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Cristina Pietromonaco

Sacred Heart University

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Though standardized tests have been a traditional aspect of the United States public education system for centuries, resulting from the recent educational reforms, there has been much controversy over whether they continue to provide adequate value and influence. Standardized tests were first introduced to schools in the United States in order to find a standard for all students to be compared against, record teacher efficacy, and make states comply to federal educational reforms. The creation of the No Child Left Behind Act in 2002 reshaped standardized testing into an established system where all states were required to give students in selected grade levels standardized tests. It was replaced in 2015 by the Every Student Succeeds Act which gave power to the states to make decisions regarding their own standardized testing to increase academic success ("Standardized Tests," 2018). While supporters of standardized testing state it provides teacher accountability and motivates students, research suggests that standardized testing should be reevaluated because it causes increased stress, test anxiety and student and teacher cheating, and fails to account for relevant student demographics including gender, language, culture, social economic status and race.

Standardized Testing

Throughout the United States standardized testing is utilized to asses individual students' knowledge, teacher's efficacy, a school's progress and a whole district's yearly improvement. Standardized tests are mandated state tests and can even include tests to be admitted into college, such as the SAT and ACT. These standardized tests usually consist of multiple-choice questions or written responses. Over time, standardized testing was developed from being used for government job applicants in the seventh century Imperial China, to being used to "judge and

compare the output of each school" and gather information on teachers in Boston schools in the 1800s ("Standardized Tests," 2018). In 1965, the modern testing movement started with the Elementary and Secondary Education Act (ESEA) to raise academic achievement and make education more equitable. Then, the No Child Left Behind Act was created in 2002 requiring students to take standardized tests on math, English and later science, when in grade levels three to eight and in grades ten to twelve. The act's obligation is to have all students in the United States "proficient" on state reading and math tests by 2014. Schools had to illustrate to the federal government that they had "Adequate Yearly Progress," but if they did not the state had the ability to take them over or shut them down, and place sanctions on them ("Standardized Tests," 2018). This shows how all teachers within a school were responsible for keeping the scores of students high so they could keep their job at the school and continue working. In addition, the United States went from being ranked 18th in the world for math, to being ranked 27th ten years after the No Child Left Behind Act ("Standardized Tests," 2018). However, many viewed this legislation as positive because some studies found that testing on students caused a "positive effect" on student achievement. They believed standardized testing is reliable and nonbiased since teachers do not create the test themselves and thought that it is inclusive of students since all take the same test. Some supporters of the No Child Left Behind Act view teaching and preparation for standardized tests as encouraging since students are concentrating on subject content and building academic skills, this caused a thirty-point increase in IQ in the twentieth century (Sternberg, 2017). Also, they view multiple-choice testing as a simple, precise method and believe testing prepares students for college exams ("Standardized Tests," 2018).

Although there were many advantages, student's physical and mental wellness was sacrificed, they were pressured to take actions they would not have to without tests and the

effects of various student's demographics were not even considered. A study in 2001 illustrated that test scores do not truthfully represent student performance and illustrated that up to eighty percent of annual test score improvements are temporary and not related to progress in learning. Additionally, students lack the development of skills and characteristics such as problem-solving, determination, imagination, and other real-life skills. Researchers believe that students may become underachievers from not being creative from the structure of school time and emphasis on testing. Schools are spending large amounts of time on test preparation, concerned that if they do not do so they will be shut down by the state. For example, New York City dedicated two and a half hours of training and held test practice on vacation days to ensure all students are ready to take the state test. Also, since each state makes their own test there is no way that the students within the states can equally be compared to one another, though that is a main purpose of standardized testing. For example, "A student sitting for the Connecticut Mastery Test (CMT) is asked a completely different set of questions from a child in California taking the Standardized Testing and Reporting (STAR) test, and while the former includes essay questions, the latter is entirely multiple-choice" ("Standardized Tests," 2018).

The Every Student Succeeds Act (ESSA) which replaced the No Child Left Behind Act in 2015, continues to require standardized testing in certain grade levels and mandates a report on student achievement from schools. However, the Every Student Succeeds Act gives states more control specifically in deciding what progress is to them, what factors determine it and how important each factor is, but states have to submit their accountability plan inclusive of these factors to the Department of Education for approval. The Department of Education "is eager to move towards this new, broader vision of accountability" and proposed regulations on accountability, data reporting and consolidated state plans (U.S. Department of Education, 2016).

According to the Department, states must have a strong statewide accountability plan with indicators of academic achievement, graduation rates for high schools and academic progress for elementary and middle schools and progress toward English language proficiency (U.S. Department of Education, 2016). Additionally, the Every Student Succeeds Act also states that students must have access to college and career counseling and advanced coursework (Darrow, 2016). Though it is a new legislation that gives states more power, the same issues that plagued the No Child Left Behind Act, including failing to illustrate a student's true academic abilities and teaching them critical thinking skills, continue effecting students.

Stress from Standardized Testing

Standardized testing, which the No Child Left Behind Act and then the Every Student Succeeds Act required, causes increased stress for students and can consequently impact their physical wellbeing. When stress builds up in students, it can cause them to feel physically ill. Before the No Child Left Behind Act became law, a group of psychiatrists, child development authorities, and teachers suggested to Congress to reconsider the bill, which would make students take an increased amount of tests, especially since they stated that "test-related stress is literally making many children sick" (Alliance for Childhood, 2001). They emphasized that the idea of the act is beneficial, but students, their learning and teachers will suffer in the long-term. They are a group of activists part of the Alliance for Childhood, a nonprofit organization that does research on children and play, and advocates to improve the lives of children. Furthermore, a school nurse on the board of the National Association of School Nurses stated that since the stress on students has increased from testing, she experienced a direct increase of situations in her office regarding test-anxiety, correlating the two factors. Children's stress from testing

manifests itself in headaches, stomachaches, sleep problems, attendance problems acting out and depression (Alliance for Childhood, 2001). Children have told their teachers that they have vomited the night prior to their exam and testing is making students scared of school (Alliance for Childhood, 2001). Education researcher Gregory J. Cizek explained how even the most intelligent students can become overwhelmed by testing and even vomit or cry ("Standardized Tests," 2018). In 2002, a California newspaper stated that "test-related jitters, especially among young students, are so common that the Stanford-9 exam comes with instructions on what to do with a test booklet in case a student vomits on it" ("Standardized Tests," 2018). Though students might have prepared for the test for a whole year in school, their stress overcomes them and causes them to become ill. Moreover, the amount of severe student's stress from standardized testing can be highlighted when compared to the stress of Posttraumatic Stress Disorder (PTSD). The article "Posttraumatic stress disorder and standardized test-taking ability" relates posttraumatic stress symptoms to stress from standardized testing. Similar to PTSD, standardized testing is related to attention, working memory and other cognitive deficits. Exposure to violence, a normal symptom of PTSD, can cause a traumatic experience which parallels how standardized testing can cause negative test performance (Rutkowski, Vasterling, Proctor, & Anderson, 2010). Furthermore, it was discovered that the likelihood of answering a regular question correctly decreased when one is more stress because those with the highest amount of stress had a thirteen percent chance of a decrease to answer questions correctly (Rutkowski et al., 2010). This indicates how stress, similar to posttraumatic stress, can truly diminish a student's grade on standardized tests affecting their cognitive ability to answer questions correctly.

Test Anxiety from Standardized Testing

Similar to stress, test anxiety, defined as "general anxiety students experience in testing situations", impacts all students disrupting their abilities and greatly effects their academic achievement (Lowe, 2019). Approximately ten to forty percent of students have a general rate of test anxiety and fifteen to twenty-two percent have high levels of it. According to psychologist Patricia Lowe, students as young as second graders, age six to seven, have experienced test anxiety. The study she conducted analyzed how 1,221 elementary school students in grades two to five expressed test anxiety, and what level of it they possessed by utilizing the Test Anxiety Scale for Elementary Students (TAS-E) administered to students. The scale includes the four aspects of test anxiety: Physiological Hyperarousal, Social Concerns, Task Irrelevant Behaviors, and Worry. Physiological Hyperarousal is the physical actions connected to test anxiety, while Social Concerns is the social test anxiety of students meaning consideration of other's reactions to one's negative test performance. Task Irrelevant Behaviors is one's nervous movement within a testing environment, and Worry consists of mental test anxiety, thoughts concerning failure of a test and consequences for failure (Lowe, 2019). Regarding mental test anxiety, the US Surgeon General stated that a minimum of ten percent of children in the United States struggle with a form of a mental illness, therefore high pressure standardized testing puts them at special risk (Alliance for Childhood, 2001). In the study, Lowe discovered that test anxiety was found across all grades but seen to be higher in the fourth and fifth grade, especially in the areas of Task Irrelevant Behaviors, and Worry. This can be explained by the idea that as students grow up, they develop cognitively, know their thoughts and environment, and recognize their own behaviors which result from their test anxiety (Lowe, 2019). As children gain more cognitive abilities, they also understand how unlikely it is for one to never be anxious or worried (Eaton,

1978). In addition, a young student's worry and their development are connected since as they develop their anxious thoughts become distinct to them and more extensive, especially since they understand the pressure on them (Lowe, 2019). Test anxiety is a "function of situational factors" because the environment students are in, pressure they experience, feeling, thoughts and behaviors toward the test are all relative of the test (Eaton, 1978).

Standardized testing is considered high stakes which causes test anxiety within students and is associated with learned helplessness, when a student's failure is the result of an external factor rather than effort. High-stakes standardized achievement testing increases test anxiety compared to low-stake tests in a student's classroom. A study of 335 students in grade three to grade five was completed to find out if there was a difference between anxiety from high-stake tests and low-stake tests. After students took a test within their classroom and after students took a standardized state test, they filled out a survey about their test anxiety. The study's data showed that students experience more overall test anxiety for standardized tests than classroom tests on two levels. Additionally, students faced much more cognitive anxiety and physiological anxiety when taking high-stakes standardized tests (Segool, Carlson, Goforth, von der Embse, & Barterian, 2013). The study also examined the different rates of test anxiety (low, medium, and high) of students. Researchers discovered that 9-11% of students had high anxiety, 44-59% had moderate anxiety and 32-45% percent had low anxiety (Segool et al., 2013). High-stakes testing is also related to student's learned helplessness, when outside factors cause students to perform negatively, similar to test anxiety, when a student's negative emotional state in a test environment causes them to perform inadequately on a test. Fincham, Hokoda and Sanders studied 82 students beginning in third grade for two years. They utilized the Test Comfort Index, which considers a test situation, to quantify students test anxiety and the Intellectual

Achievement Responsibility Scale, the Children's Ability-Effort Scale and the Student Behavior Checklist for learned helplessness. The results illustrated that there was a relationship between test anxiety and learned helplessness to academic achievement in third grade and an even stronger connection in fifth grade (Fincham, Hokoda, & Sanders, 1989). This proves that the relationship between them is strengthened as students age, and as they cognitively develop. Also, evidence showed that "test anxiety correlated with math achievement in the third grade and correlated with both math and reading achievement test scores in the fifth grade" (Fincham et al., 1989). Moreover, a student's helplessness and test anxiety influence's their ability to take a standardized test (Fincham et al., 1989). In addition to feeling anxious and helpless, students also feel shame and marginalized from negative results on high-stakes standardized tests (Kearns, 2011).

Teachers witness and understand student test anxiety and may contribute to it through their actions. For example, teacher's views were in line with student's views on their test anxiety when students stated that they experienced more anxiety on high-stake standardized tests than in low-stake classroom tests (Segool et al., 2013). In addition, teacher's attitudes and statements can affect students test anxiety, such as when teachers use fear to push students to do well on standardized testing. Test anxiety is not linked to how often students feel a fear appeal, but rather how threatening the message is to them. A threating fear appeal could include the idea that unless a student works hard, they will fail their test, or that a student should be studying because the test is near. A teacher's controlling behavior, including pressure, causes an increase in student's anxiety, extrinsic motivation and amotivation, but a decrease in intrinsic motivation for tests. Though it was discovered that students do better on tests when they are more determined and have intrinsic motivation. Therefore, when a teacher does not use fear to

threaten students, students feel less test anxiety and indeed do well on exams (Putwain & Remedios, 2014). Lastly, since students at a high school level, those who are more cognitively developed and therefore comprehend greater than students younger than them, know that their scores effect their teacher's career, they feel test anxiety and do not want to fail for their teachers. The idea that their actions can have a huge impact on their teacher's life can be overwhelming for some students and even cause them to act out negatively after the test (Leone & Whitson, 2013).

Cheating & "Teaching to the Test"

Teachers face pressures themselves because of test based accountability, a procedure in which their student's scores are used to evaluate them. In many states and districts, the students test scores of a teacher are a key aspect of their overall performance evaluation and may even determine whether they keep their job in that district. Since standardized tests scores of students are greatly valued, especially on the federal level, this has caused teachers, schools, and districts to feel the need to cheat on tests or alter student's scores. For example, the No Child Left Behind Act used federal funding to motivate schools and teachers to have students get better scores. Up to 50% of funds from the federal government could be given to other programs such as Title 1 funds or teacher quality grants, but with a great amount of stress on testing, much of the budget was put toward test preparation materials. In addition, after three years if a school did not reach adequate yearly progress (AYP) goals, the district had to give Title 1 funds for each student with low scores of around $500 to $1000 for students after school tutoring (Holmes, 2009). In 2011, when an investigation was done of six states and Washington DC, it was found that 1,610 annual test scores increases were irregular. In April of 2013, a memo from January of

2009 was released stating that 191 teachers in 70 different public schools in Washington DC took part in "testing infractions" ("Standardized Tests," 2018). Also, the memo stated that almost all teachers from a single public elementary school "had students whose test papers showed high numbers of wrong-to-right erasures", illustrating how teachers changed students' answers ("Standardized Tests," 2018). Another example is that though from 44 different public schools in Atlanta, 178 teachers and administrators cheated on standardized tests, some by correcting student's answers ("Standardized Tests," 2018). Critics of standardized testing believe cheating is a result of high-stake testing because teachers and administrators feel that they are under a lot of pressure to have their students do well on tests, especially since scores can be a heavy weight in their evaluations.

Under pressure to teach their students everything they need to know for standardized tests, teachers spend too much time "teaching to the test" instead of teaching students meaningful content they can learn and utilize in their lives. In a study of 341 upper elementary school teachers, researchers observed "amount and type of test preparation in the classroom and school, the impact of testing on non-tested subjects, the impact of testing on teacher pride and professionalism, and attitudes about reasons why test scores change" (Herman, Golan, & Center for Research on Evaluation, 1990). They discovered teachers spend an increasing amount of time on standardized test material, narrowing their curricula, and teachers believe it is necessary because their school continuously emphasizes it to them (Herman et al., 1990). Likewise, a long-term study of five years explains how teachers feel forced to "teach for the test" because the curriculum is straying away from critical, abstract thinking, focusing more directly on academic content. Furthermore, according to the Center on Education Policy, prior to the implementation of the No Child Left Behind Act, approximately half of school districts in the United States

removed about 145 minutes of science, social students and the arts a week to focus on math and English for standardized tests ("Standardized Tests," 2018). This shows that teachers are not concentrating on teaching students important concepts and ideas, but instead solely test material. Similarly, prior to the No Child Left Behind Act, a factor that encouraged the acts creation was the "Texas miracle," which was when the state of Texas' policy, which declared schools will be held accountable for students test scores, worked, causing high student test scores. But although students had high scores on the standardized tests, they had low academic achievement in school (Morgan, 2016). Teachers trained and drilled students for tests by building their memorization and recall, rather than teaching them deep thinking and logic. Therefore, students knew content for the test but did not comprehend it or know how to apply it. This was seen when in Texas "teachers noticed that although they raised their students' scores for the reading section of the Texas Assessment of Academic Skills (TAAS) test through drills and practice, many of the students could not apply what they learned to content other than that appearing on the state test" (Morgan, 2016). Also, if students are directing their attention to a teacher constantly drilling them on content for a test in school, they are less likely to be collaborating with other students and learning how to share thoughts, ideas, and perspectives with others.

How Student Demographics affects Standardized Testing

Gender

Standardized testing is an unfair assessment because it does not take into account a student's status including their gender, language, culture, socioeconomic status and race. All students are not the same, therefore there cannot be a "standardized" test made for all because from their demographics they may approach, take or interpret the test differently from each

other. For example, multiple choice questions on standardized tests are inclined toward male students because they are more likely to do well on the "game-like point scoring" of the questions ("Standardized Tests," 2018). Another example regarding gender is through the use of the previously discussed "Test Anxiety Scale for Elementary Students" (TAS-E) where Lowe discovered that a student's gender determined their expression and level of test anxiety. She discovered that females in grades two to five had more signs of physiological hyperarousal, task irrelevant behaviors, and worry than males in grades two to five. She also found that the largest difference was among the physiological hyperarousal section, which is the physical actions of test anxiety (Lowe, 2019). In accordance with previous findings, the study on test anxiety of students for standardized testing versus classroom testing determined that on both low-stake and high-stake testing, girls have a higher amount of total anxiety than boys (Segool et al., 2013). According to Núñez-Peña, Suárez-Pellicioni, and Bono there are two explanations for gender differences in test anxiety including there being different social roles for men and woman encompassing the idea that "females are under greater pressure to succeed academically than are males, they are more afraid of failing in a test situation" (Núñez-Peña, Suárez-Pellicioni, & Bono, 2016). The second explanation is that men are more defensive and refuse to admit their anxiety, highlighting that woman are more anxious than they are (Núñez-Peña et al., 2016).

Language & Culture

Similarly, language is a barrier for test takers since English language learners have to take standardized tests in English prior to fully knowing the language ("Standardized Tests," 2018). There has been much tension regarding testing since teachers are forced to give standardized tests to students who do not fit the ideal standard. For example, an elementary

school teacher identified that non-English speaking students had reading skills but when they read in their own native language. She stated "If I could use the Spanish book, some of them would be able to do well in a reading test. What are we really testing, you know? Many of my students have the reading skills, but they simply do not have them in English. Are we testing reading skills, or reading in English?" (Barrenechea, 2018). Students are also allowed to use a dictionary to translate words from their native language to English, but if they do not know the English language it is not helpful (Barrenechea, 2018). By looking at English language learners results from the Standardized Test and Reporting (STAR) test, the state test of California, it was observed that it favors those of conventional language and culture, and that there is an inconsistency between students test score and their abilities. Some English language learner students who did not have high test scores because of the language barrier have high academic abilities. If the student were viewed solely by their standardized test scores their abilities and capabilities would be unknown. Research shows that most standardized tests are biased toward particular cultures, such as the Latino culture (Shannon, 2008). Standardized tests focus on prominent cultures and consequently are encouraging assimilation, rather than assisting those of different cultures (Barrenechea, 2018). A study consisted of English language learners who mainly spoke Spanish, taking two standardized tests, one in Spanish and one in English and a proficiency exam. Research illustrated that no matter their proficiency level, they will always score better on the Spanish test. This is because they will naturally make an error in decoding information on the English test or simply take longer to decode words while reading directions or passages. This again indicates that a student's comprehension ability on tests is not correct since it instead highlights their deficiency of the English language (Shannon, 2008).

Socioeconomic Status & Race

Along with language, socioeconomic status, the social class of a student based on their economic level, impacts students standardized testing. A study on a group of elementary school students from Israel, whose first language was Hebrew, found that students from low socioeconomic status were about one year behind on letter sounds and names on testing (Shannon, 2008). If students are language learners and have a low socioeconomic status, they need more help than others to succeed and do well on standardized testing. Many parents want to help their children, but some do not know how to do so. While parents of higher income may be able to afford private tutors and buy materials such as books and school supplies for their child to learn, those in a lower socioeconomic class cannot. Parents of lower classes may work late hours disabling them from spending time on education with their children or may not be able to afford the materials needed. "Studies and test scores show that students do markedly better in middle-class school, for perhaps self-evident reasons: better teachers, stronger discipline, more college prep courses, and peers who believe from an early age they are destined for college" (Shannon, 2008). As stated, higher social classes are more likely to be encouraging, having access to many educational tools. Those who are impoverished have to deal with social issues such as "dropout mothers, single parent homes, multiple siblings, spanking, few children's books, low birth weight, teen mothers, and post-natal depression" which are associated with a gap in test scores (Shannon, 2008). Teachers and schools are facilitating the idea and widening the achievement gap by treating students from lower socioeconomic backgrounds different, demanding less from them, although they are capable of more (Barrenechea, 2018). In the United States, every state's disadvantaged group of students is outperformed by others on testing, no matter their grade level or the subject of the test, backing the severity of one's

socioeconomic status on academic achievement and testing. Moreover, within the United States largest cities, over thirty percent of the lowest-income students are in the lowest percentile on standardized testing of reading and mathematics (Dotson & Foley, 2017).

A person's race can affect their standardized testing because it can alter the test preparation they receive, how relatable the test is to them, or even their test score. For instance, there is a test gap among those of different races seen as young as students in kindergarten between white students and black or Hispanic students, because of their socioeconomic status (Shannon, 2008). Despite improvement toward equality, compared to white students, black and Hispanic students have lower average reading, mathematics and science scores (White et al., 2016). Socioeconomic factors and race impact student's academic achievement and test scores as they grow, so by the time students are in high school there is a variance of fifty-two percent in language and fifty-nine percent in math test scores (White et al., 2016). According to the *Journal of Human Resources,* student's scores depend on if the test was created with various student's demographics in mind. For example, changing the weight of algebra and geometry on the National Assessment of Educational Progress modified the rift between students who are black and those who are white ("Standardized Tests," 2018). Therefore, it is necessary that when people are forming questions for standardized tests and determining their weight, they should consider students different demographics including their gender, language, culture socioeconomic status, and race.

Different Education Systems & Standardized Testing Alternatives

Standardized tests, which do not consider student demographics, in the United States cause students, teachers and schools to feel pressures which negatively affect them. Researchers

found that teachers, parents, and school administrators insights influence students because "state testing programs have resulted in increased student anxiety, increased stress, lowered motivation, increased focus on test preparation, and increased job stress and lowered job satisfaction for teachers" (Segool et al., 2013). The United States should examine the education systems of other nations to improve their own, and research alternatives to standardized testing. For example, different education systems, such as in Finland, Japan, and Singapore, do not deal with pressures through lack of emphasis on standardized testing and by not using it to asses' teachers or schools. Finland had the top educational ranking from 2001 to 2008 but did not use standardized tests to rate schools or students. The country tests students on how they can analyze and use information to solve issues ("Standardized Tests," 2018). This allows students to think critically and develop their deep thinking, unlike in the United States. Teacher evaluation systems are based on trust and usually get feedback and guidance from their principal. In Japan, a teacher's job is not contingent on testing, therefore eliminating the idea of "teaching to the test" and increasing collaboration among teachers to benefit student's knowledge. In Singapore, they use standardized tests, but teacher's evaluations are also based on their professional evaluations based on their involvement and contributions to students and the school (Morgan, 2016). An example of an alternative to standardized testing is descriptive inquiry which is a descriptive review of a child where teachers, support staff, administrators and parents meet to discuss a child's positive and negative actions. Descriptive inquiry is a way to make education more student-centered, focusing on a particular student's work, play and story. In addition, it highlights the "unique strengths of each child instead of diagnosing and labeling" (Kittaka, 2016). Another example is a study of 32 third grade students proved that when students develop their own final portfolio, such as in mathematics, instead of taking a standardized test, which

causes stress and test anxiety, they get excited about what they are graded on (Brown, 2019). Testing could also be eliminated, but then there may be a decrease in competition and lack of knowledge of student improvement. Another alternative is a pre-test and post-test to evaluate students and see how much the teacher has helped each student improve since every student starts at different points when entering the teacher's class, learns at different paces and with various methods.

Conclusion

In 1959, Seymour Sarason wrote that people "live in a test-conscious, test-giving culture in which the lives of people are in part determined by their test performance" (Segool et al., 2013). Since then, standardized testing has become an even greater part of people's lives with young children having to take high-stakes tests. Testing has become so prevalent that two to three children in a usual classroom struggle with high stress and test anxiety, negatively effecting test performance (Segool et al., 2013). Standardized tests need to be examined and reformed to be about the students and their improvement, not their test scores. Therefore, it is a system focused on student's success, not score, and all students can benefit.

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