Early Education Problems in the US

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Honors 2100

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Throughout the history of mankind, success in education has always been seen as a symbol of knowledge and wealth. Many people choose to judge themselves based upon how well they progressed through school. Whether this is a PHD, a master’s degree, or simply graduating from high school, everyone has had an educational triumph at some point in their life. While education is important, there are many people who go on to be successful in life that, according to the grading scale, failed multiple times throughout their academic career. There are many reasons behind this, such as teachers whose teaching style is unsuitable for a specific child, no parental support, or even lack of education throughout the fundamental years of the child’s life.

Many people believe that once a child turns 5 you should start to focus on bettering their academic career. This is one of the most detrimental preconceptions that parents could have when it comes to education for their child. Many parents fall victim to this ill-informed fallacy, they believe that education is truly important until your child starts to attend a “regular” school. This is far away from the truth; multiple studies have concluded that the most formative and crucial years for educational development fall within the Pre-K age range. Many parents neglect to introduce important concepts and ideas to their child, which leaves their brains undeveloped, and underinformed. This leads to many years of the parent and their child struggling to understand why the child is performing so poorly in school. This can lead to many problems such as delinquency and lack of confidence for the child. This is why Pre-K education is so important to establish an academic foundation to help children succeed later on in life.

While many parents, such as my own, enroll their children in day-care centers from the ages of 3-4, there has been a recent shift in the demand for more structured preschool programs. This is due to the focus of preschool education shifting to become more academic. Preschool programs are increasingly expected to prepare children to enter school ready to meet the heightened academic demands of kindergarten. This has led to expectations that preschool children will enter kindergarten having some familiarity with print, letter and sound recognition, and beginning writing skills.

The changing culture of kindergarten risen several significant questions about how preschool fits into children’s overall school careers, and states have begun to create learning standards for preschool-age children. - Hatcher, Nuner, & Paulsel, 2012. Some programs have begun evaluating kindergarten readiness using assessments. But there is uncertainty over which specific skills or indicators best measure school readiness. Kindergarten readiness “is a complex idea linked to multiple meanings and factors. Chronological age, developmental stage, specific academic and social skills, and home/school connections are associated with readiness” (Hatcher, Nuner, & Paulsel, 2012).

With the expansion of public preschool programs and a national movement toward universal Pre-K, administrators often have to choose between curriculum focused on cognitive and academic skills and others focused on social and emotional development (Duncan, 2011). Greg Duncan states that it is critical to understand which skills, academic or social emotional, are better able to predict and promote future success in school and beyond.

In foundational research that investigates which early skills can most accurately predict later academic achievement, Duncan analyzed existing longitudinal data from more than 35,000 preschoolers in the United States, Canada, and England to measure school readiness skills and behaviors. The study compares measures of the children’s reading and math achievement, attention skills, pro-social behavior and anti-social, and behavior problems taken around the time they began school with their reading and math achievement data in later years, when the children were between ages 7 and 14 (Duncan, 2011).

The study finds that the most important factors in predicting future academic achievement are early math and literacy skills. Children entering kindergarten with higher skills in these two areas are more likely to be successful in school, whether or not they have social or emotional problems. It concludes that Pre-K curriculum focusing on literacy and numeracy skills are the best option to improve children’s later success in school, rather than curriculum that only promotes social and emotional development (Duncan, 2011).

While acquiring basic math literacy skills have long been considered among the most important elements of early childhood education, many recent efforts to improve instruction in U.S. primary schools have not met with encouraging results, especially among lower-performing students (Viteritti, 2004, p. 69). In 2005, the National Assessment of Educational Progress (NAEP) reported that more than one-third of American 4th-grade students performed at the lowest level (below basic) on the NAEP reading skills test, a measure of reading comprehension (National Center for Education Statistics [NCES], 2008). Recent efforts to improve reading instruction on a national scale (like the No Child Left Behind Act and its Early Reading First program) have moved public schools toward setting more specific goals for accountability and instructional methods for reading (Department of Education, 2008). Results from recent Federal efforts, while encouraging in certain areas, have not proven to be positive; scores from the 2009 NAEP show that progress in early reading achievement continues to be very slow, even though progress has been made by lower-performing students in the early grades. The 2009 test showed no significant changes in racial/ethnic gaps, gender gaps, or gaps by type of school when compared to scores from 2007 and reading average scores among fourth-graders did not improve at all (NCES, 2010).. Clearly, making improvements to early math and literacy instruction continues to present a significant problem for both educators and policymakers.

This arises the question; how can teachers and parents ensure that their children are receiving the proper education without oversaturating their young minds with a surplus of knowledge? In 2014-15, the Waterford Institute released a new preschool program called SmartStart, building on extensive and on-going research, evidence-based instruction and strategies, and research-proven adaptive learning software.

The program continues to focus on building a firm foundation of literacy and numeracy skills while also integrating science, social studies, and social/emotional learning opportunities. Waterford Institute recognizes that all areas of development and learning are important, especially in a preschool setting. Based on best practice research on education of this age group, children benefit the most, and the benefits last longer, from Pre-K programs that offer math and reading instruction that go beyond the basics (Claessens, Engel, & Curran, 2014; Clements & Sarama, 2014; Diamond et al., 2013).

Although, several surveys indicate that teachers are dubious towards using products such as SmartStart in the classroom. The main issue that arises when using SmartStart and programs similar to it are related to the use of technology in the classroom. While this may seem laughable to most people, many teachers and parents alike disapprove when teachers resort to using technology in the classroom. Dr. Haya Shamir states, “parents view technology as a cop-out when it comes to education, they think that their children should be learning from real-people rather than a pre-programmed software that is teaching them similar concepts.” (Shamir, 2012).

However, even though parents are dubious towards giving their young children access to such technology, educational technology has been shown to increase focus on kindergarten readiness within the classroom. Along with this increased focus on promoting kindergarten readiness skills, the growing prevalence of technology-based learning is another key change in the early education landscape. The integration of technology intensely affects how learning happens in the Pre-K classroom. For years, conflicting research on the appropriate use of technology in the early education classroom has left educators and parents confused about its role in a preschool setting. In 2012, a long-awaited policy from the National Association for the Education of Young Children Achieving Kindergarten Readiness (NAEYC) and the Fred Rogers Center was published.

This policy addresses the value of technology in early-childhood programs, as well as concerns about negative impacts that screen media may have on young children. NAEYC and the Fred Rogers Center provide thoughtful consideration for how to differentiate the advantages of high-quality interactive media from other digital resources with little or no educational value. The main differentiating factor is interactivity.

The report explicitly states that non-interactive media “are not included in the definition and description of effective and appropriate use in this state.” The position statement says, “evidence … suggests that when television shows and electronic resources have been carefully designed to incorporate what is known about effective reading instruction, they serve as positive and powerful tools for teaching and learning” (Pasnik, 2011). Suggesting that it is no longer an option not to incorporate technology into early learning environments, the report simply states, “Technology and interactive media are here to stay.” Citing the International Society for Technology in Education’s recommendation that children by age 5 should acquire basic skills in technology, the statement emphasizes that educators should evaluate the content, rather than the format to determine educational value of digital resources. In doing so, educators can use technology to create opportunities to extend learning in early childhood settings, build stronger relationships with parents, and use digital media tools as effective resources for dual language learners. It also points out that “high-quality, interactive media” create learning advantages when combined with a complementary curriculum, where the two can “work together to accelerate learning and narrow the achievement gap between children from low-income families and their more affluent peers” (NAEYC and the Fred Rogers Center, 2012).

Using educational technology tools requires consideration of many factors—screen time, developmental appropriateness, the educational value of the content, interactivity, whether the digital media resource supports other classroom learning or curriculum, and so on. In order to achieve the greatest benefits, technology and early education are increasingly inseparable. The report states that “early childhood educators must be supported with quality preparation and professional development” to meet these expectations and adhere to the best practices that are outlined in the document. These expectations are as follows:

**Principles to Guide the Appropriate Use of**

**Technology and Interactive Media as Tools in**

**Early Childhood Programs Serving Children from Birth through Age 8:**

• Evaluate technology and interactive media carefully before introducing them to children for their support of creativity, exploration, and play.

• Provide a balance of other activities for children that include active, hands-on engagement with the world, using the technology as a support.

• Use technology to support adult-child interactions, such as through the use of interactive e-books.

(NAEYC and the Fred Rogers Center, 2012).

Leading research states that “preschool children learn new content most easily and accurately when it is presented in a predictable and systematic way” (Stahl, 2014) and that “direct instruction is good at teaching basic information. But only lots of practice in lots of different situations builds the brain connections needed for deep, effortless USE of the information” (Brown, Roediger, & McDaniel, 2014).

However, even if educational technology has a plethora of studies proving that it has the potential to be effective, the question still remains, will this work in a traditional school setting? In 2012, after the development of Level 1 (kindergarten) of SmartStart was completed, researchers at the Institute designed a series of early effectiveness studies using a number of public and private schools in Utah, including the Institute’s own school, located in Sandy—and the New York City Public School System. Testing was performed at the beginning and end of the school year using Waterford’s internal measure, the Waterford SmartStart Instrument (WSSI).

The WSSI was created based on recommendations from two prominent early reading researchers, Drs. Marilyn Jager Adams and Philip Gough. These initial tests yielded positive results, reported in percentages: in every case, classes who used the software made greater gains in pre-literacy and math skills in comparison to other classes who did not participate in the study. Waterford students at The Waterford School for instance, improved reading test average scores to from 50% to 91.8% over the course of the year—compared with score averages of 55% (pre-test) to 73% (post-test) among the control group. The math averages also increased dramatically from average scores of 45% (pre-test) to 81% (post-test, analyzed using WSSI). Each of the New York schools tested included large ESL (English as a Second Language) populations.

These early results were the first to demonstrate the particular effectiveness of SmartStart for ESL students: in both of the New York schools (PS 43 in the Bronx and PS 1 in Manhattan) where largely-ESL classes used the software, these classes ended up performing better on post-tests than the English-proficient classes in the control group (60% vs. 47% on the WSSI in PS 43 and 85% vs. 68% in PS 1). Researchers also noted a strong correlation between a student’s results and time spent on-task, a finding which later studies would help verify.

After Waterford had conducted these initial tests, a number of school districts throughout the country were invited to implement the SmartStart in their K-2 classrooms. This resulted in a surge for educational technology to be implemented throughout various schools in the United States, many of the schools that purchased Waterford software also opted to participated in research studies that would be published at a later time. After these schools participated, the results were gathered and comprised into various reports. The most consistent and important findings from these studies is that SmartStart has proven to be particularly effective among disadvantaged and minority students. Results from various case-studies speak to the effectiveness of the software when it pertains to helping “at-risk” or low-performing students catch up with their peers; earlier case studies in Utah and Texas found significantly greater gains among lower-performing students as well. Evaluators have also noted the differential effectiveness of SmartStart for non-native English speakers. Results from studies conducted in New York, California, Maryland, and Arizona have all provided evidence that the program is even more effective among this group than it is for English-proficient students.

Another notable finding, observed by several researchers, is that increased time on task with Waterford software seems to strongly increase student gains. Analyses conducted by Hecht and Close and Powers and Price-Johnson, as well as the UPSTART evaluation (another one of Waterford’s Products), each yielded a strong, positive correlation between time using the Waterford program and reading skill gains. These findings lend further support to the Institute’s design approach, which relates “mastery” of a sequence of tasks to each student’s time-on-task (see Bloom, 1984; Stanovich, 2000). As demonstrated by the success of the UPSTART program, Waterford has also shown itself to be strongly adaptable to home-based and pre-school environments. Home-based education is generally considered to lack both a clear structure and the necessary instructional expertise; because the software is adaptive and has been guided by early literacy research, Waterford Reading is well-positioned to help children acquire beginning reading skills before they enter school.

The consistency of these research results, both within and between studies, is perhaps what is most striking when it comes to evaluating the technological need within schools. In each of the studies detailed here, students in classrooms using SmartStart outperformed comparison-group classes in most, if not all, of the examined assessment measures. In no case did the comparison-group outperform Waterford students. Waterford has always focused its development and iteration on research; because of this, its software has demonstrated remarkable strength, robustness, and adaptability. Results have been consistent in a wide variety of early-education contexts—and regardless of which assessments have been used. Despite the challenges faced by educators in implementing educational technology in the classroom, it has become increasingly evident that carefully-crafted, adaptive instructional technology is capable of yielding serious results. Waterford’s software is, above all, a considerable and flexible tool for helping children reach their whole potential.

I believe personally in educational technology and the benefits it has for many children throughout the world. I understand that there are those that are dubious towards using technology in the classroom, however, if someone were to make a claim that technology is detrimental to the education of children, I would more than disagree with them. I believe in educational software, and I strongly believe that what Waterford, and many similar organizations are doing, helps hundreds of thousands of kids succeed in school, and I am glad I can put my name behind a company that is helping promote a better future for the children of this nation.

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(P.S. I have attached graphs I have created to this paper, I couldn’t figure out a way to make them flow into my paper, but I figured it would be good to show)





