (McClellan & Kinsey, 1997), especially because individuals who are more familiar with one another are more likely to respond positively in an effort to avoid aggression (Marler, 1976; Sherman, 1980).

Clearly then, these prosocial behaviors are at the heart of what makes mixed age education preferable in our increasingly interconnected world. Peer tutoring and cooperative learning in a mixed age environment are academically and socially beneficial to the class as a whole. Further, these types of interactions lay the foundation for ongoing cooperation, collaboration, and caring practices that decrease competitive motivations, instances of social isolation, and aggressive behaviors. These social outcomes ought to be of the highest priority if we are aiming to arm children with the tools they will need to engage with some of the greatest problems humanity has ever faced. Beyond the cultivation of these prosocial dispositions, children in mixed age learning environments are also afforded more opportunities to develop the humanistic values associated with research global justice. These values are most effectively nurtured in settings that allow children to develop the perspective consciousness that allows them to become aware of

themselves in larger social contexts through regular exposure to a diverse range of other ages, stages, and capabilities. For, once one understands the context and continuity of their own development in a diverse class, that context can then, over time, be widened in scope as it is generalized to the world at large. Here is when student affect becomes the pivotal other side of the developmental coin.

Student Affect

Like social benefits, even studies that showed no academic benefits have shown increases in student affect including higher self-esteem, confidence, more positive self-concept, less anti-social behavior, better attitudes towards school, and greater acceptance of diversity when compared to children in an age-segregated class as measured by student and teacher surveys and observations (e.g. Veenman, 1995; McClellan & Kinsey, 1999). Part and parcel to the family-like environment, these benefits are credited to the social and academic continuity created in mixed age classes, as all children have the opportunity to be the youngest, middle, and oldest children in a mixed age class (Miller, 1995). This allows them to experience the role each stage of development comes with. "A mixed-age group can provide a context in which to teach children not only to appreciate a level of understanding or behavior they themselves recently had, but also to appreciate their own progress and to develop a sense of the continuity of development" (Katz, 1995, p. 5). It is this sense of continuity that assist children in seeing themselves as interdependent members of a larger society. Older children can reflect upon their younger days and see how they were able to depend upon older children, then using those experiences as exemplary points of reference in their interactions with the younger members of the class.

Likewise, younger children who are routinely assisted and cared for by older children will model that behavior as they become the "elders" of the classroom.

Mixed age learning provides benefits for all the children it serves, but these effects are even more beneficial for children whose development differs from the norm. In traditional age segregated schools a gifted child may be encouraged to skip a grade, while the student whose development may be slower than the norm faces the punishment of having to repeat a grade. While the former is likely less detrimental than the latter, both options are often seen as socially problematic and poor substitutes for what the child genuinely needs. When children are able to learn at their own pace, without pressure of promotion or fear of retention, they are able to focus more on the learning and mastering of content (Reese, 1998). "In a mixed-age group, it is acceptable for a child to be ahead of his or her same-age peers in math, for example, but behind them in reading, or social competence, or vice versa" (Katz, 1995, p. 3). Tolerance and an appreciation of diversity are valued in the mixed age class because children learn and live among a heterogeneous population that more closely resembles the experiences and relationships they will encounter through the rest of life. Thus, in this type of class it is common that, "Differences in status based on grade or academic performance are diminished or eliminated" (Miller, 1994, p. 94). As such, the progressive philosophy of mixed age programs views each child on their own continuum of learning and development within the context of the whole child: social, cognitive, emotional, and physical; and thus does not try to squeeze the child into a pre-determined curriculum (Katz et al., 1990; Miller, 1994; Song et al., 2009).

In such a class, individual differences in ability are celebrated and normalized, often in stark contrast to the normative pressures and anxieties that more readily develop in the typical single age classroom (Katz, 1995; Veenman, 1995). This focus on tolerance and celebration of diversity in an environment of social and academic continuity is central to the connection between mixed age learning and preparation for life as a global citizen. Because early childhood education serves as a foundation and schema builder for later education, facilitated early exposure to diversity prepares children for engagement in a world of increasing intercultural contact (Frantzi, 2004). When couched in a learning environment that highlights the continuity of all living and learning, this exposure to - and celebration of - diversity, affords children opportunities to develop what scholars of social justice call "perspective consciousness" (Pike, 2000; Hicks, 2003; Ruane et al., 2010; Tye, 2014). This perspective consciousness is the continually developing awareness and understanding of one's own particular sociocultural context, which can then be turned outward to imagine what life might be like for others that do not share their worldview (Pike & Selby, 1988).

It has been suggested that perspective consciousness most commonly stems from interage peer interactions that provide opportunities for children to develop an interest in others, engage in social comparison, experience concepts of fairness, take up different roles, exhibit concern for others, provide emotional support, display prosocial behavior, and improve their communication skills (Kim, 2003; Frantzi, 2004). Thus, more immediate than preparing children for participation as global citizens, cultivation of perspective consciousness acts as an additional support to teachers in mixed age classrooms who face far more demanding challenges than those in standards-focused

single age classrooms. This is because when children take up an active role in teaching and caring for one another, the demand for such instruction and nurturance is spread out among the class as a whole rather than resting solely on one or two teachers. In such a class, altruistic actions become the norm as children learn to rely and be relied on by their classmates. Which is supported by the finding that children in mixed age learning environments are significantly more altruistic than their single age counterparts (Pratt, 1984). Overall, development of perspective consciousness through altruistic peer interactions flattens the teacher student hierarchy as all children are able to take up roles of learner, teacher, and caregiver throughout the day.

This dynamic of inter-peer support and shared classroom responsibility that avoids the hierarchical polarization of teacher and students is supported by several observational studies. Two examples of this come from Lougee & Graziano (1985) and Katz (1995), who both found that when older children who were not respecting classroom rules were asked to remind younger children of the rules, the older child's own self-regulatory behavior improved dramatically, and they tended to need less future reminders. In turn, it is common for younger children in mixed age classrooms show less reliance on adults and greater reliance on peers for caretaking and problem solving (see also: Ridgeway & Lawton, 1965; Reuter & Yunik, 1973; Goldman, 1981).

Teachers of mixed age classes are also supported through more secure teacher-student relationships that develop as the same students remain with the same teach for at two to four years (Veenman, 1995). Support from parents is also bolstered through spending multiple years with the same teacher, as the additional time allows parents, teachers, and students to become more familiar with one another, which commonly leads

to increased parental involvement (Miller, 1994; Song et al., 2009). A closer relationship with students allows the teacher to become more familiar with the child's strengths and needs, putting them in a better position so support the child's learning. On top of knowing the student better, "Less review of prior instruction is needed before proceeding with new content… because the teacher does not have to spend the early weeks in the school year getting to know each child" (Reese, 1998, p. 2). Backing this up, when compared to single-age classes, both teachers and students felt more relaxed, calm, and comfortable before the first day of school (Fu et al, 1999).

Altogether, this results in a better attitude toward school in general. With individuality and diversity celebrated in the mixed age classroom, it is much more common for children to report that starting a new year in a mixed age classroom feels a lot like going home (Miller, 1994). In parallel, teachers in these classes often report a smoother beginning to the new school year (Fu et al, 1999). Holistically, the improvement in attitude leads to improved affective and academic growth because "Students tend to become more intrinsically motivated and positive about learning" (Miller, 1994, p. 94). To be sure, creating and using a broad curriculum to meet the needs of individual children in a diverse classroom does require more time and effort on the part of teachers and administrators. But with proper implementation and effective teaching strategies, the mixed age model of education can contribute to the development of a greater sense of belonging, support, security, and confidence than single age classrooms (Veenman, 1995; Little, 2004; Kemmis, 2011).

Implementation and Curriculum

Circling back to intent, a key consideration in the implementation of a mixed age program is the reason why the mixed age model has been chosen in the first place. Just because children of different ages are being instructed in the same classroom does not imply that all of the aforementioned benefits will follow. “The structure alone does not make for a better environment. Considerations of curriculum, teacher quality, sense of community, and compatibility between teacher and student all need to be carefully weighed” (Kasten, 1998, p. 8).

Mason and Burns (1996) highlight how this important difference directly relates to the success of failure of a program, as mixed age classes are usually established for one of two reasons, either:

> 1. “The school district has chosen to implement the program based on research. The mixed-age program is carefully designed, and teachers who teach in these classrooms do so by choice. The teacher is well prepared to work with this situation and has the curricular materials and training necessary to effectively teach in this classroom.”
>
> Or,
>
> 2. “The mixed-age classroom is set up because of budgetary constraints. A principal is forced to combine different age children in a single classroom because the district cannot afford to hire additional teachers, or because of declining enrollment that often occurs in rural districts. In this situation the teacher has not chosen to be a mixed-age group teacher, and she may have negative attitudes as a result of not being prepared and not having the proper curricular materials to meet the needs of all the children in the class. As a result, the same benefits that occur in the first situation may not in fact be realized in the second.” (Reese, 1998, p. 3)

The intent that grounds the creation of a mixed-age class has a great effect on all of those involved. In the latter scenario, teachers often are not given a choice to teach in a mixed age setting, they are forced to change. Even an excellent teacher in this scenario may not have adequate resources and training to reap the many benefits of a mixed age setup. This forced change is now seen as one of the downfalls of the Kentucky Education

Reform Act. “It was Kentucky's decision to mandate mixed age programs that undermined its success there…a better approach would have been to gradually "bring people along" by providing them with ongoing, quality professional development on the subject” (Pardini, 2005, p. 6). Further studies have suggested that the forced assignments for both teachers and students in mixed age classrooms might even contribute to negative academic outcomes in certain situations (Slaton et al., 1997; Lauer, 2000).

This is because going from teaching in an age-segregated class requires a major conceptual change on the part of the teachers due to the dramatic differences in instruction and class management. As Miller 1995 explains:

> “Even after three years of implementation, many teachers described their struggles in letting go of practices such as inflexible ability grouping and a reliance on the direct instruction of skills…the change to mixed age was extremely challenging and required ongoing support in an environment where people are valued, trusted, and encouraged to take risks” (p. 103).

The Regional Laboratory for Educational Improvement of the Northeast and Islands (1994) states that it is common for transitions to mixed age programming to take at least one or two years just to get ready, which includes training, reading, visits to other schools, and meetings. It will then likely take another two to three years for the mixed age classroom to become fully operational. Access to continued education and teacher training to prepare for teaching in a mixed age setting are vital factors to the success of the program because of the central role teachers play in maximizing potential benefits. Without this preparation, teachers new to the mixed age model “doubt their abilities to assign the groups, carry out the materials, and efficiently create group work among

students of different abilities and ages" (Song et al., 2009, p. 3, see also: Lauer, 2000; Farkas & Duffett, 2008).

Though some instructional techniques remain effective, the training needed to effectively teach a mixed age class are rarely covered in traditional educational degree programs, and are instead completed inadequately in short in-service settings or over a multi-day training session (Little, 2004; Kemmis, 2011). According to Little's (2004) study of teacher perspectives and experience, mixed age teachers generally have to rely on their training in the principles of diversity and differentiation in coping with the demands of the mixed age class. Interview surveys of teachers who had implemented mixed age programs conducted by Bryant and Olstead (1995) and reported on by Lauer (2000) give the perspectives of teachers who had implemented mixed age programs. The most salient findings were that:

- Teachers need to prepare for the change, but it should be eased into without changing everything at once
- Mixed age grouping in not an end in itself but rather a total instructional approach with the goal of meeting students' individual learning needs.
- Mixed age grouping requires much teacher time and effort accompanied by administrative support.
- Team teaching is essential, and it requires much work and time to be effective.
- Not everything is new: many previously mastered instructional strategies are effective in mixed age classrooms. (p. 11)

Large amount of teacher training are required to go from a model of direct instruction to a mixed age model that encourages the use of child-directed learning and experiential learning (Kinsey, 2001; Kemmis, 2011). In this setting teachers face the challenge of having to constantly monitor individual student growth in multiple subject areas while designing larger group activities that move students through the curriculum at their own

rate through use of cooperative learning, flexible grouping, and integrated thematic units of study (Pardini, 2005).

Curriculum considerations as proposed by Little's (2004) research, are seen as the most difficult challenges facing teacher in mixed age classes. According to Katz (1988) the organization of this type of curriculum must be mindful of the four essential categories of learning, knowledge, skills, disposition and feelings. She points out that the first two, knowledge and skills, are traditionally the focus of education, but to effectively educate the whole child the second two categories are equally important. A wide array of leading researchers have suggested that the instructional strategies that work best in a mixed age classes include cooperative learning with peer tutoring, planned theme or interdisciplinary units, a wide range of learning modalities, and the development of student-centered and project-based learning activities (Katz, 1988, 1995; Gaustad, 1992, 1997; Miller, 1994; The Regional Laboratories of Educational Improvement of the Northeast and Islands, 1994; Hallion, 1994; Hoffman, 2003; Tomlinson et al., 2003; Little 2004; Shaw, 2008; Kemmis, 2011). They also advocate giving student choices within the frameworks of process writing, whole language, and whole math due to the developmental span of these classroom configurations. When children are invited to take charge of their learning, by making choices at centers and with project work, they develop a sense of "ownership" and self-direction that builds the foundation for lifelong learning (Reese, 1998). According to The Regional Laboratories of Educational Improvement of the Northeast and Islands (1994) report, curriculum in a mixed age classroom is most effective when it is "based on learning activities and materials that are age appropriate to the physical, emotional, social, and intellectual age-span in the cluster.

The mixed age classroom recognizes the individual personality, learning style, and family background of each student in the way learning experiences are designed" (p. 5). The report goes on to illustrate the ideal teacher prepared learning environment for mixed age instruction as:

- Use of projects and learning centers to stimulate inquiry and provide choices.
- Incorporation of student interest and suggestions to plan lessons and assignments.
- Interaction between students, between students and adults, and among students, adults and community resources.
- Time scheduled for individual reflection, small group work, and whole group meetings.
- Learning activities and materials that represent real-world tasks and are relevant to students' lives.
- Involvement of parents in student-led conferences, opportunities to assist in classrooms, and home based activities to support learning.
- Assessment of individual progress through teacher observation and recordkeeping, student portfolios, and videotaped projects and performances. (p. 10)

Beyond curriculum considerations, Katz (1995) reports that teaching a mixed age group requires deep teacher sensitivity to the age discrepancy in the class. "Teachers can also help younger children learn to accept their own limitations and their place in the total scheme of things, as well as encourage older children to think of roles and suitable levels that younger ones could take in their work or in their activities" (Katz, 1995, p. 4). Helping children to understand the role that older and younger children play can be a tricky task, but Katz (1995) argues further that it is well worth the effort because of how it benefits everyone involved. For example, "Teachers can encourage older children not to gloat over their superior skills, but to take satisfaction in their competence in reading to younger children, in writing things down for them, in explaining things, in showing them how to use the computer, in helping them find something, in helping them get dressed to go outdoors, and so forth" (Katz, 1995, p. 4).

In the age of standardization, there is no doubt that this task if far more difficult, but it is also far from impossible. Many programs around the world have embraced the mixed age philosophy and continued to grow and improve their practice. A commonly cited example is The Australian Association of Mixed age Education, which was established in 1994. This association helps and leads mixed age schools by providing numerous professional development activities, including newsletters, journals, workshops, and a biannual conference (Song et al., 2009). It should come as no surprise that these Australian programs are also at the forefront of education for sustainable development and global justice (Elliott & Davis, 2009).

With specific relevance to global justice, there are many strategies and activities that can facilitate the development of perspective consciousness, cross-cultural awareness, interdependent construals of self, and even "state of the planet awareness" within the context of a mixed age learning environment. Because the development of perspective consciousness necessarily accompanies recognition of diversity, teachers are encouraged to avoid learning materials that contain stereotypical illustrations or imagery. Early exposure to these culturally insensitive materials flattens children's understanding of groups that differ from their own into two dimensional essentializations, thus making it far more difficult for children to engage with diversity in a meaningful, productive, and celebratory manner. To go a step beyond avoiding materials such as these, teacher can ensure that classroom materials and activities are representative cultural and linguistic diversity. Books, music, and games in different languages and from different cultures can be regularly introduced, food can be eaten with chopstick or hands instead of forks and spoons, and meals can prepared that represent what may be eaten in different parts of the

world (Bell et al. 2015). To go one step further still, teacher can work to challenge children's stereotypical views through sensitive dialogue. For instance, if an African American child's hair is described as "weird" teacher can respond by highlighting the fact that this is but one of many differences that we all share. Healthy discussions can then be followed up with materials that celebrate and normalize these difference, such as reading *This Is My Hair* (Parr, 1999). In time, children who have experience with activities such as these can assist less experiences children in understanding difference as an asset rather than as something to be looked down upon, thereby reinforcing their own understanding while contributing to a climate of care and acceptance.

Beyond awareness of one's self in context, activities that foster and awareness of our planet are particularly beneficial if we hope to prepare children for engagement with urgent issues such as climate change and environmental sustainability. Classes can take on recycling challenges where materials are reused in art projects while learning about the harmful effects of littering and pollution. Books such as *The Lorax* and songs such as "We've Got the Whole World in Our Hands" can form the basis of longer term projects to drive home message of how we must all take responsibility for the state of our planet. Children can also be assisted to imagine and represent their own personal ecological system through art projects that allow children to contextualize their day-to-day lives. For example, children might be assisted in drawing of collecting pictures themselves (or their class) in the center of a series of concentric circles, and then engage in a facilitated discussion of what might lie in the next circle outward (family, friends, library, doctor;s office, grocery store, park, etc.), and then the circle beyond that (cities, countries, rivers, mountains, islands, etc.). Activities such as these help children visually connect

themselves to the larger community and world as a whole (Bell et al. 2015), and are widely accessible as they are only limited by the imagination of the classroom as a cooperative learning community.

Indeed, once normalized, practices such as these create a positive feedback loop where more experienced children play an important role in helping other children emerge into a prosocial way of being with, understanding, and interacting with others that prepares the class as a whole for engagement with issues of global justice.

Limitations

As previously mentioned, scholarship on mixed age education has historically faced many problems due to the many ways it is defined and implemented. Similar problems stem from the many reasons for implementation of a mixed age program in the first place, as well as how program implementation is carried out after the fact (e.g. Pratt, 1986; Veenman, 1995). While the impact of mixed age learning on social skills and student affect is more reliably documented, even one of the most comprehensive reviews of the literature done by Veenman (1995) ran into many problems substantiating claims concerning the cognitive and academic effects. Veenman (1995) noted that out of the 11 studies of the cognitive effects of same-age vs mixed-age groupings, only 2 studies presented evidence of initial comparability of experimental and control groups, opening the door to serious questions concerning the validity of comparisons across classroom types. While more recent research (e.g. Kinsey, 2001), has made use of methodological and statistical strategies to combat these issues of comparability, much more detailed research is needed in order for the cognitive benefits of mixed age education to stand up to widespread criticism.

Arguably the most important detail when considering placement in mixed age classrooms of that of selection bias. While Kinsey's (1996) pilot study concluded that there were no significant differences between families who chose mixed-age or same-age classroom placement, the generalizability of that finding is severely limited. It remains wholly possible, and indeed likely, that many families who promote more humanistic values self select into mixed age classrooms, thereby skewing research findings.

Just as the teaching of mixed age groups requires sensitivity to age discrepancy, those researching mixed age learning environments with differing structures must pay close attention and be sensitive to the various cross-classroom difference that may exist in terms of meaning construction, classroom organizational structure, differing cultural salience, teacher facilitation strategies, pedagogical practice, socioeconomic diversity, nomological connections, geographic location, presence of dual language learners, differing racial and ethnic compositions in each classroom investigated. Of particular consequence, meta-analysis like those of Pratt (1986) and Veenman (1995) could be drastically improved upon by future researcher through increased attention to factors such as these. Some work such as this has been undertaken by researchers like Kinsey (2000/2001), but with little scholarship in the field of mixed age over the past 20 years there is great need for studies that attend to these important details.

Only through attention to these nuanced details can future researchers begin to understand differences between and among mixed age classrooms. Through meticulous documentation and research methodology also it may become possible to more specifically identify the factors that lead to the positive outcomes seen in mixed age learning environments, and how they might be imported and infused into single-age

classrooms. A focus on the teacher, who tends to model these many differences, is suggested as a key point of entry for future research.

With regard to young children, education for global justice faces limitations and challenges stemming from a "dearth of literature on young children's engagement with issues of global justice, and that which exists reveals conflicting attitudes regarding children's perceived readiness to deal with global justice issues" (Dillon et al., 2010, p. 85; see also: Robinson & Jones Diaz, 2009 and Kelly & Brooks, 2009). This limitation is two-fold, and intimately connected with differing early childhood discourses on childhood socialization and development that often results in a lack of funding for such projects. First, there are those that maintain the "childhood innocence" belief that children are too young and too cognitively and emotionally immature to handle issues of global justice. Those who subscribe to this belief have been roundly criticized in recent years for failing to account for the significant impact globalization has on children. Backing this assertion, recent research in the new sociology of childhood, postmodern/poststructuralist theories, and critical psychology (Devin, 2003; Hong, 2003 Robinson & Jones Diaz, 2009) indicates that children quite capable of the independent thinking, agency, and awareness of the wider world that is needed for engagement with global and justice issues provided the strategies are appropriate to their age and level of cognitive development (Dillon et al., 2010; Ruane et al., 2010).

Secondly, because these naive and outdated discourses on childhood innocence are still widespread there is a correlative scarcity of funding for policy initiatives that seek to infuse themes of global justice into regional curricula. But this too is starting to change with the introduction of publications such as *Aistear, the Early Childhood*

Curriculum Framework (NCAA, 2009). Facilitated by a partnership between Trócaire and St Patrick's College, Drumcondra, this publication highlights the importance of global citizenship and diversity issues while providing the opportunity and support for early education programs to introduce themes of global justice into early learning classrooms throughout Ireland. Though it will take time for initiatives such as this to be developed and implemented in other geographic locations and cultural contexts, the research undertaken by this group of scholars, educators, and policymakers will help ensure that the next generation is better prepared for engagement with modern day issues of globalization.

Conclusion

In the United States today there is increasing worry that our schools preparing children for emergence into life as global citizens. Likewise, over the past twenty years our children's academic outcomes have fallen behind much of the developed world with the US ranking 36th in mathematics, 28th in science, and 24th in reading according to the 2012 Program for International Student Assessment (PISA) (OECD, 2014). As this concern continues to increase educators will continue seek out strategies that will lead to higher levels of academic achievement and social development (Smith, 1993; Kemmis, 2011). Mixed age education may not solve all of the problems we face, but it is certainly a step in the right direction and a critically important piece of the puzzle as we know that cooperative behavior, respect for individual differences, and a family-like sense of community are more easily achieved in mixed age than single age classrooms (Gaustad, 1996).

While there are important differences in how education for global justice is conceived and operationalized within the scholarly community, the ideological threads which connect nearly all research on global justice emerge through the focus on developing perspective consciousness, an appreciation and respect for diversity, altruistic dispositions, humanistic values of cooperation and nonviolence, skills in collaboration, and interdependent understandings of systems connectedness (Pike & Selby, 1988; Pike, 2000; Nussbaum, 2002; Hicks, 2003; Pearson & Degotardi, 2009; Ruane et al., 2010; Tye, 2014; Bell et al., 2015). Hence, after reviewing the numerous benefits of mixed age classroom, is it easy to see how it is an optimal environment when it comes to developing the prosocial dispositions and humanistic values so desperately needed in our present historical moment.

The evidence strongly suggests that cooperative learning among wide range of ages, stages, and capabilities better prepares children for the demands of our increasingly intercultural world through increasing opportunities for friendship, cooperation, and prosocial behavior while decreasing instances of social isolation, aggressive behaviors, and competition for power and status. All of which lay the foundation for lessons of tolerance, interdependence, the celebration of diversity. But with all things considered, one of the greatest strengths of the mixed age class is its ability to address themes of care and nurturing. This is especially important when we know that most students have "little opportunity" to practice caring or to be rewarded for doing so because schools and teachers are rewarded for individual student achievement on standardized measures, and are therefore unlikely to put forth as much effort into creating caring communities (Lipsitz, 1995).

Due to this, many educators in the field are calling for “restructuring” “systematic change” and “radical revolutions” in our education system. While these are truly honorable and worthy long-term goals, creating a caring culture in schools need not rely on a complete upheaval of all current systems. Lipsitz (1995) asserts that all that is needed is “subtle changes in attitudes and scope… a subtle shift in focus may allow for caring relations to be more easily fostered and may help alter the culture of schooling” and we must “ask for what is possible, right now, in classrooms across the nation” (Lipsitz, 1995, p. 1). It is all well and good to have idealistic goal to strive towards, but from a realistic lens the kind of curricular reorganization that many are working towards is not likely to be implemented in the present political climate.

Thus, even in classes where the move to mixed age programming is unlikely, unrealistic, or impossible, themes of care similar to those promoted in the mixed age environment can be introduced so that all children may experience the benefits they come with. “We know that caring is "useful" because it creates an atmosphere conducive to learning…only in a learning community can adults and children together explore and practice the mutuality and reciprocity essential to sustaining human life and democratic society.” (Lipsitz, 1995, p. 3). Conventional schools and classrooms could reap some of the benefits of diversity by developing programs of cross-age tutoring, by encouraging adults and senior citizens to participate in schools as students and volunteers, by organizing extracurricular activities that cut across grade and age lines, and by welcoming rather than resisting split-grades (Pratt, 1986).

Regardless of the classroom age structure, developing people who have a strong capacity for care ought to be a moral obligation for all educators considering the

challenges we face as a global society. Referencing Nel Noddings, author of The Challenge to Care in Schools, Lipsitz (1995) argues that "there is more to life and learning than the academic proficiency demonstrated by test scores" and that schools have a "central ethical commitment" to address themes of care (p. 1). Though this is how it typically emerges in young children, caring is more than just a pat on the back or sharing your favorite toy. Caring is a philosophy of how we should be in society, and is therefore should be at the very core and foundation of the enterprise that is teaching and learning. “Whether we acknowledge it or not, the presence or absence of caring determines everything relational in schools: what, how, and whom we teach and discipline; why and how we group students and organize the school day; whom we hire and how we prepare them; what and how we assess; whom and how we reward; and myriad other policies” (Lipsitz, 1995, p. 2). Research supports these conclusions to an even further extent. In a well-documented study, it was found that “caring and respect promoted learning and overpowered the comparative effects of instructional methodologies, whether directive, nondirective, or centered on cooperative problem solving. Caring did not substitute for learning; caring established an effective culture for learning” (Lipsitz, 1995, p. 3). Such caring is integral to what philosopher Martha Nussbaum (2002) calls the “intentional cultivation of our shared humanity” as we aim to “produce adults who can function as citizens not just of some local region or group but also, and more importantly, as citizens of a complex interlocking world” (p. 292).

Nearly 100 years ago, Dewey (1918) asserted that progressive communities should:

> Endeavor to shape the experiences of the young so that instead of reproducing current habits, better habits shall be formed, and thus the future adult society be an improvement on their own... But we are doubtless far from realizing the potential efficacy of education as a constructive agency for improving society, from realizing that it represents not only a development of children and youth, but also of the future society of which they will be the constituents. (p. 79)

Reflected here in the notion that our schools are not only places where we teach our children about the world they are emerging into, but places where the future world is created through such education as children come to take our place as citizens of an unknown future. The way we educate, the values and dispositions we impart, will come to directly manifest in the course of our collective future through our youngest learners. When looking at the many benefits of mixed age education, it is clear that they are conducive to the cultivation of citizens who see themselves as "bound to all other human beings by ties of recognition and concern" (Nussbaum, 2002, p. 295). The mixed age education is where global justice can be incubated, hatched, and nurtured into full realization as children remake the world in its image.

To a large extent, the research suggests that there are many important benefits that appear correlated with learning as part of a mixed age grouping. Unfortunately we find ourselves stuck in a place where the age-segregated system of education has become tradition, and traditions good or bad, die hard. With a complete overhaul of the educational system being a highly unrealistic goal in this day and age, we all must put this information to use in our own day to day experiences teaching children, so that we may one day see the drastic change so many of us have dedicated our lives to fight for.

Many questions still remain, but as educators we are driven to create the changes in society that will lead to the flourishing of our entire global community. Mixed age education is an often overlook and virtually untapped natural resource that could help us being to clean up the mess we have brought upon ourselves through overzealous academic standardization, while helping us prepare the next generation to combat global challenges of unprecedented magnitude, if only we are brave enough to push for change where it is most needed, and will be most impactful.

As Pratt (1986), eloquently sums up:

> "The social environment of young people during their formative years is a matter of considerable importance to educators and to parents. Conventional structures, though sanctioned by a century of familiarity, must be questioned if they stimulate rivalry, aggression, and isolation, for no apparent advantage. Environments that include a range of ages must be considered if they promise greater cooperation, nurturance, and friendship, for no apparent cost. The evidence on mixed age grouping appears to confirm the basic principle that diversity enriches and uniformity impoverishes." (p. 113)

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