Childhood Success in the American School System

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Taylor Nelson

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On my honor as a University student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments.

Signed: _____

Approved: _____ Date _____
Peter Norton, Department of Engineering and Society

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According to Ball (1994), "investment in good early learning for all its children is arguably the best investment a nation can make." Better early childhood education increases test scores in higher grades (Belskey et al., 2007). Koca (2016) states that "motivated students learn more, learn better, and learn by themselves," as well as stating that motivation is the most essential key to student success, much more important than test results. Directly investing in children have historically had the highest economical returns, often much higher than any other age group (Hendren & Sprung-Keyser, 2020).

Students in America "are falling behind global educational standards" (Koca 2016). According to the Trends in International Mathematics and Science Study (2016), the United States has declined in our fourth and eighth grade math scores for the first time since the study began. Nationally, we rank behind many of the major leading nations in both math and science. The Programme for International Student Assessment (2018) also ranks the U.S. poorly as compared to other major nations. Ryan (2013) comments that Massachusetts students are "still two years of formal schooling behind Shanghai," the leader in education from this assessment.

How are teachers, parents, schools, and government officials seeking to better serve students? Increasing student engagement is essential to promoting student success. Some innovative teachers are experimenting with new teaching strategies, unsatisfied with traditional lecture-based teachings. Implementing these strategies can be impeded by

educational policies passed by unfamiliar government officials seeking to increase standardized test scores. Furthermore, some private organizations seek to establish repertoire within the teaching community and with government officials to sell teaching 'solutions' or widen the scope of their influence.

Review of Research

Learning through playful simulation has been found to help students. Some teachers use application-based instruction in which students use what they learn, which can improve student performance relative to memorization for tests. (Khurshid & Ansari, 2012). Barros et al. (2009) found that unstructured play increases students' engagement in learning and that "recess may have a benefit for overall group classroom behavior." Jarrett et al. (1998) suggest that "most children, both boys and girls, are renewed by a break rather than disrupted by it."

Through an educational computer game, Hussein et al. (2019) found that such games "can foster students' learning motivation in comparison to the traditional method of teaching," but games do not affect student "extrinsic and intrinsic motivation." Kirsch et al. (2016) found that students prefer "Kahoot," an online game-based learning platform, to traditional quizzes, suggesting that gamification of course materials may help increase student engagement. Kay Emblem-Perry (2018) reported that gamification of their business course "challenge[d] thinking and emotionally engage[d] students." Fadhli (2020) reports that the gamification of courses "can improve children's cognitive, skills, attitude, language, health, and social-emotional abilities." Kindergarten students in Indonesia were observed using a gamified English learning app and were found to have

an increased motivation to learn English (Tamtama et al. 2020). Alhalafawy et al. (2019) found that students testing a gamified application developed a "desire to overcome the educational challenges facing them to improve the personal growth of their learning-related skills, and to successfully complete the learning tasks." Purinton & Burke (2018) discovered that undergraduate students playing a gamified version of the course material did better on the following exam than those in previous years. Darnell & Krieg (2019) found that students participating in active learning segments of the lecture had elevated heart rates, which may suggest engagement. However, after these active learning segments concluded, the heart rates fell to levels lower than the pre-activity level, suggesting the students were less engaged in the traditional lecture.

Esposto & Weaver (2011) found that placing students in pairs lead to nearly a doubling in attendance, and a 10 percent increase in exam scores for the three years this change was implemented. Hodgson et al. (2013) found that "students increasingly engaged with each other, and with the content of the unit" when following the peer assisted learning model. Students in an Algebra I course noticed an "increase in their classroom participation and communication" while participating in group learning activities (Clarke, 2015).

Tiberi et al. (2020) found that thought provoking physical education activities increased reading comprehension over little thinking recreational activities. On days with thought provoking activities students got to work immediately, whereas on the recreational activity day students "asked to use the bathroom before the assessment, … were walking around the classroom before they sat down, and there was some confusion on some of these days caused by students forgetting their student number." McCarthy

(2013) found that teachers can utilize school gardens to help students get fresh air, exercise, and sunlight, ultimately increasing performance. Middle school students engaged in a school led community engagement program reported, “It’s better than just sitting there basically working from a book” (Deed & Pridham 2012). Ludyga et al. (2018) found that running “compared with a physically inactive condition benefited inhibitory control as well as verbal short-term and long-term memory.”

Asare et al. (2017) found that family support improves students’ performance. Parents taking the time to visit their student in school and parents who display positive interests in their student’s schooling positively affect their child’s engagement (Erol, 2018). Talking with family members regularly can help reduce stress levels among first-time college students. Merianos (2013) found that “students who felt higher levels of family social support reported fewer days of mental health problems per month.” Chen et al. (2019) found that “both behavioral and affective engagement are significantly associated with environmental support from family and school.” Roksa & Kinsely (2019) found that students reporting emotional support from their families “reported greater psychological well-being and were more likely to feel like they belonged at their institution.” These students also were more likely to have a GPA of 3.0 or higher. Family and friend’s support influences student’s “degree of engagement at school, … fostering students’ perception of themselves as good students, which in turn results in higher levels of school engagement” (Fernández Lasarte, 2020). Cheng et al. (2012) found that “family social support plays a prominent role in students’ academic performance” among university students. A student having the same teacher as his/her sibling will not increase test score gains (Qureshi & Ost, 2019).

Innovative Teaching

Students engaged in activity-based learning generally remember the subject better than those who followed lectures. According to Fatou & Kubiszewski (2018), teachers need to "develop effective interventions that improve students' perceptions of educational, security, justice, affiliation and, more specifically, teacher–student relational climates," to improve student engagement." According to Bergen (1998), teachers "must become facilitators of learning by becoming supportive rather than directive with their teaching." Directive teaching limits students' initiative. From experience, Sophia Pappas, a former early-childhood educator, learned that "play creates important entry points for kids on all different levels" (Stringer, 2018). Leasa et al. (2017) found that the "kinesthetic learning style has significant effect on the emotional intelligence compared to auditory and read learning styles." Leasa et al. (2017) suggest that through kinesthetic activities, "social relationships with others become stronger," leading to a stronger and more confident child. Group learning also benefits students.

The flipped classroom model, in which students do research and present findings in class, can also help increase engagement. The model can "allow students to develop different skills that are key to executing efficient performance in their academic, social and work environments" (Aznar-Díaz et al., 2020). Clarke (2015) and Stratton et al. found that students participating in a flipped classroom model noticed an increase in engagement as well as a reported increase in student motivation. Jdaitawi also (2019) found that the flipped classroom model encourages engagement through collaboration and teaches behavioral and communication skills not normally found in traditional lectures. Dolezal et al. (2018) found that college students peer reviewing assignments

promotes thoughtful discourse in a timely manner and can increase student self-learning, but students still prefer feedback directly from an expert. Hima et al. (2019) found that group learning "increased the students' motivation to learn mathematics" and helped students overcome their perceptions that mathematics is difficult. Most flipped classroom studies, however, have been performed within higher education. Further research should be done with the flipped classroom model in younger students.

Exercise can also improve learning. Low performing students participating in outdoor learning activities perform better (McCarthy, 2013). Students participating in a Health Qigong program were found to have reduced stress levels (Wang et al., 2016). The researchers did not mention how the children's stress was evaluated. Small exercise breaks before math assessments increase young students' performance (Howie et al., 2016). Webster et al. (2015) found that preschool students "improved on-task behavior immediately following the breaks." Students perceived as not engaged in normal classroom days increased their focus by up to 30 percent. Mead et al. (2016) showed that allowing elementary school students to sit on stability balls during class increased math test scores more so than traditional chairs or 5-minute exercise breaks. However, Howie et al. (2016) found that 5-minute breaks were not significantly effective on test scores, therefore comparisons between stability balls and 10- or 20-minute exercises would be useful.

With technology, teachers can use a wider variety of teaching methods with more students. Guidelines from the U.S. Department of Education's National Education Technology Plan can help teachers incorporate technology in classrooms. According to DOE (2017), "technology can help learners unlock the power of some of the most potent

learning principles discovered to date." With e-books, Wen et al. (2012) found that teachers could "enhance learning effectiveness and promote learning motivation." Danniels et al. (2020) suggests that technology can be an effective utility to assess children's learning. Danniels et al. (2020) also reports that many teachers view the integration of technology into the classroom positively. In a study observing sanctioned and unsanctioned technology use in the classroom, Tallvid et al. (2015) found that "the percentage of students that never chatted or played games during class was increasing." Though unsanctioned use of the technology was high, it remained constant throughout the study. According to Lowther et al. (2003), students from fifth to seventh grade given 24-hour laptop access reported as much as 20 percent higher engagement in everyday classes compared to the traditional classroom. Students also performed better responding to writing prompts and problem-solving questions.

Parents and Schools

Parents influence student engagement. Supporting school systems and family members increase student engagement (Chen et al., 2019). Parents for Quality Education, a nonprofit promoting parental involvement in education, aims to achieve "true fair representation of our neighborhoods and community on the Board of Education" (Caslavka & Lee, 2019). Parents with high standards for academic achievement along with their love and support often motivate students to better themselves and achieve higher education at college (Mitchall & Jaeger, 2018).

Increasing healthcare coverage for students increases their engagement. Expanding healthcare to cover more students increases high school graduation rates and

decreases high school dropouts (Groves 2020). Covering more students also leads to greater economical returns once the student becomes an adult (Hendren & Sprung-Keyser, 2020).

Standardized testing decreases overall student engagement through incentivizing teachers to "teach to the test." The No Child Left Behind Act of 2001 limits local communities. According to Alyson Klein (2015), NCLB "significantly increased the federal role in holding schools responsible for the academic progress of all students." States not complying with NCLB "risked losing federal Title I money." According to Hodges (2018) "the enactment of NCLB disincentivized funding for gifted education in Texas public schools." The U.S. Bureau of Labor Statistics reported in its monthly labor review (Roach 2014) that "there is no evidence to suggest that low-performing students benefited from reducing the resources of their high-performing student peers." Harman et al. (2016) found that "in Illinois, there was no significant gain in academic achievement," also suggesting the NCLB is a "failed experiment." Ladd et al. (2017) suggest "aspirations for education and schooling should be far broader than teaching children how to do well on multiple-choice tests." Similarly, Peter Greene (2015) states, "all tests ultimately and primarily test the student's ability to take a test." A large social media group for teachers, WeAreTeachers, compiled 31 tweets from teachers opposing standardized testing in schools (Hudson, 2017). However, Ladd et al. (2017) report that one positive from the NCLB is the huge amounts of data that has been gained from these standardized tests.

Policies intended to help ensure educators are following high standards are often criticized. According to Thomas & Wieczorek (2019) teachers must be "essential partners

in, and not a target of, the development and implementation of the teacher evaluation process as part of continuous improvement efforts." Thomas & Wieczorek (2019) also claims that the Race to the Top program, a program implemented to evaluate teachers and school leaders between states, caused unnecessary stress and forced the spending of extra time adapting to the policy. Concerns over the use of a single tool to evaluate all grades across schools were also raised. According to Howell (2015), participating states "adopted at unprecedented rates policies that were explicitly rewarded under the competitions." Weiss & Hess (2015) noted that RTTT inspired "rushed adoption [of policies] and ensured that many policies were executed poorly, undermining public confidence and support." However, participating states student's average GPA went up significantly compared to non-participating states students, winners improving as much as a full point (Howell, 2015).

Outside groups

PBS Educators, Scholastic Educators, and Education Next offer educational products to teachers. WeAreTeachers claims to inspire teachers through social media posts and its website. It is a subsidiary of MDREducation, which markets to teachers, parents, and students. In a blog post for MDREducation, Kristina James (2019) claimed that "Brands like Lysol, Elmer's, and Quill are … working with MDR's leading media brand for educators, WeAreTeachers, to craft unique campaigns for teachers and ultimately turn them into loyal customers."

The Organisation for Economic Co-operation and Development (OECD) proctors the Programme for International Student Assessment (PISA) test across more than 50

countries. The OECD (2018) claims that the PISA is “intended to help school leaders from across the world understand their 15-year old students' abilities to think critically and apply their knowledge creatively in novel contexts.” The OECD uses this data to recommend best practices to all educators. The Asia Society Global Cities Education Network writes that the PISA reveals which school systems use effective education practices and which systems are implementing change to better their results (Asia Society 2020). The International Summit for the Teaching Profession, hosted by OECD, gathers many educators from educational systems around the world to discuss the furthering of educational practices and policies (OECD, 2019). A book published by OECD recommends a standardized test, PISA, to improve mathematics scores, a “teaching to the test” approach (OECD, 2016).

Not everyone supports the PISA. Hopfenbeck and Maul suggests that everyone have “caution for all interpretation of results from PISA questionnaire scales” due the results not accurately assessing student’s knowledge. Zhao (2020) claims that “PISA brilliantly exploits the anxiety and desire of parents, politicians, and the public.” Zhao (2020) later claims PISA has been criticized for homogenizing educational strategies and that PISA is an enterprise whose goal is to expand its influence. Rautalin (2018) examines the effect of PISA results in Finland, a country proud of its educational prowess, showing that the use of PISA as evidence to schooling quality as well as criticism against the test increased significantly.

A group of more than 80 professional educators from across the world compiled a letter calling upon the OECD to discontinue the PISA (Andrews et al. 2014). The letter claims “in the US, Pisa has been invoked as a major justification for the recent “Race to

the Top" programme, which has increased the use of standardised testing for student-, teacher-, and administrator evaluations." Other criticisms of PISA include "No reform of any consequence should be based on a single narrow measure of quality" and "any organisation that deeply affects the life of our communities, should be open to democratic accountability by members of those communities" (Andrews et al. 2014). Pearson, a for-profit company, was given the opportunity to develop the framework for the 2018 PISA, further demonstrating the concerns mentioned in this letter (Pearson, 2014). The end of the letter lists several recommendations for how the process can be improved. PISA has also partnered with companies that "provide educational services to American schools and school districts on a massive, for-profit basis" (Andrews et al. 2014). Several countries, such as China, may be picking who in their country can take the test, opting to choose the most educated regions (Sands, 2017).

Conclusion

According to Ball (1994), "Investment in good early learning for all its children is arguably the best investment a nation can make." Investing in children repays iteself (Hendren & Sprung-Keyser, 2020). Teachers, parents, school administrators, and government officials can help students succeed.

Gamification, flipped classrooms, group and peer learning, and participating in exercise routines are all effective strategies teachers use within the classroom to promote engagement. Effective parenting through participation and showing interest also helps. Many policies are enacted to ensure educators are educating to the proper standards, many times restricting the freedom educators have in the classroom for the sake of

increasing standardized test scores. Implementing policies as a direct result from standardized test scores is harmful in nature to educators, often only being a quick solution that doesn't solve any real problems. Furthermore, private organizations can take advantage of government policies to sell products, services, or teaching strategies to educators to increase standardized test scores. Sometimes even the companies that administer the test participate in these practices.

Further research is required to determine which age groups of students benefit from which innovative practices, specifically the flipped classroom model in younger age groups. Research should also be done studying the long-term effects of these innovative teaching strategies, as most studies only address the short-term results. Research could be done to determine which educational policies are actually effective long term. More data regarding educational policy as a result of standardized tests would be useful to analyze, as well as instances where standardized tests accurately assessed student knowledge, and how students performed on those tests.

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