# Is This Going to be on the Test? No Child Left Creative

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The role of teachers in fostering creative processes in children is essential. However, high stakes instruction and teaching to the test inundates our current classrooms. This study explores the relationship between ACT/SAT scores and creativity among pre-service teachers. One hundred eighteen undergraduate students identified as Education majors were given the Epstein Creativity Competencies Inventory (ECC-i). Their total creativity score and four different subskill areas were analyzed: Capturing; Challenging: Broadening; and Surrounding. The students' ACT and SAT admission scores were then compared with their scores on the Epstein Inventory. Those students with lower end ACT scores, scored higher on the creativity survey than students with higher end ACT scores. However, SAT and creativity relationships were not found. It is time to change the value that we are placing on testing and rethink the space and time allocated to classroom environments that allow for deep and critical thinking.

A recent educational reform report from the U.S. Department of Education indicates schools need the resources to keep good teachers on the job, and need to give teachers flexibility to teach with creativity and passion (U.S. Department of Education, 2014). Today's society demands creative and novel resolutions, valuable ideas, and adaptation and vision to bring about change. (Sternberg, 2013; Saracho, 2002; Runco 2006; Bronson & Merryman, 2010). As such, creativity is clearly of central importance to human, social, economic development and, most importantly, to our educational system. If one accepts the idea that teachers are the key to future economic and educational success in the United States, then creativity levels among students accepted to preparation programs demands attention. However, international agencies like the National Advisory Committee on Creative and Cultural Education (Robinson, 1999) write about the declining indicators of creativity in students and our institutions of higher education are not adequately preparing teachers for work of the future (Smith & Anderson, 2014).

When students enter schools, they come to an environment of increasingly high accountability measured through high stakes tests. Sixty-four percent of the U.S. population believes that there is too much standardized testing in our schools (Phi Delta Kappa, 2015). A recurring criticism of tests used in high-stakes decision making is that they distort instruction and force teachers to "teach to the test". The public pressure on students, teachers, principals, and school superintendents to raise test scores is tremendous, and the temptation to tailor and restrict instruction to only that which will be tested is almost irresistible (Bond, 2005). Few would argue that this accountability system has influenced instructional approaches and reward systems in classrooms, yet little research on the relationship of high stakes tests and creative thinking is available.

By monitoring the levels of creativity in children and adults through a creativity test, similar to an IQ test, evidence yields the conclusion that over the past 50 years, creativity in the U.S. has been declining. Since 1990, even as IQ scores have risen, creative thinking scores have significantly decreased. The decrease for kindergartners through third graders was the most significant (Kim, 2011; Meador 1992; Robinson, 1999, Blake & Giannangelo, 2012). Researchers have not identified causal relationships but identify possible influences on creativity. These include children watching more TV, playing video games, or being educated for the purposes of passing standardized tests.

Educational mandates, from the local to federal level, have shifted priorities and time from creative activities to instruction solely in subject areas that are tested, such as math and reading. Chiding educational policies, Kozol (2005) expressed that the United States is so ingrained in test preparation that there are school days that are completely void of any authentic instruction. In fact many states, such as North Carolina report that approximately 1/3 of teachers were spending more than 60 percent of the school day by having their students prepare for the state test (Berliner, 2009). Even though educators are now under the current mandate of The Every Student Succeeds Act (2015), (the seventh reauthorization of the Elementary and Secondary Education Act, passed in 1965 and the first since the No Child Left Behind Act of 2002), teachers continue teaching in the hopes that a targeted percentage of students will achieve proficiency on state testing.

Moon, Brighton, Jarvis and Hall (2007) investigated the impact of state testing programs on schools, teachers and students. The results indicated four prominent findings: (a) teachers and students feel a tremendous amount of pressure associated with high-stakes testing; (b) the pressure felt by teachers results in drill and practice type of curriculum and instruction; (c) the pressure felt by high-stakes testing is greater in disadvantaged schools and results in even more drill and practice instruction; and (d) gifted and talented students feel pressure to perform well to bring up all scores oftentimes resulting in disengagement from the learning process.

Jorgenson (2012) coined the American testing system, "Sit, Get, Spit, Forget" (p. 14) and delineates skills that our students do not demonstrate on high stakes tests: explaining, researching, debating, elaborating, presenting, improvising, public-speaking, rebutting, and reflecting. In fact, tests are only a small sample of what students have learned, yet we use them to inform us of a vast domain of knowledge and skills. Cropley (2001) further found that many educators and administrators believe that universities drive curricular and instructional decisions at all levels, but do not intentionally support creativity. At the university level, admission criteria often reward students assessed according to conventional criteria; course curricula are often traditionally specialized and single faceted in focus, which discourages innovation across disciplines. Faculty are frequently untrained in or resistive to the pedagogies that promote active learning. Lecture still rules instructional approaches in many universities. It seems the longer one stays in the American educational systems, the less likely creativity will survive. Teachers claim to support creativity, but the interactions in classrooms erode creative thinking. The trend of teaching test taking skills and specific test driven content in classrooms across more than twelve years of formal schooling may affect the development and sustainability of creative thinking.

In spite of sometimes heroic efforts and occasional very bright spots, our overall public school system—or more accurately 14,000 systems—has shown little sign of improvement (National Center for Education Statistics, 2007-08). There is limited research on the effect of this tainted educational system on the tested generation of students. The authors maintain that creativity is an inherent trait in children that has been repressed by the current high stakes test influence on instructional practice, not only in public schools, but also in higher education, furthering the decline in creativity across all age groups in the United States. The purpose of this study, therefore, was to determine if a relationship exists between creativity and high stakes admission tests used at the college level with pre-service teachers. These pre-service teachers will affect the learning outcomes of future students and may have themselves been affected by the high stakes instructional environment from which they have come. This, in fact, is the first generation of students attending college to have gone through twelve years of high-stakes testing and accountability requirements because of *No Child Left Behind* (2002).

## Method

**Participants.** The sample consisted of one hundred and eighteen undergraduate students with declared education majors enrolled in a private liberal arts college in the Southeastern region of the United States. Twelve percent of the sample was comprised of students who already possessed an Associate's Degree.

Students were invited to participate and there was no compensation. Students originated from twenty different states and one foreign country although the majority (60%) were from Florida. Of the total number of respondents, ninety five percent of students were White, 1% African American 2% Hispanic, and 3% identified themselves as Other- American Indian, Alaska Native, Asian or Pacific Islander. The majority of respondents were female (106) and White, which is reflective of teacher education programs across the United States (Matias & Mackey, 2016). Most participants in this study had attended public schools (80%) while only a small percentage attended private schools or a combination of public and private. The average age of respondents was 20-21 years old. There were six respondents included who we considered to be "non-traditional" students ranging age of between 25-32 and either delayed their enrollment after high school, had dependents other than a spouse, and/or attended part-time for at least part of the academic year.

**Procedures.** Through *Qualtrics* software, respondents were assigned numerical identifiers and asked to fill out the ECCI-i through the Robert Epstein website at http://drrobertepstein.com/index.php/tests/boost-creativity. Results were then analyzed through Epstein's creativity center. The Epstein Creativity Competencies Inventory (ECCI-i) yields an overall Creativity Score (%) and then 4 different skill areas within the Creativity domain (%s). These include: (a) Capturing –related to capture and preserving ideas that occur to humans; (b) Challenging – Challenge and failure helps stimulate new ideas: (c) Broadening – learning new things, intellectual curiosity; and (d) Surrounding – intentional exposure to novel or ambiguous stimuli. For each statement (1-28 items), the examinee gives a rating between agree and disagree on a 5 point scale.

Participants gave consent to use their ACT and SAT scores in the study. ACT and SAT scores were retrieved from their attending college office from their admission applications paperwork.

**Results.** Nine participants were removed from the analysis of the data based on non-scoring or outlier scores that were two standard deviations above or below the mean. There were 11 students who took both the SAT and ACT, there was a significant positive correlation between ACT scores (M=21.8, SD = 6.05) and SAT scores (M=1028, SD = 175.42), $r(8) = .933$, $p = .000$ Generally, this result was expected due to the historically well-documented relationship between the two college admissions tests.

There was a significant positive correlation between Age (M=20.78, SD = 2.51) and Total Score on Epstein's Creativity Inventory (M = 57.15, SD = 8.76), $r(104) = .221$, $p < .05$.

The older participants entered formal schooling at the beginning of the No Child Left Behind mandate when the system was still organizing the accountability system and therefore have not been exposed to as many as twelve years of high stakes tests. The younger participants have spent their educational careers in systems which supported accountability on the tests as the reward system for twelve years. The accountability system under the federal No Child Left Behind Act of 2001 (No Child Left Behind [NCLB], 2002) was introduced in 2001 and became law on January 8, 2002. We estimate that actual implementation was delayed in many educational systems by five to six years. It is our belief then, that educational environments may extinguish creative thinking, based on these overall creativity scores.

## ACT Data

**T-tests.** A more thorough analysis of the data was done by dividing groups based on their ACT scores using a median split procedure. For the sample, the median ACT score calculated was 23. Those who had scores above 23 were put in the High ACT group and those who had scores at or below 23 were put into the Low ACT group. Thirty-nine participants were categorized into the Low ACT group and 27 were categorized into the High ACT group. Results indicate that the Low ACT group (M=14.31, SD = 3.25) scored significantly higher on the Capturing portion of the creativity survey than the High ACT group (M=12.41, SD = 3.41), $t(64) = 2.29$, $p < .05$. This supports the hypothesis that there is an inverse relationship between ACT and creativity scores. This may indicate that the relationship between admission criteria and creativity may be in conflict with expectations for future success. Many students who are considered potential "high achievers", by traditional means of measurement, may not have the skills in the profession of teaching where creativity has been quelled for years.

**ANCOVA.** Due to the significant correlation between ACT scores and age [$r(64) = -.276$, $p < .05$, several ANCOVAs were done in which ACT groups (Low and High) was the independent variable and age was the covariate. The ANCOVAs for the dependent variables were: Capturing ($p = .673$, $p = .280$), Challenging ($p = .172$, $p = .617$), Broadening ($p = .268$, $p = .151$), Surrounding ($p = .794$, $p = .649$), and Total Score ($p = .807$, $p = .225$) were not significant for the independent variable nor covariate, respectively.

The results indicate that students with high SAT scores have lower capturing skills; that is, skills need to preserve and pay attention to new ideas. Our current sample of college students indicated that one skill that is critical in a global and competitive society is not strongly connected to the admission tests used for acceptance into higher education.

None of the creativity variables were significant predictors of SAT scores.

This study included teacher education majors only, and therefore our results may not be generalizable to other student populations. However, teachers are the key to what happens in schools so it would be logical that these students are important to future instructional decisions and applications in schools. The authors have used studies on creativity, school environments and high stakes tests as background for justification of this work and recommend additional studies on these issues.

*Table 1* Correlation Matrix between SAT, ACT, and Epstein Creativity scores.

| | ACT | SAT | Age | Capturing | Challenging | Broadening | Surrounding | Total Score |
|---|---|---|---|---|---|---|---|---|
| ACT | - | | | | | | | |
| SAT | .478 | - | | | | | | |
| Age | -.276* | .048 | - | | | | | |
| Capturing | -.211 | -.220 | .163 | - | | | | |
| Challenging | .020 | -.005 | .115 | .155 | - | | | |
| Broadening | -.166 | -.059 | .185 | .345* | .136 | - | | |
| Surrounding | -.173 | -.091 | .126 | .452* | .104 | .315** | - | |
| Total Score | -.208 | -.146 | .221* | .738* | .465** | .692** | .745** | - |
| * - Correlation is significant at the .05 level (2-tailed) | | | | | | | | |
| ** - Correlation is significant at the .01 level (2-tailed) | | | | | | | | |

## Conclusion

A learning environment that focuses on passing tests, whether in the public school setting or college setting, is unlikely to develop creative thinking skills. Giving our students difficult and challenging situations in which they have to work to solve problems are conditions where creativity thrives (Carroll, 2013). Common Core Standards support using deeper thinking skills, yet teachers are feeling more and more pressure to teach to the test. The Every Student Succeeds Act (2015) reauthorized the 50 year old Elementary and Secondary Education Act (ESEA) of 1965 and although offers some flexibility in testing, has essentially kept the requirements of its predecessor, NCLB (2002) maintaining that each state must administer assessments every year in reading and math in grades 3-8. Congress is beginning to discuss scaling down standardized testing in response to a growing public concern about the exorbitant time that is spent both teaching to the test and testing itself (Johnson, 2015). An advisor in the U.S. Department of Education Office of Elementary and Secondary Education recently stated, "a high-quality assessment system provides useful information" but, when designed or implemented poorly, in excess, or without clear purposes, assessments take valuable time away from teaching and learning, draining creativity from our classrooms" (Whalen, 2016, p. 1).

Results from our study show there is no relationship between test scores and creativity, and in fact, lower test scores seem to indicate more potential for creativity. It isn't too late to address the negative impact that testing culture has had on our students and their creativity. An example of this is sampling, which involves a using the same tests, just fewer of them. So rather than all students taking traditional standardized tests every year, testing would include a sample representative of the student population. Another way to cut back on the overreliance of one test is using performance or portfolio-based assessments. The New York Standards Consortium (representing grades 6-12 in 28 schools) relies on teacher-made tests, projects, presentations, papers, and portfolios, with data collected over time, which exclude annual standardized tests. Outcomes from the consortium schools included higher graduation rates and college-retention rates. (Johnson, 2015).

A conflicting paradigm exists between the demands for success in the global community and the measures of academic achievement in American schools seems counterproductive, at best, for the millions of students coming through the educational systems. The trend of teaching test-taking skills and specific test driven content in classrooms across more than twelve years of formal schooling affects the

development and sustainability of creative thinking in the workplace and college classroom. Let us embrace and develop the skills in our students that our society currently needs. Otherwise, we will find ourselves in classrooms where the only question asked of us will be, *Is this going to be on the test?*

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