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PUTTING THEATRE ARTS TO THE TEST: STUDENT PERFORMANCE THAT GOES BEYOND STEM AND STEAM

BY LISA NANNI-MESSEGEE AND TERESA BURNS MURPHY

In 2009, the Obama administration allocated \$4.35 billion in federal funds to reform our nation's schools with the Race to the Top program. Now in full swing,

“While few would argue that science and math are valuable, would the arts be held in such low regard if they were shown to develop critical as well as creative thinking? When examined through the lens of Bloom’s Taxonomy, theatre arts do just that.”

Race to the Top is a grant-based competition designed to encourage states to “spur systematic reform and embrace innovative approaches to teaching and learning in America’s schools. A top priority of Race to the Top is upgrading standards, as well as assessing those standards more effectively, particularly when it comes to evaluating ‘critical knowledge and higher-order thinking skills’” (The White House Blog, 2009). States that compete for Race to the Top grants are given preference if they incorporate components of President Obama’s “Educate to Innovate” initiative, designed to emphasize training in the areas of science,

technology, engineering and math, dubbed STEM (Kaufman, 2010). The numbers have recently been tallied for the 2010 year, and the federal government reports it allocated 3% of the total national education budget for STEM. (The White House Blog, 2010). While the STEM initiative may be a noble and clever incentive to encourage America’s youth to become critical thinkers, it has left creative thinkers in the dust. As that dust settles, arts organizations, universities, and public schools are discovering something big – not only have they been left behind, they were not even invited to the race. The repercussions are being profoundly felt, as the funding for STEM increases while many arts budgets across the nation dwindle.

The logical response to this funding crisis has been the development of a new movement in which the arts are added to STEM, often referred to as STEAM. However, arts advocates may be surprised to learn that the acronym has already been put to use – but in a way that may leave them less than satisfied. STEAM was coined in 2006 by Georgette Yakman, a teacher and 2010-2011 president of the Virginia Technology Education Association. Yakman defines STEAM as “Science and Technology interpreted through Engineering and the Arts, all based in the Mathematical elements” (STEAM: A Framework for Teaching Across the Disciplines, About). According to Yakman, STEAM is already customizable to many educational models, including Bloom’s Taxonomy, and STEAM has proven

successful in the classroom. In fact, the Korean Ministry of Education approved STEAM for a K-12 initiative in January of 2011, considering it “a new creative way to teach science education” (STEAM: A Framework for Teaching Across the Disciplines, Home: Recent News about STEAM). However, educators must ask themselves whether or not this conception of STEAM is enough to convince policymakers and school administrators to bring the arts back into the race. In essence, should the arts only be used as a vehicle to cultivate better scientists? Or, should the arts be valued independently of their service to math and science?

From a policy standpoint, arts education programs have a history of being perceived as expendable, especially in lean economic times. In fact, in March of 2011, Congress slashed \$40 million from the Arts in Education program (Americans for the Arts ACTION Fund, 2011). Theatre arts programs, in particular, don’t seem to add up as far as school budget-makers are concerned – putting on a play can be a costly venture and the students’ learning outcomes are typically not measured by standardized tests. Yet, if the goal of the Obama Administration is to strengthen America’s educational system so that students become innovative as well as competitive, the current plan is missing a vital component. Discovery and innovation are, by nature, sparked through creative thinking and refined through critical thinking. While few would argue that science and math are valuable, would the arts be held in such low regard if they were shown to develop critical as well as creative thinking? When examined through the lens of Bloom’s Taxonomy, theatre arts do just that.

Bloom’s Taxonomy was formulated by a committee of college and university examiners, including Benjamin S. Bloom, an American educational psychologist who studied the science of learning. Though it was developed in the middle of the twentieth century, Bloom’s Taxonomy remains the gold standard for evaluation in the nation’s schools. Bloom and his colleagues created a classification system for educational goals and objectives that included three domains – the cognitive (knowledge), the affective (attitudes), and the psychomotor (skills) (Bloom, Engelhart, Furst, Hill, & Krathwohl, 1956). Each domain includes several levels of learning, with each level building on the previous one. Organizing learning experiences using Bloom’s Taxonomy promotes higher level thinking skills and provides a more integrated educational experience. Since Bloom’s taxonomy is so widely used and respected, it seems appropriate for theatre teachers to be able to demonstrate how learning experiences inherent in theatre provide a holistic education by including not only cognitive development, but affective and psychomotor development as well.

The first domain Bloom and his colleagues addressed is the cognitive domain – what students should know about a given subject area. The expected outcome in the cognitive domain is that students should understand a subject through knowledge, comprehension, application, analysis, synthesis, and evaluation (Bloom et al., 1956). In theatre, students must not only memorize their lines, they must also understand everything about the script. This includes researching events or topics in the play, looking up words that are unfamiliar to the student actors, and even learning how to do an action required in the play (e.g., how to change a tire or play a guitar). Furthermore, careful text analysis, or “scoring,” is done to help student actors fully

understand why they are saying each line. In addition to scoring, they must build their characters through research, creative problem solving, and observation (i.e., observing human behavior and motivation). Next, the student actors synthesize what they have learned by performing the role. They must integrate their performances with other members of the cast and crew, and remain flexible in order to adapt if a line is missed or changed. Each player's performance is continually evaluated throughout the rehearsal process by the director. Evaluation may continue even beyond the closing of the play with a "post-mortem," where the cast and crew come together to reflect and discuss the process.

The second domain that Bloom and his colleagues set forth is the affective domain, which addresses students' attitudes and emotions. The objectives of the affective domain include receiving phenomena, responding to phenomena, valuing, organizing, and internalizing values (Krathwohl, Bloom, & Masia, 1964). In order to be successful, actors must learn the art of receiving constructive criticism. Most rehearsals conclude with the director giving notes to the actors. Once student actors have taken everything in, they must respond to it by making the proper adjustments to their performance. Theatre also cultivates a strong work ethic and fosters self-discipline. Student actors are expected to be on time and to attend every rehearsal. They must work collaboratively, and place equal value on the team and their individual performances.

Though Bloom and his colleagues did not formulate learning objectives for the psychomotor domain, they were open to other education specialists' ideas (Bloom et al., 1956). One educator who established objectives for the psychomotor domain was Elizabeth J. Simpson. Her model is frequently used. Simpson codified the following skills – perception, set, guided response, mechanism, complex overt response, adaptation, and origination (Simpson, 1972).

The process of putting on a play encompasses every one of these skills. Actors must perceive both verbal and non-verbal cues while acting onstage, and through planned actions and intuition, must make clear choices moment to moment. The term set is a readiness to act – mentally, physically, and emotionally. Student actors learn that acting is doing; it is the pursuit of action. Acting is also reacting and allowing oneself to respond to what is being given by others. In the early stages of a rehearsal, a director must give "blocking," which may be pre-conceived or organic. Blocking allows the actors freedom to explore physical motivation through trial and error. Once blocking is set, the student actors must execute it with precision and be able to repeat it. Later in the rehearsal process, movements become mechanical in a way that appears natural. The blocking can then be performed confidently and efficiently. Later phases of rehearsal focus on "rhythm and tempo" and "pacing," which tighten the play and make it run smoothly. Despite a director's best efforts, theatre is still a live and ever-changing experience. Student actors are taught to adapt to the subtle – and sometimes major – unexpected changes through improvisation. As a play continues its run, the actors continue to allow the experience to evolve in subtle ways. Characters and relationships deepen, and new discoveries may be made in every performance. Origination is a natural result of the magic of live theatre.

Although teachers are finding creative ways to spark higher-order thinking skills in the classroom, most will admit that subjects are limited to only the cognitive domain. Math will always find its strength in the cognitive, while theatre is equally effective in all three domains. Students must be taught to think creatively as well as critically, yet this doesn't appear to be happening in the nation's schools. A 2010 Newsweek article titled "The Creativity Crisis" stunned readers by declaring that creativity in America is on the decline (Po & Merryman, 2011). If this trend continues, it seems that we will soon have another race on our hands.

In order to cultivate a well-balanced future generation of thinkers, we must continue to find ways to integrate learning – which is the noble goal of STEM – but we must also give STEM a blossom. Yakman's STEAM is only the beginning of that effort. The arts deserve to exist independent of their ability to inform math and science. Therefore, it is imperative that arts advocates are better informed about what Yakman's acronym implies, so they can craft their own message to policymakers and administrators in support of equality, respect and funding for the arts. In our race to the top, we must have a clear sense of where we are going, and make certain we are not only giving our future generation the opportunity to think critically – but also to bloom.

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