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# The Relationship between Personalized Instruction, Academic Achievement, Knowledge Application, and Problem-Solving Skills

Jacques Alexandre  
Christine Enslin

**Abstract:** Personalized Instruction was implemented with fidelity in City Department of Education (CDOE) schools to improve academic achievement. There has been limited empirical research conducted to validate the theories regarding the correlation between personalized instruction, academic achievement, knowledge application, and problem-solving aptitude. A sample of 347 CDOE public middle schools and high school students was selected to examine the bivariate relationship between four predictor variables for Personalized Instruction (PI) with fidelity (blended learning, experiential learning, individualized instruction, and independent study) and three criterion variables (academic achievement, ability to apply knowledge, and ability to use problem-solving skills). The results of the study revealed that a positive relationship between: (a) The implementation of blended learning, academic achievement and knowledge application; (b) the implementation of experiential learning and problem-solving ability; (c) the implementation of individualized instruction, academic achievement, knowledge application, and problem-solving ability; and (d) the implementation of independent study, academic achievement, knowledge application, and problem-solving ability.

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**Keywords:** blended learning, experiential learning, independent study practice, Personalized Instruction, and academic achievement.

## INTRODUCTION

The practice of teaching and learning has often been subject to controversy (Samuelowicz, 2001; Woolfolk-Hoy, Davis, & Anderman, 2013). Different opinions originated from instructional deliveries, learning modalities, and the misinterpretations of learning theories created the controversy in pedagogical practices (Rubie-Davies et al., 2014). The issues of controversy in pedagogical practices are continually present in education reforms (Dreher et al., 2009). Educational policymakers in the United States have often placed the process of instructional delivery at the nucleus of issues that need to be improved (Koh, Reddy, & Chatterji, 2014).

The method of personalized instruction delivery has become popular in secondary school educational reform efforts, due to the existence of technological resources (Enyedy, 2014). Personalized instruction through technology implementation is advocated throughout City Department of Education (CDOE), One of the largest northeastern school districts in the United States. The incorporation of technology in instructional approaches is not an indication that instruction is personalized (Enyedy, 2014). While personalized instruction has often been documented as an effective method of instruction, the implementation of Personalized Instruction in City Department of Education schools has not been remarkable.

## **THEORETICAL FRAMEWORK: RESEARCH QUESTIONS**

The innovative method of Personalized Instruction was considered only as a teaching strategy implemented to close achievement gaps (Kim et al., 2014). The implementation of personalized instruction in City Department of Education schools is the urging factor for more research to investigate the relationship between the four predictor variables (blended learning, experiential learning, individualized instruction, and independent study) implemented in CDOE and academic achievement. The correlation between personalization and motivation in the learning environment was demonstrated outside of the realms of academic achievement and knowledge application (Ciampa, 2014; Clark & Mayer, 2011).

Personalized Instruction is supported by the theory of multiple intelligences (Gardner, 1983; Kim et al., 2014) and by the cognitive learning theory (Cobb & Bowers, 2012). In this study, the innovative method of instruction is the method of Personalized Instruction with fidelity. The improvement of academic achievement is the fact that students will perform above the minimum satisfactory expectation. Knowledge application and problem-solving aptitude or skill are the processes in which students can evaluate their surrounding or their natural environment scholastically.

Although there are many models of instructional innovation, all can promote academic achievement and student satisfactory performance in the educational organization (Gardner, 2011). As far as personalization in instruction is concerned, Ciampa (2014) and Clark and Mayer (2011) suggest that personalized environmental supports in the classroom settings, especially technology, are the criteria that enhance the motivation of the learners to maintain ownership of the learning experience. Wolf (2010) concludes that personalized learning environments were in existence before the birth of modern information technology, but technology has made a considerable difference in classroom management and pedagogical decisions. Technology has become an extension of the application of the theory multiple intelligences, which in turn becomes indispensable in the application and implementation of Personalized Instruction (Childress & Benson, 2014; Gardner, 2011; Kim et al., 2014). To investigate the relationship between the four predictor variables implemented in CDOE and academic achievement, the study was organized around 14 research questions which included:

1. What is the relationship between the

implementation of Personalized Instruction with fidelity in the form of blended learning and student academic achievement?

2. What is the relationship between the implementation of Personalized Instruction with fidelity in the form of experiential learning and student academic achievement?
3. What is the relationship between the implementation of Personalized Instruction with fidelity in the form of individualized instruction and student academic achievement?
4. What is the relationship between the implementation of Personalized Instruction with fidelity in the form of independent study and student academic achievement?
5. What is the relationship between Personalized Instruction with fidelity in the form of blended learning and student ability to apply knowledge?
6. What is the relationship between Personalized Instruction with fidelity in the form of experiential learning and student ability to apply knowledge?
7. What is the relationship between Personalized Instruction with fidelity in the form of individualized instruction and student ability to apply knowledge?
8. What is the relationship between Personalized Instruction with fidelity in the form of independent study and student ability to apply knowledge?
9. What is the relationship between Personalized Instruction with fidelity in the form of blended learning and student ability to use problem-solving skills?
10. What is the relationship between Personalized Instruction with fidelity in the form of experiential learning and student ability to use problem-solving skills?
11. What is the relationship between Personalized Instruction with fidelity in the form of individualized instruction and student ability to use problem-solving skills?
12. What is the relationship between Personalized Instruction with fidelity in the form of independent study and student ability to use problem-solving skills?
13. What is the relationship between student academic achievement and student ability to apply knowledge?
14. What is the relationship between student academic achievement and student ability to use problem-solving skills?

## METHODOLOGY

### *Research Design*

A correlational research design was used in this study. The purpose of the study was to examine the bivariate relationships between (a) four predictor variables for Personalized Instruction with fidelity (blended learning, experiential learning, individualized instruction, and independent study), and three criterion variables of student academic achievement, student ability to apply knowledge, and student ability to use problem-solving skills; (b) student academic achievement and student ability to apply knowledge; and (c) student academic achievement and student ability to use problem-solving skills in various situations. The correlational study is appropriate for any analytical predictions regarding the bivariate relationships among variables (Neve et al., 2011). The magnitude of the involvement of the factors in the study and the relation between the factors must be established in the correlation but not manipulated (Goodwin & Leech, 2006; Keim et al., 2006).

### *Variables*

The following variables have been identified for the investigation in the current study:

X – Predictor variable: Personalized Instruction with fidelity: a general effort made by learning institutions to address the academic needs of each student individually through guided learning objectives (Keefe & Jenkins, 2000).

The predictor variables are identified as:

X1- Blended Learning Instruction: the combination of different learning strategies and instructional interaction, like face-to-face instruction, multimedia instruction using the internet, and other form of distance learning, designed to reach the personality of an individual learner.

X2- Experiential Learning Instruction: an instructional model that emphasizes on experience as the central element in the learning process.

X3 - Individualized Instruction: an instructional strategy that educators use to personalize the learning environments through the application of content, instructional technology and pace of learning that are based on the learning experiences of individual learners.

X4 - Independent Study: a directed instructional

method that is implemented outside of a traditional learning environment where the learner receives little or no direct supervision from the instructors.

The criterion variables were the outcomes that are measured in a specific setting. The criterion variables that were investigated in the study included:

Y1- Academic Achievement: the outcome of the measurement of students' success or progress.

Y2- Knowledge Application: the use of knowledge that has been acquired or created through learning activities.

Y3- Problem-Solving skills: the ability of a learner to be reflective, analytical, and creative while finding solutions to problems.

## DATA SOURCE

The source of data for the study was the result of New York State Test scores collected from selected schools in English Language Arts (ELA) and mathematics. The data were collected for the years 2013, 2014, and 2015. The selection process consisted of 20 middle schools (Grades 6–8) and four high schools (Grade 9–12) of the City Department of Education. The scores were obtained from the New York State Education Department, Office of Testing website. The criterion variables were archival because each variable existed in the form of record of test scores from standardized testing available as public domain. The predictor variables were nominal because each variable was determined according to the form of Personalized Instruction implemented by schools as participants.

A proportionate stratified random sampling was used to investigate the relationships among the variables because of the distinct characteristics that exist within the interested population of students. The purpose of the sampling procedure was to acquire accurate information about the entire population of students in City area. The number of students enrolled in a Personalized Instruction setting for the school year 2013 through 2014 was 2689 (Darrow et al., 2013; iZone, 2014). To facilitate the data collection for academic achievement, knowledge application, and problem-solving skills in the correlational study, a sample size of student participants, NS, of 347 out of 2689 were required (NS = 347). The sample size of the students was calculated using a confidence interval of 95%.

## DATA ANALYSIS

The scores of State Standardized tests (for grade 6 through grade 12) were evaluated to determine the statistical significance in the relationship between (a) the types of Personalized Instruction with fidelity and student academic achievement, (b) the types of Personalized Instruction with fidelity and student ability to apply knowledge, and (c) the types of Personalized Instruction with fidelity and student ability to use problem-solving skills. The standardized test scores were evaluated to determine if student academic achievement was related to student ability to apply knowledge and problem-solving skills. The descriptive statistics that was calculated to describe the samples and the nominal variables (Personalized Instruction as Blended Learning, Experiential Learning, Individualized Instruction, and Independent Study) were the mode. The median, mode, mean, and range were calculated to describe the samples and the ordinal variables (Student academic achievement, knowledge

application, and problem-solving skills) (Bewick et al., 2003).

The statistical significance of the relationship between Personalized Instruction with fidelity (Blended Learning, Experiential Learning, Individualized Instruction, and Independent Study) and Student academic achievement, as formulated in Research Questions 1 through 12, can be tested using rank-biserial correlation coefficient (Cureton, 1956). Rank-biserial correlation coefficient was appropriate because the predictor variables associated with the Research Questions 1 through 12 were nominal while the criterion variables were ordinal. The relationship in Research Questions 13 and 14 was tested using Spearman rho correlation coefficient. In Research Question 13, student academic achievement as a predictor variable was ordinal and knowledge application as a criterion variable was ordinal. Student academic achievement as a predictor variable and problem-solving skills as criterion variable in Research Question 14 were ordinal. Spearman rho correlation coefficient was applied to ranked (ordinal) data for

**Table 1** Descriptive Statics for Middle and High Schools

Descriptive Statics for Middle and High Schools								
Year	Grade	Median (ELA)	Mode (ELA)	Mean (ELA)	Median (Math)	Mode (Math)	Mean (Math)	PI (Mode)*
2013	6	Level 2	Level 2	2.67	Level 3	Level 2	2.71	Often
	7	Level 2	Level 2	2.03	Level 2	Level 2	1.83	Often
	8	Level 2	Level 1	1.70	Level 2	Level 1	1.68	Often
	HSL*	Level 3	Level 3	3.12	Level 2	Level 2	2.13	Often
2014	6	Level 3	Level 4	2.96	Level 3	Level 4	2.90	Often
	7	Level 2	Level 2	2.02	Level 2	Level 1	1.98	Often
	8	Level 2	Level 2	1.90	Level 2	Level 1	1.76	Often
	HSL*	Level 3	Level 3	3.12	Level 2	Level 2	2.13	Often
2015	6	Level 3	Level 3	2.89	Level 3	Level 4	2.84	Often
	7	Level 2	Level 2	1.97	Level 2	Level 2	1.97	Often
	8	Level 2	Level 2	1.88	Level 2	Level 1	1.63	Often
	HSL*	Level 3	Level 3	2.88	Level 2	Level 2	1.99	Often

*Note.* Math = Mathematics; ELA = English Language Arts; HSL = High School Level; PI = Personalized Instruction

\* Based on the New York City Department of Education Quality Review (CDOE, 2013, 2014).

Table 2

<b>Rank Biserial Correlation: Personalized Instruction and Academic Achievement</b>				
Research Question	Sample	Year	Pearson (r)	Sig (2-tailed)
1 Blended Learning	347	2013 – 14 ELA	– .087	.022
		2014 – 15 ELA	.218	.000
		2013 – 14 MATH	.298	.000
		2014 – 15 MATH	.373	.000
2 Experiential Learning	347	2013 ELA	– .311	.000
		2014 ELA	– .306	.000
		2015 ELA	– .483	.000
		2013 MATH	– .207	.000
		2014 MATH	– .297	.000
		2015 MATH	– .212	.000
3 Individualized Instruction	347	2013 ELA	.249	.000
		2014 ELA	.256	.000
		2015 ELA	.300	.000
		2013 MATH	.353	.000
		2014 MATH	.347	.000
		2015 MATH	.366	.000
4 Independent Study	347	2013 ELA	.275	.000
		2014 ELA	.224	.000
		2015 ELA	.282	.000
		2013 MATH	.338	.000
		2014 MATH	.318	.000
		2015 MATH	.365	.000

*Note.* Sig(2-tailed) = p-value significance testing with 95% confidence level; ELA = English Language Art; Math = Mathematics.

both predictor and criterion variables (Bewick et al., 2003; Goodwin & Leech, 2006). The appropriateness of Spearman rho correlation coefficient is based on the levels of measurements of the predictor and criterion variables.

The scores from New York State Examination were reported by performance level of achievement. Performance Level Descriptions (PLDs) indicate the range of knowledge and skills students should

demonstrate at a given performance level (CDOE, 2013). The scores from grade 6 through grade 8 were scaled from level 1 to level 4. Level 1 is an indication that students are well below proficient in standards; level 2 is an indication that students are developing or partially proficient; level 3 is an indication that students who perform at such a level is proficient; and level 4 is an indication that students are highly proficient. The high school regents were reported by PLDs ranging from level 1 to level 5. Students that are performing

Table 3

<b>Rank Biserial Correlation: Personalized Instruction and Knowledge Application</b>				
Research Question	Sample	Year	Pearson (r)	Sig(2-tailed)
5 Blended Learning	347	2013 – 14 ELA	.088	0.102
		2014 – 15 ELA	.227	0.000
		2013 – 14 MATH	.218	0.000
		2014 – 14 MATH	.187	0.000
6 Experiential Learning	347	2013 ELA	– .240	0.000
		2014 ELA	– .183	0.000
		2015 ELA	– .410	0.000
		2013 MATH	– .155	0.000
		2014 MATH	– .214	0.000
		2015 MATH	– .065	0.000
7 Individualized Instruction	347	2013 ELA	.379	0.000
		2014 ELA	.252	0.000
		2015 ELA	.336	0.000
		2013 MATH	.430	0.000
		2014 MATH	.387	0.000
		2015 MATH	.430	0.000
8 Independent Study	347	2013 ELA	.200	0.000
		2014 ELA	.174	0.000
		2015 ELA	.218	0.000
		2013 MATH	.276	0.000
		2014 MATH	.295	0.000
		2015 MATH	.410	0.000

*Note.* Sig(2-tailed) = p-value significance testing with 95% confidence level; ELA = English Language Art; Math = Mathematics.

at a level 1 are below proficient because they do not demonstrate the knowledge and skills required for the grade standards. Students that are performing at level 2 are developing. Level 3 is an indication that students are below the proficiency level but above developing. Level 4 is the indicator for proficiency and level 5 is the indicator for mastery.

The descriptive statistics that were implemented to analyze the samples and the nominal variables

(Personalized Instruction as Blended Learning, Experiential Learning, Individualized Instruction, and Independent Study), as summarized in Table 1, were the mode drawn from the frequency at which Personalized Instruction was implemented in the selected schools. The median, the mode, the mean, and the range were calculated to describe the samples and the ordinal variables (Student academic achievement, knowledge application, and problem-solving skills).

Table 4

<b>Rank Biserial Correlation: Personalized Instruction and Problem-solving Skills</b>				
Research Question	Sample	Year	Pearson (r)	Sig(2-tailed)
9 Blended Learning	347	2013 – 14	.062	.246
		2014 – 15	.067	.213
10 Experiential Learning	347	2013	.017	.747
		2014	.107	.047
		2015	.086	.109
11 Individualized Instruction	347	2013	.276	.000
		2014	.301	.000
		2015	.348	.000
12 Independent Study	347	2013	.248	.000
		2014	.325	.000
		2015	.338	.000

Note. Significance based on a 95% confidence interval

## RESULTS

The Rank biserial correlation analysis was used in the investigation of the relationship between the four predictor variables of personalized instruction (blended learning, experiential learning, individualized instruction, and independent study), academic achievement, knowledge application, and problem-solving skills. The first four questions of the study concerned the relationship between the four predictor variables of Personalized Instruction (Blended Learning Instruction, Experiential Learning, Individualized Instruction, and Independent Study) and academic achievement. Table 2 is the summary of the Biserial correlation analysis and the test of significance at a 95% confidence level. As expected, Blended Learning Instruction, Individualized Instruction, and Independent Study in English Language Arts (ELA) and Mathematics were correlated significantly with academic achievement.

Questions 5 through 8 of the study concerned the relationship between the four predictor variables of Personalized Instruction (Blended Learning Instruction, Experiential Learning, Individualized Instruction, and Independent Study) and knowledge application. Table 3

is the summary of the Biserial correlation analysis and the test of significance at a 95% confidence level. As expected, Blended Learning Instruction, Individualized Instruction, and Independent Study in English Language Arts (ELA) and Mathematics were correlated significantly with knowledge application.

Research Questions 9 through 12 of the study concerned the relationship between the four predictor variables of Personalized Instruction (Blended Learning Instruction, Experiential Learning, Individualized Instruction, and Independent Study) and problem-solving skills. Table 4 is the summary of the Biserial correlation analysis and the test of significance at a 95% confidence level. As expected, Individualized Instruction and Independent Study in English Language Arts (ELA) and Mathematics were correlated significantly with problem-solving skills.

Spearman's rho correlation analysis was used in the investigation of the relationship between academic achievement, knowledge application, and problem-solving skills. Both predictor and criterion variables were ordinal, spearman's rho analysis was appropriate. Academic achievement was tested for correlation with student ability to apply knowledge and student ability

Table 5

<b>Analysis of Academic Achievement, Knowledge Application, and Problem-Solving Skills</b>							
Grade Type	Area	Year	Spearman's Rho Achievement	Spearman's Rho KnowApp	Significance (2-tailed) KnowApp	Spearman's Rho ProbSolv	Significance (2-tailed) ProbSolv
High School	ELA	2014	1.000	.865	.000		
		2015	1.000	.903	.000		
	Math	2014	1.000	.469	.000	.819	.000
		2015	1.000	-.256	.000	.794	.000
6 <sup>th</sup> Grade	ELA	2013	1.000	.666	.000		
		2014	1.000	.468	.000		
		2015	1.000	-.232	.000		
	Math	2013	1.000	.926	.000	.966	.000
		2014	1.000	.957	.000	.802	.000
		2015	1.000	.936	.000	.548	.000
7 <sup>th</sup> Grade	ELA	2013	1.000	.730	.000		
		2014	1.000	.786	.000		
		2015	1.000	.761	.000		
	Math	2013	1.000	.999	.000	1.000	.000
		2014	1.000	.998	.000	.532	.000
		2015	1.000	.995	.000	.477	.000
8 <sup>th</sup> Grade	ELA	2013	1.000	-.154	.004		
		2014	1.000	.989	.000		
		2015	1.000	.995	.000		
	Math	2013	1.000	-.184	.001	.527	.000
		2014	1.000	-.014	.791	.475	.000
		2015	1.000	-.430	.000	.440	.000

*Note.* ELA = English Language Art; Math = Mathematics; KnowApp= Knowledge Application; ProbSolv = Problem-Solving skills; Significance based on a 95% confidence interval.

to solve problem to answer to answer research questions 13 and 14. Table 5 is a display of the summary of the correlation analysis (Spearman's Rho) and the test of significance at a 95% confidence level. Academic achievement was correlated highly with knowledge application. Across academic classes, there was a high correlation between academic achievement and problem-solving skills.

## CONCLUSIONS AND IMPLICATIONS

Personalized Instruction applications and programs vary from schools to schools (Evans et al., 2013). The essential of Personalized Instruction implementation is that students are the central element of the learning

objectives (Evans et al., 2013). The incorporation of advanced technologies in the personalization process simply facilitates the application of Personalized Instruction in the learning environments. The dependence of society on information technology convinces educational policymakers to incorporate modern technology into the learning community as resources that may liberate students from over-relying on teachers (Enyedy, 2014). The technological resources would also help teachers to transition from information providers to education facilitators.

The results of the study support the importance of personalization in education for students in grade 6 through 12. The implementation of classroom instructional technology is not necessarily an indication

that effective implementation of Personalized Instruction occurs in the learning environment. Moskal et al. (2013) agreed that teacher's competency and leadership ability are crucial factors in the implementation of Personalized Instruction in conjunction with adequate classroom instructional technology. Empirical evidence exists in the domain of productive learning environments and the technology that entice learners' independence (Arbaugh, 2014). The effectiveness of personalization in learning environment is feasible when teachers are assuming a transactional leadership role and responsibility (Arbaugh, 2014; Moskal et al. 2013).

The results of the study indicate the need for Leadership reconfiguration during the process of data-driven pedagogical implementation of teaching strategies. The mentorship attitude of experienced teachers in the learning environment is an influential factor to force leadership reconfiguration. Classroom teachers are the frontline in the observation of the learners' intellectual and social behavior. The experienced classroom teachers are effective in implementing strategies to address positive outcomes in academic achievement when the classroom interaction is adequate (Bandura, 1991). The expertise of classroom teachers is beneficial to the professional growth of the less experienced teachers through mentorship (LaFrance & Beck, 2014). Barro (2013) and Frost (2012) suggest that experienced teachers become transformational leaders in the learning communities where pedagogical strategies are implemented.

The implications of the study are relevant to ELA and mathematics. Personalized Instruction can be implemented using diverse methods. The essential objective of Personalized Instruction implementation

is that students are the central element of the learning objectives (Evans et al., 2013). Considerable improvement in achievement outcomes is observed when willing and experienced teachers are leading the implementation of Personalized Instruction (Enyedy, 2014; Evans et al, 2013). A protocol can be established to facilitate information exchange, develop common learning venues, and to update both learners' behavior and teachers' attitude during the implementation of teaching strategies (Barro, 2013). Teachers, through the logistics of the protocol, can improve and implement a relational interaction to promote personalization through motivation and improve behavior change. Students, through the same protocol, can be evaluated using feedback as a tool to cultivate learning and achievement in the learning community.

## **RECOMMENDATIONS FOR FUTURE RESEARCH**

Classroom dynamics, teacher-student rapport, and teacher preparation to innovative practice and academic achievement were not qualitatively explored in this study. Further study should focus on personalized classroom dynamics, teacher-student rapport, and teacher preparation to innovative practice and academic achievement. The recommendations for future research are as followed: Conduct a mixed method design to explore both trends of the research problem. A similar study can be conducted using a different population of students. The population should include students from kindergarten through fifth grade. Private, charter school, and other public school students should be included in the population of lower grade students ranging from kindergarten through fifth grade.

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# The Effects of Blended Learning in Pre-service Elementary Mathematics Teachers' Performance and Attitude

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**Abstract:** A pretest-posttest study involving 57 college students enrolled in an elementary education teacher program investigated whether or not blended learning in their required mathematics course significantly improved mathematical performance and attitude towards mathematics. Students were randomly assigned to one of two sections: either traditional face-to-face instruction or blended learning, flex model. The students completed a survey regarding attitudes towards mathematics and a mathematics achievement test prior to and at the conclusion of the course. A two-way analysis of covariance (with pretest scores as the covariate) was used to test the hypothesis that blended learning improves pre-service teachers' attitudes towards mathematics and increased mathematics achievement. The research project found that pre-service teachers' attitudes in mathematics improved in blended learning classes without impacting mathematics performance levels. These findings suggest important revisions regarding post-secondary mathematics teaching methods to students studying elementary education.

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**Keywords:** *blended learning, pre-service elementary teachers, elementary mathematics, mathematics achievement, mathematics anxiety*

## INTRODUCTION

The National Council of Teachers of Mathematics and the National Association for the Education of Young Children (2002) advise that, in order to be an effective elementary teacher of mathematics, one must have strong mathematics skills and a positive attitude. In addition, teachers' attitudes towards mathematics and its teaching and learning influence not only their instructional methodology (Philipp, 2007), but also their students' attitudes towards mathematics as well (Hofer & Pintrich, 1997; Buehl, Alexander, & Murphy, 2002).

In a mathematics classroom, motivation increases the potential for learning and unfortunately, research shows that students lose a considerable amount of interest in mathematics (Portal & Sampson, 2001) as they

advance in their schooling. Furthermore, mathematics anxiety progressively increases (Kelly & Tomhave, 1985; Thorndike-Christ, 1991). Therefore, traditional elementary education teacher programs should perhaps incorporate blended learning strategies in mathematics to improve attitudes towards mathematics amongst pre-service teachers. Blended learning is a combination of traditional face-to-face teaching with computer-mediated instruction (Bonk, Kim, Zeng, 2006; Graham, 2006; Garrison & Kanuka, 2004).

Early research indicates that students benefit significantly from blended learning's more individually-designed instruction as compared to a traditional whole-group instruction based classroom (Twigg, 2003, Lopez-Perez, Perez-Lopez, & Rodriguez-Ariza, 2011) though as Bonk, Kim, and Zeng (2006) state, further research is needed to determine the actual benefits of blended

learning. This study will determine if the use of blended learning, specifically in the pre-service teachers' mathematics classroom, improves mathematical performance and attitudes towards mathematics.

### ***Background on Blended Learning***

VanDerLinden (2014) defines blended learning as a strategy of replacing seat time in educational courses with online activities to support the accomplishment of learning objectives. He further explains blended learning as a thoughtful fusion of online learning and face-to-face experiences so as to blend the strengths of each mode of learning into an optimal academic learning experience. Thuraisingam and Makmur (2015) agree that a blended learning environment seeks to integrate the advantages of the traditional face-to-face interaction with the advantages of e-learning. Gecer (2013) adds that blended learning is an effective and flexible approach through which developing technologies can assist instructors and learners to sustain educational applications in both the online and face-to-face environment. Christensen, Horn, and Staker (2013) divide blended learning into four models: rotation, in which students alternate between various learning settings, at least one of which is online learning; flex, in which the majority of the content is delivered online, then the instructor provides support through face-to-face meetings to supplement the learning; self-blend, in which certain courses are entirely online and others are face-to-face; enriched-virtual, in which students learn content remotely through online instruction and rarely step foot on campus.

According to VanDerLinden (2014), blended learning aims to offer transformational learning experiences to students. For an individual, transformational learning entails critical reflection in which a person changes his frame of reference in regards to his studies; at an organizational level, transformational learning is a process through which an organization makes a significant shift with reference to institutional initiatives and strategies (VanDerLinden, 2014). Therefore, implementing blended learning at a higher learning institution deserves serious consideration as an institutional strategy that can lead to organizational learning.

Tseng and Walsh (2016) note that the incorporation of synchronous and asynchronous learning techniques in the 21<sup>st</sup> century provides innovative ways for instructors to deliver learning activities and content to their students. Hence, online and distance learning emerge as a viable and significant approach to course delivery especially in higher learning institutions. In their study assessing blended versus traditional techniques of course

delivery, Tseng and Walsh (2016) compare the students' preferences, learning outcomes, and motivations in a blended and a traditional course. Their study found that students in the blended course show both higher learning motivation and learning outcomes than the students who enrolled in the traditional course.

In another study, Dziuban, Picciano, Graham, and Moskal (2015) investigate considerations for future research in blended and online learning. They note that Internet-based learning is a significant leap forward in terms of how students learn and how faculties teach. Many successful academic institutions and programs are now almost fully on the Internet and approximately one-third of college students across the globe, more than seven million students, enroll in online higher education programs for at least one for-credit course annually (Dziuban, Picciano, Graham, & Moskal, 2015). Online learning continues to evolve as a vital technique through which instructors deliver course content to college and university students. Many learning institutions are no longer recognizing it as a novelty, rather incorporating it fully into teaching and learning (Dziuban, Picciano, Graham, & Moskal, 2015).

In another recent study by SRI International, researchers Murphy, Snow, Misslevy, Gallagher, Krumm, and Wei (2014) investigate the implementation of blended learning models in schools in Louisiana and California. Their study shows that the use of technology in learning is associated with positive outcomes in learning, teaching, and overall student productivity. Ko, Liu, and Wachira (2015) argue that blended learning enables students to enjoy the privilege of more thorough learning and better teaching experiences. According to these researchers, today's teaching and learning is not limited to the classroom walls and most schools and universities have embraced learning opportunities that enable their students to deepen their understanding by utilizing blended environments. A RAND study on blended learning and its contribution to learning shows that blended learning assists students in making significant mathematics score gains (Nathan, 2013). The study involves the incorporation of a personalized, blended-learning, and mastery-learning approach. The findings show an eight percentile mathematics achievement improvement in students who learned through the personalized, blended-learning, and mastery-learning approach as compared to the control group that used the traditional face-to-face technique (Nathan, 2013).

Blended learning continues to evolve as a significant transformative teaching method in the 21<sup>st</sup> century used to provide more meaningful learning experiences to

learners. Widely respected child development expert Jean Piaget's work helps us understand why blended learning has the potential to revolutionize education. Piaget (1959) reasoned that cognitive performance could not be achieved unless cognitive readiness is brought about by maturation and environmental stimuli. Blended learning is effective in addressing various learning styles through the use of various instructional strategies such as emerging technologies in course delivery to stimulate cognitive readiness. Based on these observations, this study aims to investigate the effects of blended learning in pre-service elementary mathematics teachers' performance and attitude with the goal of making recommendations geared towards improving teaching and learning outcomes of learners and instructors in elementary education.

### ***Mathematics Interest and Anxiety in Pre-service Elementary Teachers***

Students lose interest in mathematics in the secondary level (Portal & Sampson, 2001). A decrease in self-confidence in one's ability to learn mathematics intensifies anxiety, which in turn lowers the likelihood of interest in the subject matter (Thorndike-Christ, 1991). Kelly and Tomhave (1985) used the Mathematics Anxiety Rating Scale (MARS) to test a large group of college freshman, including education majors. They found that elementary education majors scored significantly higher than any other college major. Teachers' dislike of mathematics likely influences their students' attitudes regarding the subject (Buehl et al., 2002; Hofer & Pintrich, 1997). Therefore, teacher education programs should help their pre-service teachers develop healthy attitudes regarding mathematics by carefully designing mathematics courses in teacher education programs that reduce mathematics anxiety and improve mathematics confidence and achievement. Existing studies suggest colleges can in fact achieve this goal of modifying instructional practices in mathematics to increase learning (Taplin & Chan, 2001).

### ***Blended Learning in the College Mathematics for Elementary Educators Classroom***

Does blended learning itself improve pre-service teachers' performance and attitudes in the mathematics classroom? There is a dearth of research in undergraduate studies as it relates to obtained outcomes of blended learning mathematics classes in elementary education classes. For instance, Grabinski, Kedzior, and Krasodomska (2015) investigate the impact of blended learning in tertiary accounting education. Using a sample of 713 students who took part in blended

learning classes in International Accounting, the study focuses on the benefits, quality, and drawbacks of online learning. The findings of the study reveal that students perceive blended learning positively. The most notable benefits of blended learning include efficiency in saving time, the ability to learn at any time from any place, and lowered educational expenses (Grabinski, Kedzior, & Krasodomska, 2015).

Gecer (2013) conducted a study to determine the perceptions of students who participated in Computer-Assisted Mathematics Instruction courses concerning the responsibilities and roles of students and lecturers in blended learning environments. An evaluation of the students' opinions regarding their roles in blended learning environment reveals that students were fully aware of their responsibilities in pursuing their own learning through active research. The findings show that blended learning enables the students to achieve more academically through self-motivation, hard work, and effort (Gecer, 2013).

Though blended learning studies focusing on other disciplines exist, this study will determine if the use of blended learning, specifically the flex model, in elementary education mathematics classes significantly improves mathematical performance and attitude regarding mathematics for college-level learners as compared to those taught using traditional face-to-face methods. Therefore, the research questions in this study include: 1) Are the mean Dutton's attitude scores in blended learning and traditional learning students significantly different, after adjusting for the relationship between pre-test and post-test scores? 2) Are the mean mathematics performance post-test scores of blended learning and traditional learning students significantly different, after adjusting for the relationship between pre-test and post-test scores?

## **METHODOLOGY**

### ***Participants***

A total of 57 college students between the ages 17 to 43, enrolled in Mathematics for Elementary Educators (mathematics content course), consented to participate in the experiment. There were 45 female and 12 male students in the sample. Out of the total sample, three were of the African-American origin, three were Hispanic, and 51 were Caucasian. The volunteers were students at a liberal arts college located in the northeastern United States in fall 2014 through spring 2016. The students

were assigned to one of two sections: traditional face-to-face instruction (control, 30 students) and blended learning, flex model (treatment, 27 students) based on their course enrollment date.

### **Materials and Measures**

This study involved two groups, a blended learning environment and a traditional face-to-face learning environment. The blended or online learning environment involved sessions of course content delivery through digital devices issued to all college students (MacBook Pro laptop and an iPad) or another personally-owned mobile or computer device of the student's choosing intended to support learning. Students viewed instructor-created lesson videos posted to the college's learning management system. Learning also involved self-study also known as asynchronous learning or synchronous learning or instructor-assisted e-learning (Thuraisingam & Makmur, 2015) through the use of e-learning opportunities by the textbook publisher and located elsewhere online by the instructor. Through online learning, students had the opportunity to engage in digital referencing and a deeper understanding of course content by accessing interactive mathematics practice from various resources. Traditional learning only involved in-classroom face-to-face engagement. The instructor taught mathematics lessons live in the traditional classroom. Students practiced mathematics skills by completing assigned textbook problems. Blended learning sought to integrate the advantages of these two learning environments to attain a more effective learning outcome. The college's Institutional Review Board required the researcher to teach using the same methodology throughout the duration of one full academic calendar year. Therefore, the instructor taught using traditional methodology in fall 2014 and spring 2015 and blended learning in fall 2015 and spring 2016 as shown in Table 1. Given the utility of the same instructor, it was also inevitable to avoid biases such as the confirmation bias. The instructor ensured a minimization of bias by challenging the research hypotheses and preexisting assumptions as well as through continuous reevaluation of the respondent's impressions.

**TABLE 1**  
*Enrollment of Blended vs. Traditional Learning Students*

	Total <i>n</i>	Fall <i>n</i>		Spring <i>n</i>	
		2014	2015	2015	2016
Blended	30	0	18	0	12
Traditional	27	18	0	9	0

All sections, taught by the same instructor who is also the researcher, used the same textbook, had the same curriculum objectives, and studied the same units including: introduction to problem-solving; sets, whole numbers, and numeration; operations and properties; mental, electronic, and written computation; number theory; fractions; decimals, ratio, proportion, and percent; integers; rational numbers, real numbers, and algebra; statistics; probability; geometric shapes; and measurement.

**Mathematics performance.** The researcher developed a mathematics achievement test to measure mathematics performance. The 24 items in this test were determined according to the mathematics topics to be studied in this course and later taught at the elementary level. These items were studied carefully and were reviewed by an expert panel of three elementary teachers, one curriculum supervisor, and three college-level mathematics professors and the college's mathematics department chairperson. The students were asked to answer all of the questions in the allotted 75 minutes. The test was administered as a pre-test (prior to the course) and post-test (conclusion of the course) to the students and its' internal consistency was measured with Cronbach's alpha. Two college-level mathematics professors scored the tests. Results yielded high inter-rater reliability ( $r = 0.82$ ) and test-retest reliability ( $r = 0.87$ ).

**Attitudes regarding mathematics.** The researcher used a pre-test, treatment, and post-test research design for the students' attitudes regarding mathematics. The students' attitudes were measured (1) prior to exposure to the course and (2) after the course using the Dutton's Attitude Scale. Dutton's scale, which has most likely been used more than any other instrument in measuring attitudes in mathematics (Aiken, 1970), consists of eighteen statements regarding outlooks on mathematics, ranging from strongly agree to strongly disagree and has a reliability coefficient of 0.9. A higher score indicates a more positive attitude towards mathematics (Dutton, 1968).

### **PROCEDURE**

A two-way analysis of covariance with pretest scores as the covariate was used to test the hypothesis that blended learning improves pre-service teachers' attitudes towards mathematics and increases mathematics achievement. Students in the control group attended class for three hours per week and received traditional on-campus, whole-group education in which the instructor taught the lesson at the front of the class. Cooperative and guided practice

activities were utilized at the conclusion of each lesson as time allowed and quizzes were administered at the start of the proceeding class to determine understanding of the mathematical concepts, as suggested by the National Council of Teachers of Mathematics (1991) Assessment Standards for School Mathematics.

Students in the experimental group attended class face-to-face for 1.5 hours per week, but were expected to view instructor-created online interactive whiteboard video lessons and completed guided notes prior to each class meeting. Students practiced the skills in several guided and independent practice activities as well as cooperative activities during face-to-face class time. Teacher monitored and provided feedback on these practice activities. Mastery of a concept was demonstrated using scores on quizzes.

The students' evaluations within both the control and experimental sections, though conducted independently, were similar. It consisted of three researcher-created, mathematics department approved tests and one final exam, each of which was administered in face-to-face class sessions. In addition, homework and quizzes remained constant in each group.

## RESULTS

The researcher initially tested and found that the same relationship exists (no significant differences) between the covariates, Dutton pre-test,  $F(1, 6801) = 3.22, p = .078$  and mathematics pre-test,  $F(1, 17) = .14, p = .708$ , and the independent variable (type of instruction, blended or traditional), therefore concluding that the homogeneity of regression assumption was met.

Given these findings, the researcher proceeded with an ANCOVA by removing the interaction terms. The covariates were significantly related to the dependent variables, Dutton post-test,  $F(1, 11059) = 5.04, p = .029$  and mathematics post-test,  $F(1, 991) = 8.27, p = .006$ . Otherwise, the pretest scores would not be likely to help reduce bias or reduce error.

Once the homogeneity of regression and significance of regression assumptions were met, the researcher proceeded to testing equality of the adjusted means as shown in Table 2. Adjusting for the relationship between pre-test and post-test scores, there were significant differences in Dutton's attitude post-test scores of blended learning and traditional learning students  $F(1, 41472) = 18.88, p < .01$ , however there was no significant difference in mathematics post-test scores  $F(1, 2.01) = .017, p = .898$ .

**TABLE 2**  
*ANCOVA Results for Mathematics Attitude and Achievement in Blended vs. Traditional Learning*

Attitude				Achievement			
<i>F</i>		<i>p</i>		<i>F</i>		<i>p</i>	
Pre	Post	Pre	Post	Pre	Post	Pre	Post
3.22	18.88	.08	<.01	.141	.02	.71	.90

Note. Significant at  $p < .01$

Examining the means as shown in Table 3, mathematics attitude post-test scores of students in the blended learning group,  $M = 319.08$ , exceeded those in the traditional learning group,  $M = 273.39$ , by 21.3%.

**TABLE 3**  
*Descriptive Statistics for Mathematics Attitude and Achievement in Blended and Traditional Learning*

	<i>n</i>	Attitude		Achievement	
		<i>M</i>	<i>M</i>	<i>M</i>	<i>M</i>
		Pre	Post	Pre	Post
Blended	30	299.83	319.08	12.32	84.05
Traditional	27	292.87	273.39	11.87	82.41

## DISCUSSION

Mathematics is important in developing critical thinking skills and reasoning abilities (Ennis, 1989; Baykul, 1993). It is relevant in the majority of career paths, especially in Science, Technology, Engineering, and Mathematics (STEM) professions. However, mathematics as a school subject is unpopular and difficult for most students majoring in elementary education (Pearson, 1980; Burton, 1979; Kelly & Tomhave, 1985). Numerous studies point to attitude towards mathematics as one of the major obstacles towards progress in learning mathematics (Aiken, 1976).

The results of this study indicate that pre-service elementary teachers' attitudes regarding mathematics when enrolled in a blended learning mathematics content course improved significantly as compared to those in the traditional mathematics content course. There exists a strong correlation between attitude towards mathematics and mathematics achievement (Reyes, 1984; Aiken, 1985). As a result of this study, the researcher endorses a possible approach of incorporating blended learning into elementary teacher post-secondary education programs due to its positive impact on the learner's attitudes towards mathematics, which is a significant aspect in mathematics achievement. Blended learning entails an integration and incorporation of the advantages of traditional face-to-face learning interaction and the advantages of modern e-learning technique for effective learning. Therefore, the approach would include the blended education model in the elementary teachers' curriculum at the college level. In addition, the study suggests that incorporating a similar approach at earlier grade levels may directly improve students' attitudes regarding the study of mathematics.

The study should be viewed as having produced a limited initial set of data regarding the potential of blended learning to improve the attitude of pre-service elementary school level teachers regarding mathematics. The lasting effects on the subjects' attitudes were not measured in the study. Further research is necessary to determine whether the positive impacts on pre-service elementary teachers remain or diminish over time. This can be accomplished by more extensive research, which includes testing a subject group at various times following the initial post-test survey. This would help assess the lasting benefits of blended learning.

The results of this study also point to the possibility that blended learning may directly benefit elementary school students with respect to the development of positive attitudes toward learning mathematics with

a resulting increased performance level in the subject. Further research into this possibility would require detailed assessments of several qualities of students that participate in the research prior to experiencing blended learning. Important among these are performance levels, the ease with which mathematics is learned, and overall attitudes regarding learning in general and learning mathematics in particular.

## IMPLICATIONS

Schools must engage students in the learning process, especially in mathematics and science. Blended learning incorporates the latest technology and may possibly play a critical role in transforming America's classrooms (Bonk, Kim, Zeng, 2004). Data developed in this study supports the view that demonstrated teachers' attitudes regarding the study of mathematics can be improved through the use of blended learning. A second notable result in this research project was that pre-service teachers' attitudes in mathematics improved when enrolled in blended learning, without impacting mathematics performance levels. This result can be viewed as positive in that the attitude improvement was not achieved at the cost of decreased performance.

Additional reflection on the results leads to the question as to whether blended learning has utility beyond the higher education setting. For example, if attitudes regarding the study of mathematics can be improved by blended learning at the higher education level, can it be used directly to do so at the elementary education level? In order to use the blended learning approach most effectively in elementary education curricula, would it be necessary to collect data on individual students' abilities, analytical approaches, and attitudes towards science, technology, engineering, and mathematics prior to selecting and utilizing a particular blended approach to mathematics education for each student? At what grade level should this be done? Also, would it be beneficial to those pursuing high school equivalency diplomas and other students who do not thrive within the traditional educational environment?

Garrison and Kanuka (2004) argue that the transformative power of blended learning in higher education has now become an inevitable step for all universities, one that would "redefin[e] higher education institutions as being learning centered and facilitat[e] a higher learning experience" (p. 104). For Garrison and Kanuka, blended learning is transformative because it increases widespread academic interest in the community of inquiry. The findings in this study point

to the consideration of a blended learning environment in various learning activities. Blended learning can promote a flexible learning environment that can enhance a student's reflection, autonomy, and power of research and it can enable students to be at the center of their own individualized learning experience leading to the development of self-directed learning capabilities. For instance, in the e-learning domain, students who create personal learning environments are motivated by the lifelong need for information across institutions. Personal learning environments can also thrive by the learners' desires to conduct learning activities instantaneously using mobile devices. Such personal learning systems can enable learners to access various learning resources to enhance their learning. Therefore, instructional designers and instructors should ensure that course components including assessments, activities, and learning objectives are well-structured, easily

accessible, and meaningfully connected to course goals within blended learning environments. Virtual or out-of-class activities should also not only focus on extending the learners' specific learning needs, but also enhance individualized learning by offering enrichment options. It is also imperative to examine the significance of pedagogical techniques of course design and to evaluate their impacts of the learning motivation, progression, and outcomes of learners. Twigg (2003) posits that a major challenge will lie in supporting the faculty in the shift from traditional instruction to blended learning "since neither faculty nor administrators traditionally employ this approach to restructuring courses" (p. 8), but the implications are huge if we ignore the research and stay stagnant in our approach to teaching mathematics to those who will pass on their mathematics skills and attitudes to America's youth.

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# The Effects of Move to Learn on Student Time on Task and Time on Task Transitions

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**Abstract:** As the student population and the demands in modern education systems change, teachers and administrators continue seeking new and alternative methods of teaching and engaging students. New approaches use physical interaction, repetition, and movement to stimulate student learning during instruction. Current research suggests that physical activity enhances certain aspects of executive functioning (i.e., working memory, attention, problem solving, initiating and inhibiting context-specific behaviors), thus improving cognitive functions and attention in children. In 2013, an innovative teaching tool called Move to Learn was created to easily embed movement into a primary school classroom. The Move to Learn program consists of a series of short, 5-minute, videos that lead students in physical activity movement than can be done within the regular classroom. The purpose of this study was to examine the effects of the Move to Learn program on student time on task. The study included pre and post observations of 100 randomly selected third-grade students from both Move to Learn and control classrooms over a period of six weeks. Results revealed significantly higher total time on task in the move to learn classrooms post intervention than pre intervention classrooms as well as in the control classroom post intervention ( $p=.005$ ). Implications for classroom teachers are discussed.

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**Keywords:** time on task, physical activity, move to learn, elementary, interaction

## INTRODUCTION

An extensive body of literature exists on theories and research related to factors impacting student academic achievement, including those associated with the student, family, teacher, school, community, and broader social and political environment (Considine & Zappala, 2002; Kirk, et al. 2015; Palardy, 2013). However, most of the focus appears to be directed towards characteristics of teachers (e.g., degrees, certification, professional development, their standardized test pass rates, licensure), their interactions and relationships with students, and their classrooms environment (e.g., class size, organization, climate, space, resources; Cadima, Leal, & Burchinal, 2010; Hightower, et al. 2011; Pianta, 2003; Park & Lynch 2013; Van de Grift, 2007).

In an effort to improve student performance, teachers and administrators continue seeking new and alternative methods of teaching and engaging students. New approaches use physical interaction, repetition, and peer teaching to stimulate student learning during instruction. Incorporating energetic gesturing when re-teaching concepts during peer-to-peer teaching, for example, activates five parts of the brain important to learning: the visual cortex (seeing gestures), motor cortex (making gestures), Broca's area (verbalizing), Wernicker's area (hearing), and the limbic system (giving emotional content; De Boer & Steyn, 1999; Herrmann, 1995; Lepper, 2011). Other strategies, such as active learning, have also been explored to help students directly connect their learning experiences to personal experiences to

foster greater retention (Benek-Rivera & Matthews, 2004; Moreno & Mayer, 2000). While engaging teaching strategies show promise, they are a characteristic primarily associated with the teacher.

However, a substantial body of literature related to student characteristics in the learning environment also exists with recent evidence building for the importance of physical activity and fitness (Rasberry, et al., 2011).

### ***Physical Activity and Academic Achievement***

Previous literature has connected one's aerobic fitness levels to academic performance (Carlson et. al, 2008; Castelli, Hillman, Buck, & Erwin, 2007; Coe et. al., 2006). For example, in a study of third and fifth-grade students, a positive association was established between aerobic fitness and academic achievement (Castelli, et al., 2007). Further, body mass index (BMI) was negatively associated with achievement, indicating poorer academic performance by individuals with greater body composition. In a separate study, Coe and colleagues (2006) examined the impact of physical education on academic performance. Interestingly, in their study, enrollment in physical education was not associated with academic performance. However, vigorous physical activity was associated with higher grades. Carlson and colleagues provided evidence of a relationship between more physical education and academic performance for girls but not for boys.

Evidence of a connection between fitness level and performance on cognitive tasks (rather than academic performance) also exists. Buck, Hillman, and Castelli (2008) concluded that higher fitness level was connected to greater attentional resources available for the cognitive tasks. Pontifex and colleagues (2011) concur, suggesting kids who are more fit have more efficient and effective cognitive processing. These studies suggest a connection between chronic physical activity and academic achievement. However, the effects of acute bouts of physical activity on academic performance is an area that needs further exploration.

Current research suggests that physical activity enhances certain aspects of cognitive functioning, including executive functioning (i.e., working memory, attention, problem solving, initiating and inhibiting context-specific behaviors), thus improving cognitive functions and attention in children (Best, 2010). It is hypothesized that during physical activity, oxygen intake increases, improving blood flow to the brain, resulting in an immediate impact of improved cognitive processing. Therefore, in order to study this mechanism, short bouts of physical activity followed by an assessment

of cognitive performance is the method typically used. Hillman and colleagues (2009) asked children to walk on a treadmill at moderate intensity for 20 minutes. Following the physical activity, the students completed a battery of cognitive tests. Increased accuracy on the cognitive tasks was reported, suggesting a single bout of exercise can produce change in cognitive performance. Further studies with a youth population must be conducted to create a more substantial evidence base of this effect. However, studies like these offer support for the use of physical activity in the classroom setting to aid in cognitive performance.

Long periods of traditional lecture-type instruction time often result in students who become restless and distracted. Research has found that incorporating low-to-moderate levels of physical activity in the classrooms, helps to break up these long lessons and provide brain breaks (Mahar, et al., 2004, 2006a, 2006b). Teachers are reporting positive effects of utilizing short bouts of physical activity intervention in classroom settings resulting in improved attention, concentration, mental cognition, and academic performance, while decreasing hyperactivity and reducing the urge to fidget and engage in other self-stimulating behaviors (Best, 2010; Erwin, Fedewa, Beighle, & Ahn, 2012; Hillman, Snook, & Jerome, 2003; Kibbe, et al., 2011; Mahar et al., 2004, 2006a, 2006b; Tomporowski, 2003).

### ***Time on Task***

A limited number of studies have examined the relationship between movement and on-task behavior (Jensen, 2005; Mahar, et al., 2004, 2006a, 2006b). Research examining on-task behaviors, characterized by direct focus on the instructor and/or following the instructor's commands or off-task behaviors that are disengaged from and unrelated to the learning task at hand are especially lacking (Goodwin, et al., 2013; Barbeta, Norona, & Bicaud, 2005).

Recently, studies have reported evidence that physical activity breaks which include an academic component improve time on-task in primary school students (Grieco et al. 2009; Mahar et al. 2006a). These studies, while promising in that they examined physical activity and an academic component, are limited in their examination of on-task behaviors in that they observed only the frequency of on-task behavior and only through multiple brief observations (i.e., five seconds) following an intervention. They did not examine the duration of on-task behavior, or the frequency of on-task and off-task transitions over longer periods of time which would provide a more holistic understanding of the effects of brief physical interventions.

### *Move to Learn*

The Move to Learn (MTL, 2016) initiative was developed to increase academic achievement through movement activities and easy to use lesson plans. It includes both components of short bouts of curriculum-focused physical activity in the classroom to engage students and kinesthetic-based lesson plans to facilitate all types of learning styles while supporting the state of Mississippi's curriculum framework. Although a small number of similar physical activity-based programs for classrooms have been developed, implemented, and evaluated, the authors are unaware of any such program tied to a curriculum framework.

Therefore, the purpose of this study was to examine the relationship between MTL and Time-on-Task (TOT) behavior and Time on Task Transitions (TOTT). To overcome shortcomings of prior research on TOT, in this evaluation both duration of TOT and the frequency of TOTT were assessed, and TOT among each student was observed for much longer periods of time (60 seconds twice in each class period). Further, this evaluation controlled for external interruptions (e.g., intercom announcements) that might impact TOT of both students and teachers. Finally, within a treatment-control design, TOT was observed for three weeks prior to implementation of MTL to examine change in TOT after MTL was implemented.

## **METHODS**

### *Design*

A quasi-experimental design was employed over six weeks of direct observations of students and teachers in 10, third-grade classrooms. Three weeks of classroom observations were used to establish baseline measures in all classes. Subsequently, three weeks of classroom observations were conducted for the six classrooms that implemented MTL and the four classrooms that did not.

### *Participants and Sampling*

Three schools were identified and selected by the Mississippi Department of Education's Office of Healthy Schools as representing different parts of the state. All three schools were already familiar with MTL. In addition, all three were viewed as having the leadership, willingness, and readiness to participate in the evaluation. The three selected schools were first contacted by an administrator in the Office of Healthy Schools, informing them of the purpose and scope of the study and setting

up a time to meet the research team. During the initial meetings, the study design, requirements, and Human Subjects protocol were reviewed. Upon agreement to participate in the study, the school administrators were asked to identify four comparable teachers, all teaching at the third grade level, and to schedule another meeting with the four teachers from their respective schools.

At the second meeting, the study design, requirements and protocol were reviewed. Each teacher was provided a consent form. All teachers signed the consent forms and were then given packets of consent forms to send home to parents of the students in their selected classrooms. Teachers were instructed to collect all consent forms returned to the school. All consent forms were turned in directly to the Human Resources representative for each school. That representative then generated a student photo class roster for all received consent forms for each classroom. No names or other identifying information were linked to the photos. Next, the photo rosters for each classroom were submitted to the research team. Of all students on the photo roster, 10 students were randomly selected from each class. Neither the teachers, nor the students knew which students were selected to be observed during the study. Due to scheduling conflicts, two teachers and forty students from two different schools were unable to participate. So, the original plan to include 140 students and 12 teachers decreased to 100 randomly selected third-grade students and 10 third-grade teachers in three elementary schools across the state. No other identifying characteristics of either the student or teacher sample were recorded (i.e., gender, race, age).

### *Instrumentation and Data Collection*

Operationalized on- and off-task behaviors identified in the literature (Barbetta, Norona, & Bicard, 2005; Goodwin, Almeda, Petroccia, Baker, & Fisher, 2013) were reviewed with study observers during training sessions. Over the course of three separate 2-hour training sessions, the observers were able to practice recording time-on-task/time-off-task behaviors of students and teachers with the use of the iOS software designed for the use in the classroom. The observers were then tested on two separate occasions by observing a total of eight children (four per test session) and four teachers (two per test session) in classroom observation videos using the software to test inter-rater reliability. A high level (87%) of inter-rater reliability was established by measuring the string of data collected of each second of a one-minute period observation per child. Further, 100% accuracy with each three-minute period observation per teacher was established.

In order to accurately, consistently, and discretely observe and document the frequency and duration of TOT among a large number of randomly selected students for a set period of time in various classrooms, and to securely store and later export and summarize the recorded data, a software application (i.e. iPad app) was developed for this study and installed and synched on two iPads. The app consisted of a class photo roster, an embedded timer, an on-task button, an off-task button, and an external interruption button. By default, when the observations began, the software was set to On-Task. If a student would go Off-Task, the observers would have to immediately select the Off-Task icon. Once a student was back On-Task, then the observers immediately selected the On-Task icon. In addition, if an external interruption (e.g., intercom announcement) occurred, observers were to select the External Interruption icon. Once an external interruption had passed, the observers selected the On- or Off-Task icon to resume data collection, which ever was appropriate at that time.

## PROCEDURES

All procedures for the study were approved by the Institutional Review Board. For two weeks (prior to the start of the study) the observers sat in the classrooms with their iPads, but did not record any behaviors of students or teachers. This introductory time was intended to increase student and teacher comfort and familiarity with the observers in the classroom and make any final adjustments necessary to collect data protocol for the next six weeks. Following the two week familiarization period, observers recorded behavior all ten classrooms for three weeks with no MTL occurring. During the final three weeks of the six-week data collection, six of the 10 classrooms were observed following a MTL session while the other four classes were observed during a typical class session.

When a data collection session was initiated, the same randomly generated order for the class photo roster would populate on both iPads so both classroom observers were watching the same students at the same time. A count down timer alerted the observer of the start of the upcoming observation and the students were identified for observation using the school supplied picture with no other identifying information. Observers would track the behavior of the identified student for a 60-second interval. To fit the maximum number of observations into the classroom time constraint, two cycles of 10 students followed by one teacher was established. Students were observed for 60 seconds each observation while the teacher observations were for 180

seconds. Additionally, a 25-second transition period between observations was included in the app timing system, during which each observer could make optional notes within the application. Therefore, each classroom observation session lasted approximately one hour.

### *Data Analysis*

The duration of TOT was measured as a continuous variable. Because the 60 second observations began with the possibility of being zero (off-task), zero was counted as the first unit and the total time could then range between 0-59 seconds. To examine the difference of the means across groups, Analysis of Variance (ANOVA) was used. To further investigate the mean difference between any two groups, Fisher's Least Significant Difference (LSD) was used.

Similarly, the number of times students shifted from being on-task to off-task was measured as a continuous variable. The number of times students shifted from on-task to off-task or from off-task back to on-task, ranged from 0 – 5 times.

External interruptions were measured as a continuous variable. The time ranged from 0 – 59 seconds. Bivariate correlations were used to examine the association between duration of TOT and external interruptions for both teachers and students.

## RESULTS

Over the course of the six weeks of data collection, a total of 900 direct classroom observations were recorded. In the MTL classrooms, 289 observations were conducted in the first three weeks (prior to MTL) and 276 in the second three weeks. In the non-MTL classrooms, 177 observations occurred in the first three weeks with another 158 occurring in the second three weeks. Preliminary comparisons of the data between classroom observers were conducted and no differences were found. For example, the average time students were on task observed by two different staff was 51.15 seconds and 50.24 seconds, respectively ( $t = 1.203$ ,  $df = 1,750$ ;  $p = 0.229$ ).

### *Duration of TOT*

The mean TOT was compared among the four groups (MTL pre, MTL post, Non-MTL pre, and Non-MTL post; see Figure 1). Results indicate the mean TOT of the MTL post ( $M = 53.64$ ) was significantly different than the other three groups ( $F=4.308$ ;  $df = 3, 896$ ;  $p = 0.005$ ).

Post hoc analyses reveal the MTL post mean TOT was significantly higher than the MTL pre TOT ( $M = 49.23$ ), the Non-MTL pre TOT ( $M = 49.94$ ), and the Non-MTL post TOT ( $M = 51.15$ ; see Figure 1).

### ***Frequency of TOTT***

The mean frequency of TOTT (transitions between on and off-task) for the entire sample was .34, which is less than one transition per 60-second observation. The mean frequency TOTT was compared among the four groups (see Figure 2), resulting in the post MTL group is significantly higher than the pre-MTL group (Mean difference =  $-4.413$ ;  $p = .001$ ;  $p = 0.003$ , respectively). The post MTL group mean frequency for TOTT was also significantly higher than the pre-Non-MTL group (mean difference =  $-3.701$ ;  $p = 0.013$ ).

### ***External Interruptions***

During the 900 classroom observations, a total of 81 external interruptions occurred (9.1%). Bivariate correlations revealed a significant negative correlation ( $r = -0.565$ ;  $p < .001$ ) between duration of TOT and external interruptions.

### ***Teacher TOT***

A total of 180 observations of teachers occurred over six weeks. Of those, 112 observations were conducted in MTL classrooms with another 68 in Non-MTL classrooms. There were no significant differences among teachers in regards to duration of TOT or frequency of TOTT. As with the student data, bivariate correlations were used to examine the association between duration of TOT and external interruptions. Similarly, interruptions and teacher TOT were negatively correlated ( $r = -0.912$ ;  $p < 0.001$ ) with the correlation much stronger than it was with students.

## **DISCUSSION**

The body of literature examining the effects of physical activity on cognitive performance in a youth population is steadily increasing. While the literature consistently demonstrates a connection between fitness and student cognitive performance (Buck, Hillman, & Castelli, 2008; Hillman et al., 2006), research connecting acute bouts of physical activity and cognition are far fewer and highly varied in their approach. For example, some evidence suggests that longer bouts of activity (greater than 20 minutes) is necessary to demonstrate change in cognitive performance (McNaughten & Gabbard, 1993), while other studies suggest as little as 10 minutes can

affect attentional control (Budde et al., 2008). Results from the present study impact the literature in two ways: 1) results suggest Move to Learn is a viable classroom tool to increase the duration of student time on task, which is an understudied but ecologically important variable, and 2) Move to Learn, which is comprised of bouts of activity that average less than 10 minutes, is effective at increasing time on task.

Present findings demonstrate that students in the treatment (Move to Learn) classrooms held significantly longer time on task than students in the non-treatment group during the post-test. While the mean differences were less than three seconds between the MTL and non-MTL groups, and may seem inconsequential, those means were for one-minute observations. When data is extrapolated to consider the entire class period or school day, an increase in time on task of three seconds per minute could be very impactful. While the one-minute observation is considerably longer than the observation times used in previous literature (Grieco et al. 2009; Mahar et al. 2006a), it is still considered a limitation in the present study. Longer observations could have provided researchers with more information about how long the increased time on task effect of move to learn lasted. Future studies should further increase the length of observations to provide a better understanding of when the effects of the MTL intervention begin to wane.

The present study also demonstrated the effectiveness of a short bout of physical activity (less than 10 minutes) on time on task. This study, therefore, offers support for the use of this type of strategy in a real-world setting to promptly increase time on task without taking too much instructional time. In an educational climate where opportunities for physical activity are declining (Sallis, 2010), quick and engaging bouts of activity that can be embedded into the classroom routine could be highly beneficial, especially when they result in desired behavioral outcomes, like time on task.

Further the implementation of Move to Learn in the classroom reduced the number of TOTT. In other words, students were able to maintain attention to classroom tasks rather than experiencing several distractions and having to regain attention. These findings offer important implications for teachers. Specifically, the use of a physical activity intervention should be employed immediately prior to classroom activities or tasks that will require the greatest attentional demands. This would optimize student engagement with the material. Further, teachers may want to incorporate several short physical activity breaks during the day, depending on the behaviors of students as well as content.

### *Limitations and Future Directions*

Limitations exist for the present study. As noted previously, this study was the first to explore the implementation of Move to Learn in an actual classroom environment. As such, some elements of the study were beyond the research design. For example, some classroom teachers had been using Move to Learn in the past while others were just implementing the strategy for the first time. Potential differences in implementation were not controlled for in this study. Further, there was no control in place for the potential for teachers to use Move to Learn multiple times a day. In other words, some teachers in the study may have used the videos two or three times in a day while other may have just been using the video during data collection. While this may not directly impact time on task, it may impact student engagement in the intervention. Future studies should control the implementation of the intervention for the duration of the study. A final limitation of this study is

the duration of the observations. Previously literature has examined student time on task for roughly 5 seconds at a time. This study substantially expanded that duration to one full minute per student. However, the results suggest students were on task the vast majority of that time, revealing a potential ceiling effect. Future studies should lengthen the duration of the observations to provide information on the lasting effects of the intervention.

### **CONCLUSION**

Results from the present study support the use of the Move to Learn program as a means to increase student time on task in the third-grade classroom. Further research is necessary to examine the variables that influence duration of time on task and teacher implementation of the program.

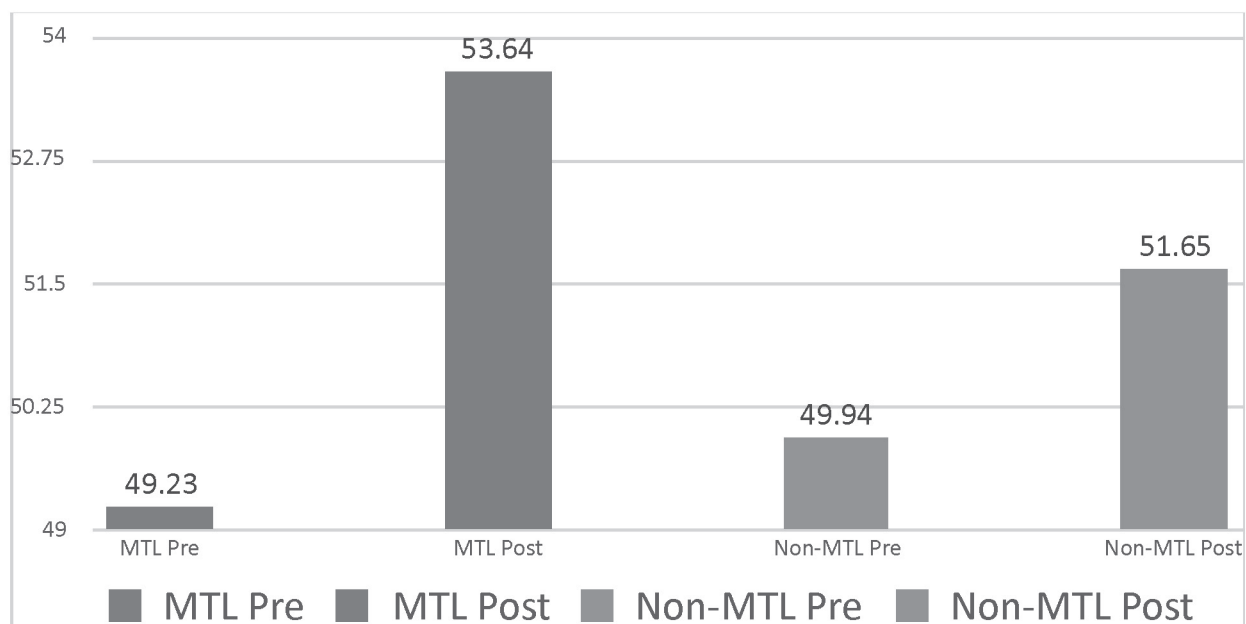
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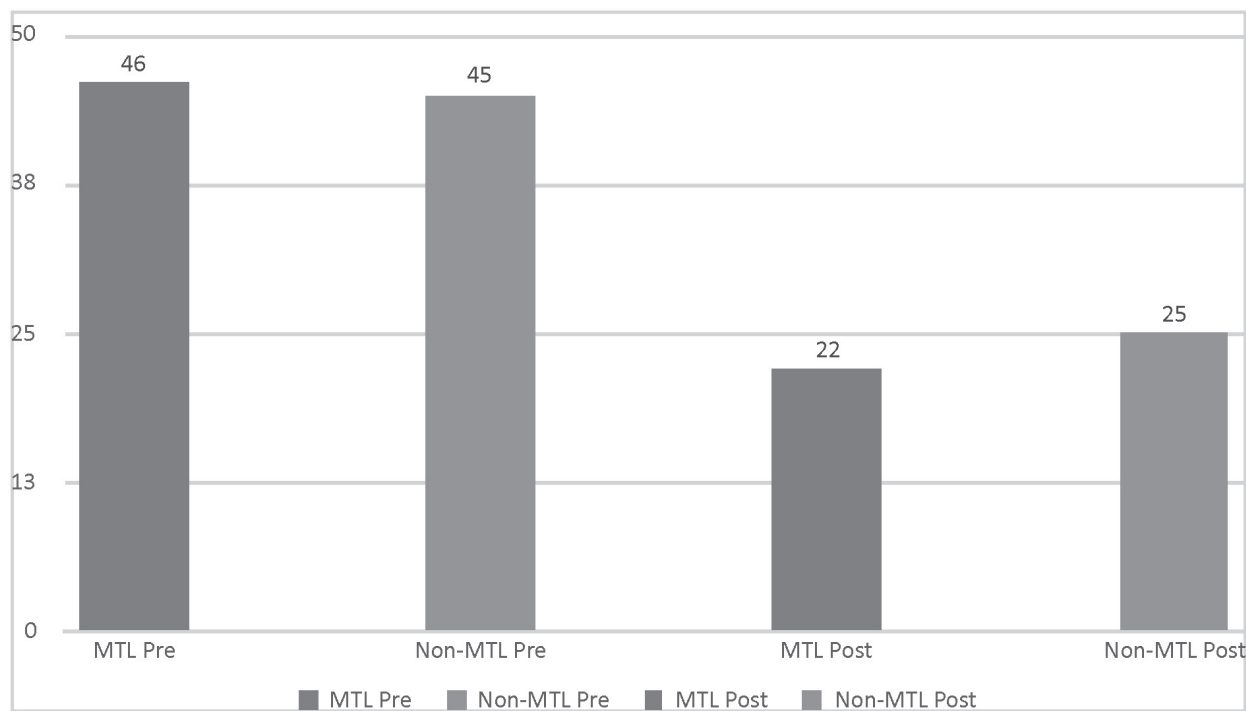
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**FIGURE 1.** Time on Task across Treatment Conditions



**FIGURE 2.** Frequency of Time on Task Transitions across Treatment Conditions



# Addressing *Ableism* in the Common Core State Standards

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**Abstract:** The authors describe a process for critical examination of curricular implications of the Common Core State Standards (CCSS) for children and youth with disabilities from a Disability Studies (DS)/anti-ableism frame. While the CCSS have been adopted by 44 states as well as the District of Columbia, four territories, and the Department of Defense Education Activity, the authors fear that academic standards built around a set of core abilities creates a risk of marginalizing children and youth with disabilities who may access, process, express, and demonstrate their knowledge and skills in an academic setting in non-traditional ways. This DS/anti-ableist frame was developed for use with pre-service and in-service teachers and teacher-educators in order to provide an accessible, workable way of thinking about standards and curriculum and identifying and addressing potential barriers within the CCSS that may serve to exclude and otherwise negatively impact children and youth with disabilities.

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**Keywords:** ableism, Common Core State Standards, disability, disability studies, special education, marginalized students

## INTRODUCTION

The Common Core State Standards (CCSS) initiative is a multi-state project designed to provide rigorous, challenging standards for K-12 public education (NGACBP and CCSS, 2010). The CCSS are currently adopted by 44 states, the District of Columbia, four territories, and the Department of Defense Education Activity (National Governors Association Center for Best Practices, Council of Chief State School Officers, 2010a). This represents the most cohesive attempt at a standardized national curriculum in the recent history of public education in the United States (Calkins, Ehrenworth, & Lehman, 2012).

In the introduction to the CCSS, the authors state that these common standards will "...provide a consistent, clear understanding of what students are expected to learn for college and career readiness" (NGACBP, CCSSO, 2010, p.1). In other clarifying materials, they emphasize these standards are intended to "promote equity by ensuring all students no matter where they

live are well prepared with the skills and knowledge necessary to collaborate and compete with their peers in the United States and abroad." (NGACBP, CCSSO, 2010, p.1). In this reference to equity, the authors presumably intended to reassure teachers, parents, and families that all American children will be well-prepared irrespective of their state/geographic location. There is no specific mention of equity relative to income, gender, race, ability or language in the introduction to the CCSS. The authors do note in the Frequently Asked Questions (FAQ) section that the commonality of standards across states represents an historic moment in that the CCSS will provide opportunities for sharing best practice within and across states leading to an "improved ability to best serve young people with disabilities and English language learners" (NGACBP, CCSSO, 2010b, p. 3).

## THEORETICAL STANDPOINT

We applaud the CCSS authors' hope and optimism that indeed a set of common standards will promote

collaboration within and across states relative to curriculum, materials, and other resources on behalf of all children. At the same time, given the history of lack of access to curriculum and materials and resources for diverse groups of students, we view this moment following wide adoption as a time to be especially vigilant on behalf of those groups who have been marginalized by school in the past. Our particular concern is the possible impact of this adoption on children and youth identified as having disabilities.

We believe that nationally uniform academic standards built upon a set of defined skills or abilities risk marginalizing diverse populations generally and especially those who may access, process, express, and demonstrate their knowledge and skills in ways that are less typical than most. We know that a critical stance can disrupt stereotypes and challenge mis/understandings of even our youngest students (Albers, 2012; Jones, 2008; Leland, Lewison & Harste, 2013; Saunders, 2004). We know, too, that practicing teachers have been successful in standing up in support of teaching for social justice (Dover, 2013; Leland et al., 2013; Zenkov, Ewaide, Lynch, et al, 2013).

In this manuscript, we argue for use of a Disability Studies (DS)/anti-ableism frame by preK-16 teachers as a means for examining and questioning the curricular implications of the CCSS for children and youth with disabilities. Using a DS stance, teachers will be able to identify ableist messages and address potential barriers and limitations within the CCSS and appendices that may exclude and otherwise negatively impact this group. At the same time, they can generate alternative anti-ableist, social justice oriented and still CCSS focused curricula that value all learners.

The CCSS authors noted that this is an historic moment in particular for students with disabilities in that “common standards will provide a greater opportunity for states to share experiences and best practices within and across states that can lead to an improved ability to best serve young people with disabilities and English language learners” (NGACBP, CCSSO, 2010a, p. 3). A separate two-page document entitled, *Application to Students with Disabilities*, available via the CCSS website, outlined the legal requirements of IDEA and described three general categories of usual accommodations or supports: (a) instructional supports based on Universal Design Learning that foster engagement, (b) instructional accommodations which do not change the standards, and (c) assistive technology devices and services (NGACBP, CCSSO, 2010b).

In the CCSS for English Language Arts (ELA) introductory material, there is a section entitled “Key Design Considerations” that identifies six “intentional design limitations.” Under the last bullet for that section, *What Is Not Covered by The Standards*, we learned that while it is beyond the scope of the CCSS to “define the full range of supports appropriate for students with special needs...” the CCSS for ELA are intended for all students:

The Standards should also be read as allowing for the widest possible range of students to participate fully from the outset and as permitting appropriate accommodations to ensure maximum participation of students with special education needs. For example, for students with disabilities reading should allow for the use of Braille, screen-reader technology, or other assistive devices, while writing should include the use of a scribe, computer, or speech-to-text technology. In a similar vein, speaking and listening should be interpreted broadly to include sign language (NGACBP, CCSSO, ELA, p.2).

Although the CCSS are designed then to be inclusive of all students – or at least “the “widest possible range of students,” historically there have been concerns regarding the ways in which school curriculum devalues and ignores issues related to disability and students identified as having disabilities (Arndt, Wilson, White, et al, 2010; Biklen, 1988; 2007; Blaska, 2007; Kliever, 1998). Previous studies have demonstrated that individuals with disabilities are often presented in stereotypical and restricted ways in curriculum (Bogden & Biklen, 1977; Connor & Bejoian, 2006; Franklin, 1994; Longmore, 2003), and that curriculum can reinforce ability-normed values that assert specific abilities and ways of being are preferential to other abilities and ways of being (Brantlinger, 2006; Solis, 2004).

These types of messages within curriculum can serve to reinforce negative stereotypes and marginalize children and youth with disabilities through the very curriculum in which they are participating. A disability studies/anti-ableism frame will provide educators with a critical lens through which they can identify and circumvent these covert – sometimes overt – assumptions and biases that are based on pre-conceived notions of human ability. In short, we want to raise awareness and increase the likelihood that educators will (a) critically examine the CCSS for ableist assumptions that marginalize the position and learning of children and youth with disabilities in U.S. public schools, and (b) present

counter-interpretations within their communities, schools, and classrooms that directly combat these marginalizing assumptions.

## DISABILITY STUDIES FRAME

As described by Biklen (2007), a Disability Studies (DS) frame when applied to education assumes that disability exists within a social and political context as well as intersects with other social oppressions.

Disability Studies critiques the idea of difference (i.e., bodily difference) being an adequate explanation for outcome and position. It challenges the essentialism of neurobiology and body. It demands an accounting for social policy, for cultural definitions, and for political economy in relation to disability (Biklen, 2007, p.6).

Biklen's description of a DS frame applied to inclusive education – where inclusion is unconditional and intentional – is centered on four ideas: (a) presuming competence – students with disabilities are learners; difference does not mean deficit [we teachers hold high expectations for all], (b) naming oneself – students with disabilities define themselves and their disability, explain how they want to be interpreted by others and what they need [we teachers invite students to share insights about their disability and provide ideas about their learning interests and needs], (c) agency vs. independence– students with disabilities participate as they can even while they may depend on others for some things [we teachers honor students' experiences and different/individual ways of communicating/engaging the world], and (d) embracing disability – students with disabilities are “hyper-visible” [we teachers engage in a politics of appreciation and affiliation rather than cure and “normality”] (Biklen, 2007).

## ABLEISM AS A CRITICAL CONSTRUCT IN THE EXAMINATION OF STANDARDS AND CURRICULUM

Researchers, advocates, and some practitioners began using the term ableism as a means of identifying and addressing the “pervasive system of discrimination and exclusion that oppresses people who have mental, emotional, and physical disabilities” in the late 80s - early 90s (Rauscher & McClintock, 1996). Ableist policies and practices are those that do not embrace the four ideas captured by Biklen (2007). Instead, ableist

policies and practices assume there is a preferred method for individuals to engage in various activities, and that any deviation from these preferred methods is considered inferior and unwelcome (Linton, 2006).

Within the field of education, ableism implies that children and youth with identified disabilities must access curriculum and instruction, and demonstrate their knowledge in ways that are unnecessarily difficult or even impossible for them due to the nature of their disabilities (Hehir, 2009). Examples of ableism that we have encountered in our recent work with pre-service and practicing teachers included requiring: (a) students with significant learning disabilities to write via pen-and-paper or typing, as opposed to using speech-to-text and word-prediction software; (b) students with autism to communicate through spoken word, as opposed to typing and voicing through text-to-speech software or using a picture-exchange communication system; and (c) students with vision impairments to access course content through enlarged visual models, as opposed to using tactile materials, descriptive strategies, Braille, and audio-text. In these instances, students were not asked to share insights about their disability; their sense of agency was not valued over independence; and their other preferred ways of accessing or producing text were not embraced or celebrated.

In response to the existence and persistence of ableist assumptions and for purposes of examining standards and curriculum from a DS frame, we developed an operational definition of ableism drawn from the work of Hehir (2009), Linton (2006), and Rauscher and McClintock (1996). We contend that ableism in curriculum standards is defined as explicit and implied statements, suggestions, and messages that (a) value and promote socially-normed methods for children and youth to learn and engage in curriculum and society, and (b) are positioned so that any deviation from those preferred statements, suggestions and messages is considered inferior and undesirable.

This definition emphasizes several ableist underpinnings that have potentially degrading effects on children and youth with disabilities. First, this definition directs teachers and teacher-educators to examine the CCSS for explicit and implicit messages concerning human ability and presumed competence. Schools and broader society have historically engaged in beliefs that situate the lives and experiences of individuals with disabilities outside of mainstream society (Davis, 2013; Emens, 2013; Safran, 1998).

To borrow an example from architecture, an individual

who uses a wheelchair may encounter steps leading to the entrance of a building with the following sign: “Accessible entrance in back.” The explicit message is that the entrance cannot be used by this individual, and that s/he must use a separate entrance from the other visitors. The implicit message is that the individual’s needs were not important enough to have been considered in the design of the main entrance, and that the individual’s mobility needs are an inconvenience that will be provided only the legal obligatory and stigmatizing courtesy of offering an entrance in the back of the building. In other words, your body says, “You do not belong.” You are incompetent. Your difference means you are deficit.

Next, this definition sets the stage for teachers and teacher-educators to carefully consider the notion of socially-normed methods for learning and engaging in curriculum. Teachers and teacher educators are encouraged to explore who defines/names how disability impacts a student in school, and what “agency” means in school. For example, while it may seem obvious that reading is an ability that all students should master, there is often limited critical consideration as to the variety of ways in which a student can read. The clear societal preference is for students to read using books made of relatively thin paper, with black text and an off-white background, and font sizes ranging from 10 –16 point. This method of reading has a clear preference in schools and society, and is promoted from the time children enter kindergarten (if not earlier).

However, this format represents only one way to read. It is also possible to read through audio text, and to use e-readers that offer one-touch changes in contrast and text and background color, or font sizes and types. This latter method of reading in fact appears to be embraced by adults who enjoy their electronic “toys”; yet, our current experiences in classrooms suggest to us that these forms of reading are neither valued nor promoted in schools. If we presume all students can read, if we ask students to name how their disability impacts their reading and value their agency over independence, we will find new/other ways to read. When we embrace disability, we will find that the way a person with a disability participates as a reader and meaning maker is even more intriguing for ourselves (Biklen, 2007).

Finally, this definition will encourage teachers and teacher-educators to not only notice, but also question and challenge messages that imply that deviation from the norm is inferior and undesirable by providing alternative interpretations and responses that will instead value all children and youth and explicitly address their needs as

learners. In the example of the inaccessible entrance, the architectural design, construction, and subsequent addition of an entrance in the back of the building clearly communicates to the individual and others that not being able to navigate stairs to enter a building is both inferior and undesirable. If a ramped entrance was fully accepted and desirable, the front entrance would have been designed (or re-designed) to be fully accessible to all users. In the example of multiple ways of reading, school personnel label the use of audio text and e-readers as “accommodations” that are provided for children and youth with disabilities. The use of this label (or any label) signifies that a method is being utilized that is a deviation from the preferred method.

We do not dispute that there are examples of classrooms in which differences are viewed as simply a part of the fabric of the community, but we believe (and are supported by the countless number of parents, students, and advocates who have battled schools for accommodations) that deviations when flagged and labeled as accommodations are often viewed as inferior, undesirable, and only implemented through the force of law. We can assume instead that “the norm” is not something students with disabilities wish to pursue, and embrace disability by appreciating difference as the new norm.

## **ABLEISM IN THE CCSS FOR ENGLISH LANGUAGE ARTS**

Using a DS frame and our operational definition of ableism as our criteria, we examined the CCSS in English Language Arts (ELA) and other supporting documentation used to clarify, elaborate upon and support the ELA standards. These documents included all introductory information (e.g., Key Design Considerations and How to Read the Standards) and appendices, and all web-based content that could be located from the CCSS homepage (NGACBP, CCSSO, 2010c). In reviewing the supporting documentation, we noted that a set of distinct abilities are emphasized throughout the CCSS in ELA: the abilities of reading, writing, listening, and speaking. These abilities are presented as foundational entry points from which students access, engage in, and express their knowledge throughout the CCSS at all grade levels.

In our interpretation, we find that the essence of the CCSS in ELA is the development and application of these abilities (reading, writing, listening, and speaking) to a variety of English Language Arts content demands. By placing an emphasis on these areas, the CCSS in

ELA are situated in ability or skills, as compared to knowledge. The authors of the CCSS propose that this emphasis is a positive shift in standards, moving student learning beyond shallow, factual knowledge and into more in-depth ways of critically thinking, processing, and analyzing information (see the Key Design Considerations section of the CCSS).

These surely can be positive shifts in standards development and we do see ways in which these standards can connect to and permit connections with non-ableist perspectives. However, when placed against the DS frame and operational definition of ableism proposed here, serious questions must be raised. While the CCSS in ELA does acknowledge that students with disabilities should be able to use adaptive technologies to access and express their learning, references to these technologies and suggestions for where and how they would be used are absent from the standards themselves and supportive material. According to our adopted frame, this omission is a direct indicator that expanded ways of demonstrating these abilities are considered to be inferior, undesirable deviations from socially-normed methods of engaging in curriculum.

We argue that it is vitally important for teachers and teacher-educators to acknowledge the fact that reading, writing, listening, and speaking are all abilities that can be learned and demonstrated in a variety of ways. To expand on our earlier example, reading can be situated beyond the notion of using the eyes to discern

and process small-font text in a traditional paper book format. Reading can include the use of (a) audio texts, (b) font and background contrast and sizing options in digital text readers, (c) one-click technologies such as dictionaries, thesauruses, and background research on the text and the author, and (d) instructional supports such as scaffolded notes and Tar Heel readers. Writing has been expanded in similar ways, including affordable, readily available speech-to-text software programs, alternative pencils, smart pens, and word completion software. For the abilities of listening and speaking, there is a range of alternative and augmentative communication devices that can and should be viewed as fully valid means of communication for any student.

## CONCLUDING THOUGHTS

In this manuscript we have argued that pre-service teachers, practicing teachers and teacher-educators can use a DS frame based in a clear understanding of ableism to critically examine the curricular and instructional implications of the CCSS for children and youth with disabilities. Our process encourages teachers and teacher-educators to adopt a DS frame by presuming all students are competent, facilitating students' naming of themselves and their disability, valuing each student's sense of agency over independence, and embracing disability. Figure 1 provides steps that can be followed for analyzing the CCSS and other curricular documents using a DS/anti-ableism frame.

### Steps in a Process for Analyzing the CCSS and Other Documents From a Disability Studies /Anti-Ableism Frame

1. Learn about ways students with disabilities have been marginalized in school by ableist policies and attitudes in the past.
2. Adopt a disability studies (DS) frame built on at least four critical ideas:
  - Presume all students are competent;
  - Facilitate ways in which students name their disability and share their own insights about their disability;
  - Value each student's agency over independence; and
  - Embrace disability.
3. Examine CCSS for explicit and implicit statements, suggestions, and messages concerning human ability and competence.
4. Consider notion of socially-normed methods for learning and engaging in curriculum and how students with disabilities can inform this process.
5. Notice, question, and challenge messages that imply deviation from the norm is inferior and undesirable rather than sometimes preferred sometimes and always celebrated.

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Note: Based on Biklen's (2007) description of a Disability Studies frame for Inclusive Education.

**FIGURE 1.** Steps in a Process for Analyzing the CCSS and Other Documents from a Disability Studies /Anti-Ableism Frame

Using this frame, teachers should then (a) examine the CCSS for explicit and implicit statements, suggestions, and messages concerning human ability and competence, (b) carefully consider the notion of socially-normed methods for learning and engaging in curriculum and how students with disabilities can inform this process, and (c) notice, question, and challenge messages that imply that deviation from the norm is inferior and undesirable rather than sometimes preferred and always celebrated.

As a result of our experiences with pre-service and professional teachers and our analysis of the CCSS in English Language Arts, we find that the CCSS and related materials – although well intentioned in many

ways – are situated as ableist standards. This mistaken understanding has the potential to promote curriculum and instruction that significantly marginalizes children and youth who read, write, speak, and listen in ways that are not considered to be traditional or desirable within the school environment. In order to avoid this significant pitfall, teachers and teacher-educators need to be cognizant of the ableist assumptions embedded in the CCSS so that they can integrate expanded understandings of these central ability areas. We are hopeful that a DS/anti-ableist frame can serve at least as a starting point toward re-seeing and implementing the CCSS in ways that are truly inclusive of all children and youth. There are good things about these standards – and we can figure it out ... since we must.

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# Science Learning Outside of the Classroom: A Focus Group Study of People's Perception about the Natural History Museum

Seungyeon Lee

**Abstract:** Natural history museums have been recognized as great resources for promoting science learning, so scholars in museum studies and educators have tried to acquire a better understanding of natural history and natural history museums as valuable educational settings (Choi et al., 2004). Then, the way in which the common perceptions among visitors are made and what is a myth is among museum staffs are important questions to ask. The purpose of this study was to evaluate how general public and professionals view natural history museums and develop scales based on DeVillis' generalizability theory (2003).

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**Keywords:** item analysis, natural history museum, scale development, science learning

## INTRODUCTION

Collections are used in natural history museums to promote an interest in greater learning in both curatorial scholars and visitors. New discoveries in science happen all the time, as well as learners' interest in learning science and natural history in museums. Scholars in the fields of museum studies and K-12 education have emphasized the importance of a perception study between the two, but few studies have been performed in seeking that end (McLeod & Kilpatrick, 2001). The reason given for the lack of findings was that natural history or natural history museums were not familiar to people in general, though people showed enthusiasm for learning about scientific collections and the natural environment.

Rosch (1975) emphasized that when investigating people's common perceptions of natural history, three content domains should be included and measured: the general interest levels in natural history and natural history museums, the experience levels described by both museum staff and the general audience, and the expectation levels felt by people about science learning in natural history museums. Following this, Korean museum scholars such as Choi et al. (2004) posited that additional evidence-based strategies measuring people's perceptions in natural history museums were needed

both domestically and internationally. It is also important to note that natural history museums are being seen as valuable educational resources for schools because those provide the learner the hands-on opportunity and analogical reasoning skills.

Thus, this study was designed to evaluate the way in which the general public and professionals understand collections in natural history museums. Its purpose was to acquire a better idea of how life-long educational programs in natural history museums are perceived by visitors and museum staff, and a survey instrument was being developed for this purpose. In addition, assuming that natural history and science museums are ideal places to interact or participate with actual science activities, an investigation into the similarities and differences between the self-motivations of the general audience and museum staff was of interest in the study.

The survey instrument under consideration was designed to measure the perceptions of natural history museums of both general audiences and museum staff. It will be a research tool for various museum settings. It was also designed to be administered either in-school or during an outside-of-school activity to measure the way in which people think about learning in a natural history museum. By conducting this study, evidence-based practices

that promote both museum studies and educational assessment are hoped to be established.

The target study population was K-12 students (those who were visiting or who had previously visited a natural history museum) and museum staff who worked either full time or part-time at a natural history museum. Participation was strictly voluntary, and consent was obtained once the study is approved.

## **METHODOLOGY: TEST SPECIFICATIONS**

In science education, measurement is the basic activity conducted by researchers. As DeVillis (2003) notes, “mental testing (or ability testing)” has been a hot area of psychometrics; therefore, scholars in that field have continuously worked on the way in which their scales can be designed to measure with higher rates of validity and reliability.

The framework for this instrument was built upon the generalizability theory put forth by Devillis (2003). Therefore, the survey will be administered to a large sample of general audience members (visitors) and to a fair number of museum staff members at natural history museums. The same assessment will be used for both groups. After all necessary data are collected and identified, two things identified by Devillis (2003), “systematic variation,” found between the general audience and museum staff, and “the interaction of these effects” will be determined. The development of this survey followed the guidance given by Frey (2006) for validity and reliability as well that given by Fowler (1995) for evaluating methods.

The final version was intended to include 10 to 20 items to measure as concisely as possible while maintaining reliability. Nineteen were finalized: two demographic (gender and occupation), ten containing attitude statements to be rated on a five-point Likert-type scale, four asking the importance of museum learning, to be rated on a four-point Likert-type scale, and three for the general audience to obtain their personal backgrounds with natural history museums.

The five-point Likert-type scale ranged from 1 (strongly disagree) to 5 (strongly agree), and the four-point Likert-type scale ranged from 1 (unimportant) to 4 (very important). The five-point scale included a “neutral” (or “no opinion”) option that participants could choose if uncertain or undecided. The four-point scale did not include this option so that measures of participants’ opinions on the importance of learning would be more

precise. All these items were worded so that a positive response was on the same end of the scale. This survey was administered at the University of Kansas as the Student Survey of Teaching and at Seoul National University as the National History Museum Survey, thus providing a reference for accurate measurement.

The survey was categorized into the following three areas: First, it was designed to measure the overall perceptions of natural history and natural history museums of both the general audience and museum staff. Second, it was designed to investigate how interest in natural history museums differed between the general audience and museum staff. Finally, it was designed to determine how the general audience gained knowledge of museum studies and how they were likely to learn science in natural history museums.

### ***Pilot Pool of Items***

All survey items were used during a focus group study. Each conformed to item-writing guidelines presented in texts (DeVillis, 2003; Fowler, 1995; Frey, 2006). All items were crafted so that participants would be able to see the type of answer they were expected to provide without doubt (Fowler, 1995). It was also designed to appear easy to complete, thus maximizing the response rate.

The ten items presenting statements about participants’ attitudes were presented first, and instructions were given to mark a single response for each. Items 1 through 3 address the general aspects about peoples’ feelings toward natural history museums. Item 4 measures their perceptions of how museums serve roles for science learning. Items 5 through 9 evaluate how the general public views museum staff as a resource and how professionals in the field view themselves as facilitators of natural history museums. The final item measures the relevance of visiting natural history museums. The five-point scale was chosen for these items because it was the most standardized option and was recommended in the theory of face validity for creating a survey (Frey, 2006).

The next four questions were presented with a four-point scale as suggested by Frey (2006). The “neutral” option was eliminated so that the order of participants’ preferences could be accurately ranked.

The two demographic items followed, collecting only that information deemed critical to the study. Three options (male, female, and others) were offered for gender to assure inclusiveness. Two options were given for occupation (general audience and museum staff)

because any other answer was not relevant for analysis.

The instrument ended with three items intended only for general audience members and were not relevant for museum staff because their background with natural history museums is known. These items asked participants how often they visit natural history museums, how they learned about natural history museums, and how long they are likely to stay when visiting a natural history museum. Five choices were offered for the first two items, and three choices were offered for the third. Each item was followed by an item-writing guideline and each question fit into the desired test framework. The pilot items are shown in Appendix A.

**TABLE 1**

<b>Item Statistics</b>			
	Mean	Std. Deviation	N
I'm familiar with natural history	4.00	1.069	40
I'm interested in learning at natural history museum	4.50	.535	40
I have visited natural history museum before	4.75	.463	40
What NHM provided me was educational for science learning	4.38	.744	40
The curator's instruction was clear and understandable	3.88	.991	40
What NHM provided me was encouraging and supportive	4.12	.991	40
Staff was available, responsive and helpful	4.50	.756	40
The staff demonstrated respect	4.12	.991	40
Exhibitions/or displays at NHM helps me for better learning	4.50	.535	40
What NHM teaches me is related to my life in general	4.38	.744	40
How important were the following reason-fulfilling assignment	1.12	.354	40
Visiting was fun	3.50	.535	40
Someone asks me to go there	2.00	.926	40
Science learning interests me	3.62	.744	40

**TABLE 2**

<b>Item-Total Statistics</b>				
Scale Mean if Deleted	Scale Variance if Deleted	Total	Correlation of Correct Item	
<i>Cronbach's alpha if Deleted</i>				
I'm familiar with natural history	49.38	39.411	.447	.885
I'm interested in learning at natural history museum	48.88	40.696	.817	.868
I have visited natural history museum before	48.62	41.411	.827	.870
What NHM provided me was educational for science learning	49.00	38.286	.838	.862
The curator's instruction was clear and understandable	49.50	36.571	.751	.864
What NHM provided me was encouraging and supportive	49.25	35.071	.895	.855
Staffs were available, responsive and helpful	48.88	38.696	.775	.865
Staffs were demonstrated respect	49.25	35.643	.839	.859
Exhibitions/or displays at NHM helps me for better learning	48.88	42.411	.554	.877
What NHM teaches me is related to my life in general	49.00	37.714	.907	.859
How important were the following reason-fulfilling assignment	52.25	44.500	.409	.882
Visiting was fun	49.88	45.839	.059	.892
Someone asked me to go there	51.38	52.268	-.491	.928
Science learning interests me	49.75	38.500	.812	.863

### *Focus Group and Pilot Study*

A focus group of four staff members from a natural history museum and four members of the general audience from the University of Kansas similar to the intended research population was conducted to gather feedback about the survey-taking experience. Because this type of research had not been previously performed, insights into how this scale could be used, and “a discussion about what people like and dislike about” the items in the instrument (Fowler, 1995) were significant. A focus group of eight people followed the guidance given by Frey (2006), who considered this number to be good for analyzing the validity of the construct. The group needed five to ten minutes to complete the 17-item survey after which each member was asked to talk about how the survey as each question was answered. More specifically, each participant was asked to scrutinize the questionnaire through the eyes of a general audience or museum staff members and to provide a critique of the overall content. The survey was laid out on a single page.

The focus group interpreted the questions as intended, but one item was not worded in the best way. Item 3 originally stated, “I have experience on visiting natural history museum,” but participants felt that “I have visited a natural history museum before” would have been more easily understood. All other questions were clear and understandable. The adjusted 19-item instrument was administered to a pilot sample of 40 participants. The primary focus of this task was the group discussion, but data for a reliability analysis was gathered as well. Only those questions directed at both general audience members and museum staff were used for this analysis. Descriptive statistics are presented in Table 1. The variabilities for “I have visited natural history museum before” and “How important were the following reasonable fulfilling assignment” (see highlighted values in Table 1) were low enough that they could be removed. The other fourteen items showed good reliability in that Cronbach’s  $\alpha = .88$ . Therefore, no changes were made in the instructions or items.

### *Validity*

Validated item-writing rules for perception testing were applied to this instrument. Each item was constructed to evaluate a single dimension of how general audience members and museum staff perceive natural history museums. As a result, the focus group understood the items and interpreted each question as intended.

Each item was measured based on the given content, not the expected response. Lengthy statements were

avoided, and each item was simple and concise. The scale was based the three approaches of validity provided by Fowler (1995): construct validity, predictive validity, and discriminant validity. It was also created so that the quantitative method could be applied; therefore participant responses were objective.

### **CONCLUSIONS**

The learner’s actual hands-on learning experience that happens in natural history museums is a great way to promote science education because he or she can motivate his or her own learning without the pressure of a traditional classroom setting. The learner can explore on his or her own. The interactive environment that natural history museums offer can be beneficial for science educators. In order to engage the public in science, it is important to know how people and museum staff view their educational resources. Thus, developing a survey that measures their perception on science education is necessary.

A reliable scales, as stated by Frey (2006), is a test that provides a precise score. The score should represent the participant’s typical or average grade if the survey were given numerous times (Frey, 2006). Each item in this instrument was created based on this guideline, thus rendering the instrument reliable.

In addition, the options offered for responses were clearly illustrated, as in the Likert-type scales. These scales should allow for adequate variability and thus produce reliable results. Feedback from the focus group implied that the initial instrument was carefully scrutinized and that each item was easily understood. Suggestions from the focus group demonstrated that participants will not respond to the items randomly.

Finally, the pilot sample yielded a Cronbach’s alpha that signals reliability. Table 2 shows overall reliability.

All items are highly reliable except “someone asks me to go there” (see highlighted value). Removing this item would change the Cronbach’s alpha to .928. However, because the existing reliability was sufficient, this item was retained.

Revision could be necessary before the study design is finalized. For example, additional demographic information, such as age, might be necessary if the effect of age on a person’s perception of natural history museums will be of interest. In addition, the attitude items that have thus far yielded low variability or reliability might be removed. The choices offered for the Likert-

type scales were easy to follow and should remain the same. All respondents thus far participated in the survey in a serious manner and provided feedback as asked. One or two items were found to be less concise than desired; those statements will be revised. The primary focus of this study was to see whether both general audience and museum staff members interpreted each item directionally. This intent was achieved successfully. In the future, two independent variables (general audience members and museum staff) and one dependent variable (response toward natural history museums) will be used for statistical analysis.

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## Appendix A

### NATURAL HISTORY MUSEUM SURVEY: PERCEPTIONS OF GENERAL PUBLIC AND EDUCATIONAL PROFESSIONALS

Please mark only one response per item.  
1=strongly disagree, 2=disagree, 3=no opinion, 4=agree, 5=strongly agree

1. I'm familiar with natural history. ① ② ③ ④ ⑤
2. I'm interested in learning at a natural history museum. ① ② ③ ④ ⑤
3. I have visited natural history museum before. ① ② ③ ④ ⑤
4. What the natural history museum provided me was educational for science learning. ① ② ③ ④ ⑤
5. The curator's instruction was clear and understandable. ① ② ③ ④ ⑤
6. What the natural history museum provided me was encouraging and supportive. ① ② ③ ④ ⑤
7. Staff at the natural history museum was available, responsive, and helpful. ① ② ③ ④ ⑤
8. Staff was demonstrated respect for audiences and his/or her points of view. ① ② ③ ④ ⑤
9. Exhibitions/or displays at the natural history museum helped me for better learning. ① ② ③ ④ ⑤
10. What the natural history museum teaches me is related to my life in general. ① ② ③ ④ ⑤

Responses: 1=unimportant, 2=somewhat important, 3=important, 4=very important

#### **How important were the following reasons for visiting natural history museum (NHM)?**

1. Fulfilling my assignments. ① ② ③ ④
2. Visiting NHM is fun. ① ② ③ ④
3. Someone asks me to go there. ① ② ③ ④
4. Science learning interests me. ① ② ③ ④

**I am:**

- General audience
- Museum staffs

**Gender**

- Male
- Female
- Transgender

**General audience only:**

**How often do you visit NHM per month?**

- Seldom or never
- 1 or 2 times
- 2 or 3 times
- 3 or 4 times
- more than 4 times

**General audience only:**

**How did you hear about natural history museum:**

- I have been to the natural history museum before
- Internet  TV or newspaper  Magazine or ads  Other

**General audience only: Per visit, how long are you likely to stay? (i.e. 1 hour will be marked as 01. Less than 1 hour will be marked as 00)**

- 00
- 01
- 02
- 03
- 04
- 05
- 06
- 07
- 08
- 09
- 10



# The Argument for Using the Cultural Proficiency Continuum to Develop Culturally Responsive Pre-service Teacher Candidates

Mary Elizabeth Kelly

**Abstract:** The purpose of this manuscript is to argue the importance of developing culturally aware and responsive pre-service teacher candidates by engaging them in self-reflection. The Cultural Proficiency Continuum, a tool focusing on identifying cultural proficiency, is one of the most important tools in helping our pre-service teacher candidates identify their personal level of cultural proficiency. Children of color are suspended or expelled much more often than their White classmates. The current teaching force and the current pre-service teaching force is predominately White, yet our K-12 public schools are becoming increasingly diverse. How these teachers perceive the behaviors of their students of color and the reasons they attribute for these specific behaviors requires self-examination of biases.

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**Keywords:** pre-service, cultural proficiency, diversity

## INTRODUCTION

Any student who emerges into our culturally diverse society speaking only one language and with a monocultural perspective on the world can legitimately be considered educationally ill-prepared. Nieto (2004, p. xv)

The cases of Trayvon Martin, Jordan Davis, Michael Brown, Tamir Rice, Freddy Gray, and numerous others have garnered international attention to the plight of young Black men in the United States. While these young men's lives were shortened in young adulthood, scholars and educators argue that stereotyping of young men of color, particularly young Black men, begins when they enter the public school systems of the United States. According to Irvine, "Because the culture of Black children is different and often misunderstood, ignored, or discounted, Black students are likely to experience cultural discontinuity in schools, particularly schools in which the majority, or Eurocentric persons, control, administer, teach" (1990, p.xix). Moreover, Irvine argues that Black students respond in ways that can be traced to African cultural norms, and this may

lead Eurocentric teachers to dismiss or react negatively to Black students' language patterns, inter-personal space, body movements, and learning styles, which may also influence the discipline choices and consequences for behavior made by Eurocentric teachers. Irvine's argument becomes particularly salient because 82% of the current teaching force is non-Hispanic White. Conversely, students enrolling in public schools are becoming increasingly diverse (The American Association of Colleges for Teacher Education, 2013).

Improving teacher candidates' cultural competency using the Cultural Proficiency Continuum can improve new teachers' perceptions and responses to the behavior of students of color which is very appropriate for 21st century teachers-in-training. Improving educators knowledge and understanding of different cultures can allow acknowledgement of the need for a continuing focus on culturally responsive teaching pedagogy. This also leads to a need for the same "lens" of understanding in teaching classroom management which is critical to teaching in the diverse classroom settings of today and the future. A report from the National Council on Teacher Quality focusing on classroom management

(2014, p.2) notes, “A 2003 survey of teachers found that nearly half indicated that ‘quite a large number’ of new teachers need a lot more training on effective ways to handle students who are discipline problems.

While training highly qualified teacher candidates to be successful in an increasingly diverse public school setting, we must continue to focus on the benefits of culturally responsive teaching. In addition, we must focus on the relevance of cultural proficiency and its importance in developing effective classroom management and discipline. Howard (2006), argues we cannot teach what we do not know. There is scant argument that Howard’s words apply to content and pedagogy, but it also applies to knowing and understanding our students. Yet, what structures are specifically in place in our current teacher education programs to address how our personal cultural proficiency affects how we “see” and discipline students of color? The question we must ask is: how do we discipline those we do not know and understand? We cannot teach students who are not in our classrooms because they are serving in-school suspensions, out-of-school suspensions and school expulsions. The Civil Rights Data Collection (2014) notes that students of color, particularly Black students, are disciplined at much greater rates than their peers. These dramatic differences begin in pre-school. Black students represent about 16% of the public-school student population, but 32% of students serving in-school suspension, 33% of those serving out of school suspension, 42% of those serving multiple out of school suspensions and 34% of those serving expulsions. In comparison, White students represent a similar range of between 31-40% of students serving suspensions or expulsions, but they represent 51% of the public-school student population.

## THEORETICAL AND CONCEPTUAL FRAMEWORK

Attribution theory provides the theoretical framework for the argument that pre-service teacher candidates must be more aware of their cultural biases. Attribution theory is a cognitive theory of motivation that views human beings as conscious decision makers. According to Pintrich and Schunk (1996), attribution theory operates on two major tenets.

The first tenet of attribution theory states human beings are motivated by a desire to understand and master their environment and themselves. Humans wish to make their world predictable and controllable. Kelley (1971, p. 22) noted, “The attributor is not simply an attributor, a seeker after knowledge; his latent goal in

attaining knowledge is that of effective management of himself and his environment.” This desire to master the environment and oneself enables humans to adapt successfully to their environment.

The second tenet of attribution theory states that humans are trying to understand the causes of their own behavior as well as the behavior of others. Humans want to know why things happen and why people behave in certain ways. When humans attribute causes to events or behavior, the cause attributed may be what the individual perceives is the causal determinant and not necessarily the actual cause. An individual’s perception of reality is important and can have psychological and behavioral consequences. The accuracy of the attribution does not influence its effect (Pintrich & Schunk, 1996).

Pintrich and Schunk (1996) expanded upon the second tenet and noted that perceived causes and the causal dimensions that underlie them is the centerpiece of the model. Moreover, two types of antecedent conditions influence the perceived causes of an event. These are environmental factors and personal factors. The influence of these two factors on the formation of attributions is called the attribution process (Kelley & Michela, 1980). Environmental factors include specific information given to an individual as well as social norms and knowledge. Personal factors include a variety of beliefs and schemas that individuals might have about a particular situation. Both environmental and personal factors influence the actual attributions individuals assign to a particular event. These factors help explain the attributions teachers form about student behavior and affect how teachers predict future student behavior or performance. Once explanations for a student’s behavior have been assigned and teachers begin to predict future behavior, attribution theorists argue that the consequent behavior of the person making the attribution is influenced by the explanation. Consequently, a White teacher who perceives the behaviors of Black students, particularly Black males, as a fixed set of actions based upon his or her racial or ethnic identity may react by requesting more severe behavioral consequences.

Heider (1958) was the first researcher to formulate a theory of causal attribution. He theorized that the development of attributions was influenced by culture. Thus, members of different cultural groups might find significantly different causal explanations for an identical event. The significance of Heider’s work was that he placed attributions within the social context.

Jones and Davis (1965) refined Heider’s theory by suggesting that people speculate about choices for

the behavior of others and develop generalizations or stereotypes based on those expectations. For example, a math teacher might believe that students will choose to do their homework, or they will choose not to do their homework. The teacher might decide that students who do their homework are intrinsically motivated, hardworking, and studious. The teacher may view the students who did not do their homework as lazy, nonchalant, and rebellious. Jones and Davis (1965) refined their argument further by noting that when teachers make these assumptions, they do so within a cultural context and belief that certain behaviors conform to certain cultural definitions. Thus, if teachers define Black students as typically being lazy, nonchalant, and rebellious, then the Black student who does not turn in his homework is seen as operating within a culturally defined norm.

Kelley (1971) made another important contribution to attribution theory. Kelley suggested that there are three variables present in the formation of attributions: a) the person making the attribution, b) the person to whom the attribution is assigned, and c) the context in which the behavior occurs. Kelley purported that the process of assigning attributions is intertwined in all of these variables. Researchers interested in the assignment of attributions have attempted to hold two of the variables constant while manipulating the third. For example, a teacher will view a Black male wearing sunglasses and having his hat turned sideways in class in a particular way. Researchers would then be interested in the same teacher's reaction to the same type of dress in the classroom if the young male were White.

An important contribution to attribution theory by Weiner (1986) notes that an infinite number of attributions are possible. However, all attributions can be categorized along three causal dimensions: locus, stability, and control. The locus-of-causality dimension focuses on whether a cause is perceived to be external or internal to the individual. For example, ability and effort are classified as internal causes, whereas good fortune and task complexity would be classified as external causes. The stability dimension focuses on whether the cause is fixed and stable or whether it is variable and unstable across different situations over time. Specifically, does a perceived attribution represent a trait of a person, or a reaction to a particular situation? The last dimension of causality, controllability, refers to the degree of control a person has over a cause. For example, aptitude and effort would be classified as representing an internal locus of control. Effort is seen as a factor that humans have a great ability to control, whereas aptitude is viewed as a factor that humans have little ability to control. These causal

dimensions can influence one's expectancy for success and self-efficacy beliefs as well as affect actual behavior. In summary, attribution theory suggests that the process of assigning attributions is influenced by culture and that options for behavior are linked to inferences about underlying personality traits. In addition, individual behaviors reveal personality characteristics and can confirm or fail to confirm our understanding of consistent cultural norms. The assignment of attributions is a process that is influenced by three variables: the person assigning attributions, the person receiving the attribution, and the context of the behavior used to assign the attribution. Perhaps most importantly, human beings have a strong impetus to assign attributions to others in order to aid their understanding about the world and to help manage their environment (Kelley, 1971). Teacher candidates, particularly White teacher candidates, must identify biases that may affect how they assign attributions to the behaviors of their students.

## **MAKING THE CASE FOR THE CULTURAL PROFICIENCY MODEL IN TEACHER EDUCATION**

According to the American Association of Colleges of Teacher Education (2013), undergraduate degrees in education were awarded to the following: 82% White candidates, 6% African American candidates, 4.2% Hispanic candidates, and 4.2% race/ethnicity unknown or more than two identifications. Moreover, the small number of minority teachers entering the field are leaving at higher rates than their White peers. Conversely, an analysis of data from the National Center for Educational Statistics (2012), found that students of color make up more than 45% of the public kindergarten through grade twelve population.

In light of these data, the use of the cultural proficiency model as a vehicle for individual teacher candidates to assess and monitor their cultural adeptness is a strong step in the right direction. It is not our assertion that classroom management and discipline can be improved by using a formulaic approach. Rather, the use of a cultural proficiency model sets us on the path of self-empowerment, providing us with a vehicle for reflection that can change how we view the students in our classrooms. In short, pre-service teacher candidates must develop culturally competent behaviors if they are to move toward more culturally proficient interactions with their students.

## TOOLS FOR DEVELOPING CULTURAL COMPETENCE

According to Lindsey, Nuri-Robins & Terrell (2009) there are four tools for developing cultural competence:

1. The Barriers: Caveats that assist overcoming resistance to change
2. The Guiding Principles: Underlying values of the approach
3. The Continuum: Language for describing both healthy and non-productive policies, practices, and behaviors
4. The Essential Elements: Behavioral standards for measuring and planning for growth toward cultural proficiency

Following are definitions of each of these tools from Lindsey, Nuri-Robins & Terrell (2009).

### THE BARRIERS

In order for pre-service teacher candidates to become more culturally competent, we must begin by focusing on the barriers that assist resistance to change. The first of the barriers is the presumption of entitlement and privilege, which is a belief that all our personal achievements and stature are earned based solely on merit, hard work, and character. This idea can make us unaware of the obstacles experienced by those who are racially, ethnically, or culturally different.

A second barrier is the lack of recognition of infrastructural systems of oppression and privilege. Often in discussions of equality, teacher candidates express personal disdain of prejudice and racism. It is difficult for them to understand that systems of oppression and privilege operate via policies and protocol and don't require intentional acts by an individual. In short, institutional racism exists via policies and procedures.

The third and final barrier is that too many teacher candidates do not see the need to adapt to the changing world. They simply believe the world, the classroom, and the students should adapt to them. For real change to occur, schools of education must directly address the barriers to creating cultural competency among its teacher candidates.

## THE GUIDING PRINCIPLES

Lindsey, Nuri-Robins & Terrell (2009) argue the guiding principles are the counterpoints to the barriers of achieving cultural competence. These principles provide a framework for doing the difficult work. The guiding principles are:

- Culture is a predominant force; you cannot not have a culture.
- People are served in varying degrees by the dominant culture.
- Group identity of individuals is as important as their individual identities.
- Diversity within cultures is vast and significant.
- Each group has unique cultural needs.
- The family, as defined by each culture, is the primary system of support in the education of children.
- Marginalized populations have to be at least bi-cultural, and this status creates a distinct set of issues to which the system must be equipped to respond.
- Inherent in cross-cultural interactions are dynamics that must be acknowledged, adjusted to, and accepted.
- The school system must incorporate cultural knowledge into practice and policy making.

### THE CONTINUUM

According to Cross (1989) the Cultural Proficiency Continuum provides six points that indicate unique ways of seeing and responding to differences. The first three points on the continuum represent unhealthy values, behaviors, policies, and practices that arise because of the barriers to cultural proficiency. The first three points are:

- Cultural Destructiveness - Viewpoint seeking to eliminate the cultures of others in all aspects of the school and the community being served.
- Cultural Incapacity – Stereotyping and

minimizing other cultures and seeking to make the cultures of others appear inferior to the dominant culture.

- Cultural Blindness – Not noticing or acknowledging the culture of others and ignoring the dissimilar experiences of cultures; treating everyone the same way without recognizing there may be a need for different modes of interaction.

The three points at the end of the continuum represent healthy individual values and behaviors, as well as healthy policies and practices in organizations such as college programs and schools.

- Cultural Pre-Competence - acknowledging lack of knowledge, experience, and understanding of other cultures limits one's ability to interact with people whose cultures are different from his own.
- Cultural Competence - owning the attitude that everyone's culture matters and insisting the society one lives in has policies and practices that promote inclusivity (especially classrooms and schools).
- Cultural Proficiency - viewpoint that you and the institutions where you work (schools) are agents for change and are engaging in creating social justice for everyone.

## THE ESSENTIAL ELEMENTS

The essential elements of cultural proficiency provide the framework for change within an organization. For schools of education to achieve the goal of graduating teacher candidates who are more culturally proficient, we must have a set of guiding principles or essential elements for getting us to our destination. According to Lindsey, Nuri-Robins & Terrell (2009) the essential elements we must embrace are:

- Assessing Culture- Schools of education must assess, identify, and accept the differences in our own faculties, thereby creating the tone for helping our teacher candidates to do the same.
- Valuing Diversity- Once we identify the differences, we must embrace the notion that

the differences make the group stronger and is valued added.

- Managing the Dynamics of Difference-Diversity is not a “problem” to be solved. It is a valued part of the American consciousness.
- Adapting to Diversity- We must teach and learn about differences, and practice ways to respond to them effectively.
- Institutionalizing Cultural Knowledge – We must change our institutional system to ensure healthy and effective responses to diversity.

## CONCLUSION

It should be the goal of every teacher-candidate to achieve the viewpoint of cultural proficiency. The idea that we are teaching to create social justice and democracy in our classrooms, schools, and communities is a goal worthy of striving to meet. In order for teacher candidates to embrace the viewpoint of cultural proficiency, schools of education must commit to making the Cultural Proficiency Continuum an integral part of the classroom management curriculum. In higher education, we must teach these concepts with intentionality. The current data showing the disproportionate number of students of color, especially Black males, who are receiving in-school and out of school suspensions and expulsions must serve as our rallying cry for change. We argue using the Cultural Proficiency Continuum with pre-service teacher candidates will assist them in identifying their own cultural biases and may positively influence their classroom management practices involving minority students.

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# Investigating New Teacher Mentoring Practices

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**Abstract:** This study investigated common practices used by six mentors participating in a new-teacher mentoring program that encouraged identified teachers to remain in the teaching profession. This study contributes to the sparse academic literature on new teacher-mentoring programs with a focus on the critical responsibility of maintaining professional supportive relationships that help avoid isolation for new teachers. The findings suggest mentors participating in a new teacher-mentoring program encourage identified teachers to remain in the teaching profession. Through the study, it was demonstrated although new-teacher mentors work with limited resources and are constrained by rigid rules and regulations, they bring with them special types of expertise which all new teacher mentors might benefit from. Data from participants show the mentoring practices used helped novice teachers overcome pedagogical and the professional challenges they are faced with in their day-to-day practices.

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**Keywords:** teachers as mentors, teacher attrition, teacher retention, professional relationships, common mentoring practices, teacher practices

## BACKGROUND

The challenge of teacher attrition impacts the education community, both in public and private schools (Council for American Private Education, 2002). McGrath and Princiotta (2005) reported teacher attrition rates for new and existing teachers across the country are higher in private schools (21%) as compared with public schools (15%). The difference between the teacher attrition at private and public school was based on mentoring programs that were prevalent in public school (McGrath & Princiotta, 2005). School districts have identified many benefits of mentoring programs, including having more capable staff, improved sense of self-esteem among teachers, greater productivity results and higher job satisfaction (Daresh, 2003). An effective and quality mentoring program can help novice teachers survive their stressful beginning and emerge as confident and successful team players (Mauer & Zimmerman, 2000).

Mentoring programs vary in different school districts, however the common attributes include reduced attrition, improved job satisfaction, enhanced professional development, and improved teaching and learning (Howe, 2006). Mentoring programs help address the needs of beginning teachers and transition them into the experience of full-time teacher (Callahan, 2007). Retaining teachers is a priority for school districts, and mentoring programs are highly recommended for retaining beginning teachers.

Mentoring beginning teachers is often mentioned as an effective strategy for improving beginning teachers' skills and them remaining in the teaching field (Blank & Kershaw, 2009; Callahan, 2007). According to Nielsen, Barry, and Addison (2006), research suggests mentoring programs can achieve high retention of beginning

teachers if the mentoring program is structured, focused on professional development and collaboration is present.

The number of first year teachers who leave the classroom to pursue other careers has consistently risen since 1994 (Jonson, 2002). According to NEA Today (2004), insufficient classroom resources, tremendously underpaid teachers, lack of new teacher support, and large class sizes, are some of the reasons why teachers change careers. It is estimated that the national cost of teachers leaving the profession is 7.2 billion dollars a year (Carrol & Foster, 2010).

The need to retain new teachers has forced school districts to implement induction programs for beginning teachers. School districts have implemented induction programs to provide support and guidance to beginning teachers in the classroom (Billingsley, Carlson & Klein, 2004). The National Center for Educational Statistics (NCES, 2001) investigated the link between beginning teacher induction and mentoring. The research found beginning teachers involved in a teacher mentoring program left the field at a rate of 15%, while beginning teachers who did not have any type of induction support left education at a rate of 26%. As new professionals graduate from teacher preparation programs, they are faced with overwhelming situations within the classroom. According to Brock and Grady (2001), teaching is one of the few careers in which the least experienced members face the greatest challenge and most responsibilities.

## **PROBLEM STATEMENT AND RESEARCH QUESTIONS**

New teachers are leaving the teaching profession at the expense of the academic success of students. This rapid turnover is known in the educational community as the “revolving door” (Ingersoll, 2001). Beginning teachers are susceptible to end-of-the-year release or leaving the teaching profession because they are more likely than their veteran colleagues to struggle with classroom management, lack of professional support, or they are assigned to low performing students (Anthony & Kristsonis, 2006, p. 3). Despite the many challenges of being a teacher, most beginning teachers are given little to no mentoring support to assist them in their new profession (Ingersoll & Kralik, 2004). Anthony and Kristsonis (2006) reported 66% of beginning teachers who received formal mentoring within their school district reported it “improved their classroom teaching a lot.” Therefore, it is necessary to identify the common practices used by mentors participating in new mentoring

programs that encourage identified teachers to remain in the teaching profession.

The following research questions guided this research:

RQ1: What are common practices used by mentors to encourage identified teachers to remain in the teaching profession?

RQ2: Which common practices are used most often by mentors to encourage identified teachers to remain in the teaching profession?

## **METHODOLOGY**

This basic interpretive qualitative study used interviews, observations and document analysis to collect data. Interviews were specifically designed to explore the perceptions of beginning teachers, as the role of the researcher does not discover this meaning; instead the researcher interprets and presents the findings (Merriam, 2002). Interviews allowed for the focus to be placed on the individuals and their perspectives on a specific phenomenon (Ritchie & Lewis, 2008). The participants in this study were able to reflect on their experiences through interviews and documents.

This study was conducted in a mid-sized school system, located in east Alabama. This study employed purposeful sampling to select six elementary mentor teachers to participate in this study. The first criterion in choosing participants for this qualitative study was the participants had to come from the selected school system. All participants were involved in the official mentoring program developed by the state department and the local school district. Elementary teachers were chosen over middle or high school teachers as they are the first teacher a child encounters. The final component of the sampling process included the mentor having a minimum of three years of teaching experience. These criteria were selected to provide a snapshot of what mentor teachers may need during the start of their careers in education. Mentor teachers who matched these criteria were contacted and asked for recommendations for others that met the criteria. This technique, known as snowball sampling, involved a referral from one contact to another to recruit research participants (Hesse-Biber & Leavy, 2011).

In this study, I employed three sources of data collection. These included individual interviews, mentor/mentee observations, and review of the school district’s mentoring policies and other related documents (Patton,

2002). The two sources of data collection for this study included face-to-face interviews and document review of mentor logs, mentee and mentor surveys and professional development content.

Within this study, a life story interview was used as the method of collecting data from participants through semi-structured interviews that included in-depth and open-ended interview questions. The goal was to understand the meaning of the participant's experiences throughout the mentoring program (Kvale, 1996). An interview guide approach was utilized as a means of structuring the interview for this study. Although the interview guide provided suggested questions, the interviews remained open to topics the beginning teachers brought up. The anticipated topics discussed during the interviews included: the perceived challenges they are faced with while beginning their teaching career, the perceived impact of the mentoring program and clarifications of the related documents.

I utilized Seidman's (2006) three-interview series format for the interviews. According to Seidman (2006), the first interview provided an opportunity for establishing rapport and receiving background information. The purpose for the second interview was to allow the researcher to gather details of the experiences of the participants (Seidman, 2006). The final interview allowed the participant and the researcher to reflect on the meaning of the transcripts, "address the intellectual and emotional connections" and ask about the vision for the future (p. 18). All interviews were digitally recorded, transcribed and saved as electronic files.

Policies, mentoring logs, and specific school based documents related to the mentoring process were examined. The mentoring policies provided an understanding of what is expected of the mentors and mentees while they participate in the program. Mentoring logs were used to get a better idea of the time the mentors and mentees spend together and what they discussed during this time. The mentoring logs gave a perspective on how the mentors and mentees interacted with each other during the school year. The mentor and mentee end-of-the-year surveys were developed by the Mentoring District Liaison who also serves as the district's Elementary Curriculum Director. The surveys were developed to address the implementation of the mentoring program and gather data about the programs outcomes. The mentoring meeting agendas were utilized to obtain the objective of what the school district liaison presented to the mentors and mentees throughout the school year. The information collected presented a snapshot of the mentoring program and confirmed or

refuted the interview data received from the beginning teachers.

To analyze the data, cross analysis was utilized for the interviews. Data analysis included the constant comparative method to generate codes, categories and themes from the data (Merriam, 1998). First, the open coding process was used to make sense out of text data, divide it into text or image segments, label the segment with codes, examine the codes for overlap and redundancy, and collapse these codes into broad themes (Creswell, 2005, p. 237). Interview transcripts were analyzed through audiotapes, copies of documents, narrative descriptions and to compare responses of each participant. Coding the transcripts allowed me the opportunity to look for themes among the participants and check the data according to similarities, and differences.

Establishing internal validity for this study was done through member checking, in which all participants were given a copy of the transcript to review for validity (Merriam, 1998). External validity was demonstrated through the use of rich description and Seidman's (2006) three-interview structure. The use of Seidman's (2006) three-interview structure increased validity as it "encouraged interviewing participants over the course of one to three weeks to account for idiosyncratic days to check for internal consistency of what they say" (p. 27). The three-interview series was utilized for data collection and gathering extremely detailed descriptions of the information gathered from each participant.

## RESULTS

Data analysis revealed three major themes: positive relationships; assistance and support; and avoiding isolation in the classroom. One of the most prevalent themes that emerged from the data was the positive relationships developed through the mentoring programs. Data from this study revealed the mentors had strong feelings about the relationship that developed with their mentees, the culture and climate of the school, and the overall connection during that first year.

Participants attributed positive relationships between the mentor and mentee as a possible reason that encouraged them to stay in the school. Several researchers have supported this notion that teachers who are provided encouragement and emotional support are more likely to remain in the profession (Billingsley, 2003; Ingersoll & Kralik, 2004; Wong, 2004). All participants reported developing a positive relationship with their

mentees was essential to the mentoring relationship. A meaningful relationship between the teacher mentor and the beginning teacher established an effective mentoring experience (Covey, 1997; Hawkey, 1997). Data from archival documents indicated the mentoring program promoted a positive culture and climate in the school district. The agenda for the mentoring program included several activities that addressed climate and culture within the schools and district.

The second theme reflected the benefit of assistance and support the mentee received from the mentor throughout their first year of induction. This finding is consistent with the research that beginning teachers who received intensive mentoring support from a mentor valued their new teaching experience (Trubowitz, 2004). According to the mentors, they perceived assistance and support were well provided from the school district's mentoring program during the school year.

The mentors reported the school system has given training on numerous strategies that could be used to help their mentees. The school district's mentoring coordinator mandated each mentor submit a mentoring log to the district office monthly. The mentoring logs indicated mentors were reviewing instructional strategies, parent communication, grading, establishing routines and assessments. Throughout the interviews, all mentors stressed how they were able to support their teacher throughout the program. Clayton and Cuddapah (2011) found providing support to beginning teachers as a cohort provides valuable support.

Under the third theme, I examined how the time given to the mentor-mentee relationship reduced the feeling of isolation. Respondents reported consistent contact between the mentors and mentees in the mentoring program. Mentors indicated they found it very valuable to observe their mentee or to have their mentee observe them teaching in the classroom.

## DISCUSSION

Collegial relationships are an essential part of a positive environment (Hall & Hord, 2006). The greatest mentoring relationship established is one that has collaboration and inquiry (Feiman-Nemser, 2000). The data indicated the mentors found benefit in communicating, collaborating and exchanging ideas with their mentee while establishing a relationship between them. Several researchers concluded effective mentoring programs not only oriented teachers to the teaching field, it also provided encouragement and emotional support (Billingsley, 2003; Ingersoll & Kralik, 2004).

Participants of this study revealed assistance and avoiding isolation in the school are critical practices in the mentoring program. Mentor teachers agreed the structured mentoring program enforced a measure of accountability for the mentees. Most mentoring programs have some level of accountability structure (Mullen, 2005). The school district in this study required mentors to meet with the mentees each week for 2 ½ hours to discuss current classroom practices, answer questions, and provide other support and directions as needed. The hours were to be recorded and turned in monthly to the mentoring liaison. The mentoring logs indicated the mentors and mentees met at different times of the day, talked on the phone, or met on the weekends. The mentors complained that finding time was always a factor. It was difficult to find time during the school day, especially to be accessible to their mentees. The lack of time needed to meet with the mentee was a challenge for the mentors. Many of the mentors had to be creative with their schedules. The mentors encouraged the school district to consider finding release time for them to meet, or to have the same common planning. Currently, only half of the mentors in this study had the same common planning as their mentees, which limited the time they could meet.

## LIMITATIONS

Limitations to this study included the small sample size and the assumption that all participants responded honestly. This study presented perspectives of teacher mentors as interpreted through the lens of the researcher. Therefore, I cannot rule out the possibility that my interactions with the informants led them to raise particular issues and to ignore others. Being that this research was just one part of the teacher mentoring landscape, it did not include formal interviews with administrators or the mentees. Future studies may include perspectives from select mentors from the same location with comparable experiences.

This study is also limited based on the assumption that the participants responded honestly to the interview questions. Qualitative research assumes that multiple realities exist and that what "is" is constantly changing and being negotiated based on the experiences of the participants (Creswell, 2007).

## IMPLICATIONS

The elementary school mentors selected as participants in this study are from the state of Alabama. Therefore, their experiences may not be comparable to mentors in

other parts of the state or other states. The school mentors selected for this study are at different stages in their career, so one cannot claim whether their experiences will remain the same throughout their career. The primary aim of this study was to shed insight into the common practices of elementary school mentors. The onus is to seek transferability to other specific contexts and to discern patterns across the broader teacher-mentoring program. School districts need to allocate resources to ensure mentoring is a priority and that guidelines are implemented. The strength of the one-on-one mentoring approach is that a positive, reciprocal relationship could develop between the mentor and the mentee. However, the weakness of this type of mentoring relationship is that the mentee and mentor relationship could become a toxic relationship (Ingersoll & Smith, 2003).

The district leaders should carefully evaluate the current mentoring program for perceived satisfaction and effectiveness when developing and improving a program. Ingersoll and Smith (2003) argued these factors contribute to attrition, however many teachers sink in this profession due to the lack of support. The focus on mentoring programs from policy-makers is an indication there is concern for the amount of support new teachers are receiving. It is important policymakers are aware that it is not about the existence of a mentoring program, but the overall effectiveness of the specific characteristics of the program that contributes to attrition.

New teacher attrition can be reduced by one third to one half, if a strong induction and mentoring programs are in place (Hewitt, 2009; Ingersoll & Smith, 2003). An important component of a new teacher-mentoring program is the support teachers received during their first year of teaching (Alliance for Excellent Education, 2005). This study presented a variety of common practices and support for mentoring programs, teacher education programs, school districts and policy makers. Evident in this research is an indication for the continued investment in mentors' professional learning and support. This study provides valuable insight on how mentors view their relationship with their mentees, the connection with their colleagues, and how they view the mentoring program. Investing in the mentoring program may result in school district gains in teacher induction revitalization, time release for mentors, and building of mentor and mentee relationships. Darling-Hamond and Bransford (2005) indicated teacher-mentoring programs have many layers; school districts must continue to look for ways to better prepare and support new teachers. If mentoring programs are going to have a positive impact on beginning teachers, then the program must meet the needs of the mentee and mentor.

Additionally, school districts need to ensure training programs are in place to affirm the mentors are doing what they need to do. Scheduling options are recommended by allowing time for longer planning, and teacher collaboration. A scheduling adjustment will allow for ample time for mentors and mentees to collaborate, observe and provide feedback throughout the school year. Based on the research literature for this study, there is a strong connection between teacher success and the mentor and mentee relationship. Positive relationships are critical in fostering successful mentoring partnerships. Experiences of mentors in this study may provide new insights to inform current practice of mentoring programs.

## RECOMMENDATIONS

Six teacher mentors identified common mentoring practices they used to help encourage new teachers to remain in the teaching profession. After a detailed analysis of the data, the following recommendations may provide a more in depth conclusion. It is suggested future studies should be conducted using a larger sample of participants. It is also recommended the study should be conducted using secondary teachers as participants. It is possible secondary mentors could have a different perspective than the elementary mentors that were used. Additional research might include quantitative data concerning the effectiveness of this county's mentoring program. One way to implement this is to develop surveys to determine the effectiveness of the mentoring program.

Additionally, the educational community may benefit from further research on the relationship between mentors and mentees. The research reviewed found mentors increased teacher retention. This research may lend itself to research from the standpoint of the mentees and the common practices they perceived to be helpful.

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# Using Culturally Responsive Simulation Activities to Prepare Teachers

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**Abstract:** As America's classrooms grow increasingly diverse, the need to prepare culturally responsive educators is imperative. There is great potential for a mismatch to exist between students' home and school cultures, which may affect classroom learning environments as teachers plan lessons without being completely knowledgeable of their students. Knowing your students is key to planning effective learning experiences. Research states that in order to know and understand your students, teachers must also be knowledgeable of themselves, hence having cultural competence. This study explores ways to support preservice teachers in obtaining cultural competence by engaging them in simulation activities, where they experience being minoritized. Results of the study indicate that preservice teachers benefit from such activities that allow them to critically examine their own biases and experience other cultures. This experience assisted them in understanding the importance of being a culturally responsive teacher.

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**Keywords:** Culturally responsive pedagogy, culturally responsive simulations, pre-service educators, teacher preparation

Teacher candidates are completing educator preparation programs and are graduating ill-equipped to address the growing needs of our nation's increasingly diverse population (Gay, 2000; King & Butler, 2015; Ladson-Billings, 1995). Thus, schools today are filled with children of a variety of cultures, backgrounds, and languages. Additionally, there is not a uniformed effort on the part of all educator preparation programs to prepare teacher candidates to teach in a culturally diverse school (Gay, 2000). It is imperative that teacher education programs begin to explore different strategies for preparing pre-service teachers to teach diverse populations (Gay, 2000; King, Hollins & Hayman, 1997; Ladson-Billings, 1994; Ramirez, Gonzales-Galindo, & Roy, 2016)

Due to the demographic make-up of today's schools, teachers must be prepared to create a classroom environment that is welcoming and inclusive of all students. It is the responsibility of teacher education programs to prepare their teacher candidates to be responsive to students' various needs and interests. This can be accomplished by exposing pre-service teachers to culturally responsive pedagogy.

Culturally responsive pedagogy is defined as pedagogy of opposition that fosters academic success, maintaining cultural competence, and utilizing critical consciousness to challenge the status quo (Ladson-Billings, 1995). Studies have shown that if teacher candidates are exposed to culturally responsive pedagogy as a part of their educator preparation program, they will display confidence as they encounter diverse students (Pang & Sablan, 1998) and decrease deficit views – the belief that minority students fail because they lack the social, familial, and cultural capital needed to succeed in schools (Valencia, 1997). In many instances, urban school students' culture is weighted against what the institution sees as necessary for success. Kunjufu (2002) suggests that middle-class teachers assume that all students will have the same things that are in their homes; therefore, assignments may include trips and tasks that the students are not able to complete and are thereby punished for not completing their work. Ultimately, students will suffer if the school culture differs greatly from the home culture (Banks & Banks, 2004; Bridges, 2011; King, Hollins, & Hayman, 1997; Roy & Roxas, 2011). By providing pre-service teachers exposure to culturally relevant teaching, they are better able to bridge the differences between students' home and school community.

Preparing pre-service teachers for culturally relevant teaching is not an easy task (Achinstein & Ogawa, 2012; Walker-Dalhouse & Dalhouse, 2006). Culturally relevant

teaching (CRT) requires teachers to constantly confront his or her professional identity and predispositions as a way of self-reflecting and rebuilding (Cooper & Ye He, 2012). Teachers who believe that schools can be used to create social change must teach using a culturally responsive paradigm (Lopez, 2011). Thus, instead of keeping the existing school culture as it is, it will be more beneficial if the school culture is expanded so that everyone feels valued (Howe & Lisi, 2017).

## LITERATURE REVIEW

Research indicates that students, who perceive that their teachers have lowered expectations or biases toward their academic success, are less likely to achieve their maximum potential (Andrews & Gutwein, 2017). Too often, teachers working with diverse students also have doubts about their own ability to foster a culturally inclusive and engaging classroom environment (King & Butler, 2015; Scott & Scott, 2015). Therefore, to increase preservice teachers' motivation and knowledge base when working with diverse students, teacher preparation programs must continue to explore innovative strategies, techniques, and approaches that promote opportunities for teacher candidates to engage in culturally responsive pedagogy (Lew & Nelson, 2016; Ramirez, Gonzales-Galindo, & Roy, 2016). Furthermore, pre-service teachers should constantly be provided with opportunities to question why they think, behave, and respond differently when working with students from backgrounds unlike their own (Wong, Indiatsi & Wong, 2016). Pre-service teachers should also be provided with opportunities to engage and examine resources and materials that reflect diverse cultures (Trawick-Smith & Lisi, 1994).

According to Wlodkowski and Ginsberg (1995), to effectively implement culturally responsive teaching, instructors must begin with themselves by examining their course content, syllabi, and materials. In addition, instructors must not only be willing to think critically about what they do not know, but also provide activities for their teacher candidates to engage in this type of exploration for themselves. For example, providing simulations is one strategy that teacher educators can implement as a part of their pedagogical repertoire to help pre-service teachers reflect upon why they may internalize certain biases and stereotypes toward particular marginalized groups.

Simulations create learning environments that model real-world scenarios (Pankowski & Walker, 2016), behaviors, and practices. They can also be used to uncover pre-service teachers' biases (Andrews & Gutwein, 2017;

Hung & Chen, 2007) which is vital to future teachers if they are to be culturally responsive (Kaufman & Ireland, 2016). Simulations that encompass culturally responsive practices allow pre-service teachers to understand what will be expected of them once they get a job (Pankowski & Walker, 2016). Teacher candidates who participate in these simulations are able to negotiate and reflect upon their experiences, dispositions, and create new ideas regarding diverse populations, which will foster more productive learning environments for their future students (Cruz & Patterson, 2005).

## CULTURALLY RESPONSIVE SIMULATIONS

Cruz and Patterson (2005) discussed two such culturally responsive simulations: Albatross and BaFá BaFá, which provides opportunities and exposure for pre-service teachers to think about others' cultures. For example, the first part of the simulation, Albatross, takes approximately 15 to 20 minutes and consists of a greeting, eating and drinking, selecting a guest of honor, and a closing. The second part of the simulation consists of a 45 minute debriefing period. Cruz and Patterson (2005) explained that the debriefing period is critical because it helps teacher candidates identify and understand their misconceptions, prejudices and biases. Cruz and Patterson (2005) notes, "For this reason, the debriefing must be treated with particular thoughtfulness and attention. The debriefing consists of three phases: participants recounting what was objectively observed, then offering their possible interpretations of what was observed, and finally informing participants about the real nature of Albatrossian society" (p. 44).

In *BaFá BaFá*, participants are separated into two cultural groups (i.e. Alpha and Beta) and are placed into two different rooms depending upon their cultural affiliation. Each culture has its own set of rules, customs, and languages which are secretive and may only be shared with others of the same culture. For approximately 20 minutes (depending upon the number of participants), small groups from each culture visit the other room to enculturate the new culture that they know nothing about (O'connor, Rockney & Alario, 2002; Shirts, 1977). After each participant has had the opportunity to visit the other culture, the facilitator leads a discussion about why it is difficult to become a part of a new culture, how individuals who speak different languages become marginalized and are often disenfranchised, and why future teachers should be prepared to teach in diverse settings (Ramirez, Gonzales-Galindo, & Roy, 2016). Thus, the pre-service teachers are encouraged to

draw connections between the simulation, society, the classroom, and their lives (Cruz & Patterson, 2005).

These culturally responsive simulations engaged pre-service teachers and enhanced their ability to reflect upon their ideas as to why some students may have learning difficulties (e.g. language barriers, cultural differences, teacher bias, etc.) and why particular groups become marginalized and minoritized in the classroom. If teacher candidates are able to understand why particular groups of students succeed or fail, they may ultimately be able to render better outcomes for all students in their future classrooms (Chodkiewicz & Boyleb, 2014).

Orkins (2017) described a culturally responsive simulation that he witnessed entitled the Privilege Walk. In this simulation, college students were able to explore wealth, race, and gender by stepping forward or backward if a particular statement applied to them. The facilitator read from a list of statements, such as, step forward if you had more than 20 books as a kid or step backwards if you have felt obligated to speak differently in public. By the end of the activity, students were able to see who was in front of the other students and determine who had the most privilege according to their position. The students were able to discuss why students who had privilege were not able to see those without privilege because they were in front of them.

This idea of privilege can also be seen in high school. Sassi and Thomas (2008) discussed a high school teacher, Ebony Thomas, who was having difficulty getting her diverse classroom to embrace diversity when reading Native American literature; additionally, she contemplated discontinuing the reading because her classroom was not operating as a learning community. Ebony decided she needed assistance and decided to bring in a diversity consultant from the local university, Kelly Sassi, to facilitate a Privilege Walk. During the privilege walk, Kelly had students take steps forward when there were statements that applied to their privilege. Once the activity concluded, Kelly debriefed with the class and asked questions regarding their privilege and how they felt about the activity. Ebony's students were able to see that all of the White males were in the front, while all of the Black females were located in the back of the room. Ultimately, the facilitator used the Privilege Walk to explore social justice issues and discuss the awkwardness some students felt from the activity. As Kelly continued to explore the why's and how's from the Privilege Walk, the students that once felt voiceless, particularly the African American girls, felt empowered by participating in this activity.

Engagement in both culturally responsive simulations above empowered students and provided them with a new perspective on students who come from different backgrounds. These experiences provided insight in framing the direction of this study.

## THEORETICAL FRAMEWORK

Attribution theory is a cognitive theory that views human beings as conscious decision makers (Pintrich and Schunk, 1996). It does not attempt to explain the causes of behavior; rather, the primary focus is to understand the perceived causes of behavior (Forsterling, 2001; Seifert, 2004). By examining children's attribution to whether other students' racial and ethnic features determine teachers' perceptions in schools (Lapan & Boseovski, 2016), it is clear that children are able to perceive that discrimination is attributed to ethnicity, language, or immigration status (Brown, 2006). Therefore, this study was designed to uncover pre-service teachers' biases and ideas of privilege and culture in order to prepare them for the diversity of their future classrooms.

## PURPOSE OF THE STUDY

In an effort to prepare culturally relevant educators, education faculty facilitated activities that simulated experiences of being minoritized. Two interactive simulation activities BaFá BaFá and The Privilege Walk were used to begin to prepare teacher candidates to be able to relate to and teach a racially, ethnically, academically, and linguistically diverse classroom. The purpose of this study was to determine teacher candidates' perceptions of the use of in-class simulation activities to make them more aware of themselves and the students they will teach. These simulation activities provided students with opportunities for personal reflection and discussion of the need for them to use culturally responsive pedagogy with their future students. Therefore, this study will provide teacher education professionals with innovative strategies to use in classrooms to improve pre-service teachers' preparedness to serve in multicultural environments.

## METHODOLOGY

Teacher candidates' completion of the culturally responsive simulations of the Privilege Walk and BaFá BaFá, was followed by a reflection of their individual experience and participation in the two simulations.

Specifically, this study was performed to discover the impact of these activities on students' perceptions about self and others and their readiness to render service to culturally diverse groups. An online survey was provided to students via individual institutional email accounts. Students responded to questions on survey. Students were able to share the how the simulated activities made a personal impact on their perceptions. The survey data represents student responses related to the simulation activities they experienced in the course.

### *Participants*

The participants in this study were 35 teacher education candidates who were enrolled in a first semester course in a teacher education program. There were 2 males and 23 females. The racial demographics of the pre-service teachers included 26 White, 2 Asian, 1 multiple races, and 6 other races. The 3 professors who collaborated to facilitate the experiences included: 1 African-American male, 1 African-American female, and 1 white female with 14, 23, and 14 years of teaching experience respectively.

### *Data Sources*

Upon completion of the teacher candidates' participation in the two simulation activities that were part of their course curriculum, survey data was collected using Survey Monkey, an online survey tool. The following Likert scale questions were included in the survey:

1. Did the simulation activities enlighten your understanding and confidence in your ability to provide a culturally relevant teaching (CRT) experience for your future students?
2. Did these activities help you to expand your thinking about the importance of understanding people of other cultures?
3. Do you feel that the simulations have caused you to gain new perspectives about how to care for students and families who are different from your own culture?
4. Do you believe that the simulations have made a permanent impression in your heart and mind that will help to shape how you should be engaged with children and families?
5. Did these simulations promote self-discovery and help to expose your personal biases?

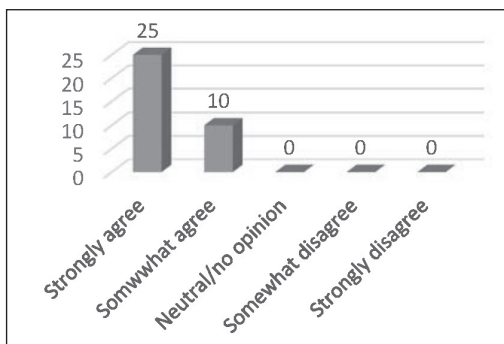
The preservice teachers responded to the questions. Inquiry regarding their feedback on the simulated activities was used to determine if the activities influenced their thoughts or perceptions about themselves and others unlike themselves.

## Findings

The findings below represent the teacher candidates' responses concerning the impact of the culturally responsive simulations on their thoughts about their future teaching. Candidates possible responses included: strongly agree, somewhat agree, no opinion/neutral, somewhat disagree, or strongly disagree. All of the teacher candidates (Figure 1)

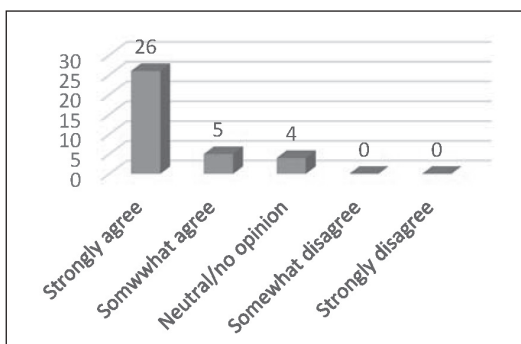
indicated that the simulation activities enlightened their understanding of CRT and their confidence in their ability to provide CRT instruction.

**Figure 1.** Teacher candidates were enlightened and confident about providing CRT instruction.



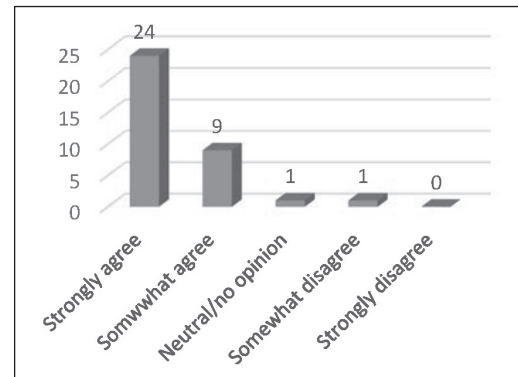
Out of 35 teacher candidates (Figure 2), 4 had no opinion, while the rest agreed that the simulation activities expanded their thinking on the importance of understanding other cultures.

**Figure 2.** Simulation activities expanded the importance of understanding other cultures.



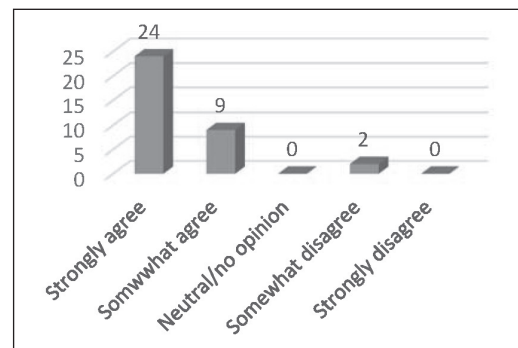
All except 2 candidates (Figure 3) felt that the simulations helped them to gain new perspectives on supporting students and their families from different cultures.

**Figure 3.** Teacher candidates gained new perspectives on supporting people students and families from different cultures.



Similarly, with the exception of 2 candidates who disagreed, the students (Figure 4) agreed that the simulations made a permanent impression on how to engage diverse students and their families.

**Figure 4.** Simulations made a permanent impression on how to engage diverse students and their families.



Overall, 86% of the teacher candidates (Figure 5) felt that the simulations assisted them in understanding and knowing themselves, specifically their personal biases.

**Figure 5.** Simulations assisted teacher candidates in understanding and knowing themselves, specifically their personal biases.

## DISCUSSIONS AND IMPLICATIONS

It is necessary that teacher education programs begin to explore different strategies for preparing pre-service teachers to teach diverse populations (Gay, 2002; King, Hollins & Hayman, 1997; Ladson-Billings, 1994, Ramirez, Gonzales-Galindo, & Roy, 2016). This idea served as a pillar to encourage the use of in-class simulation activities to prepare teacher candidates to be ready to serve all populations of children. Pankowski and Walker, (2016) stated that simulations create learning environments that model real-world scenarios. Therefore, this study allowed pre-service teachers to experience real-life simulations and be physically engaged in scenarios through their participation in the Privilege Walk and Bafa, Bafa.

Overall, the simulation experiences were viewed favorably by the majority of the teacher education candidates which directly correlates with the overarching purpose for the study to inspire a personal commitment to providing culturally responsive teaching practices. The findings from this study are consistent with findings from studies discussed by Pang and Sablan (1998) which indicated that if teacher candidates are exposed to culturally responsive pedagogy as a part of their educator preparation program, they will display confidence as they encounter diverse students.

Additional findings indicated that a very small group of pre-service teachers either did not have an opinion or they somewhat disagreed with 4 out of 5 of the survey questions (Figures 2, 3, 4, and 5). This group of teacher candidates will have additional opportunities to continue to engage with students from diverse backgrounds as they continue in the education program. It is hoped that these pre-service teachers will begin to evolve to be motivated by a personal desire to understand themselves, their environment, and the behaviors of others, based on the theoretical framework of attribution theory (Pintrich & Schunk, 1996).

## IMPLICATIONS FOR FURTHER RESEARCH

To date, there is not a uniformed effort by all educator preparation programs to prepare teacher candidates to teach in culturally diverse schools (Gay, 2000). Further research assessing the effectiveness of the use of real world simulation activities as a strategic part of a teacher education curriculum would be beneficial in providing more information on its usefulness in preparing pre-service teachers to be culturally responsive. Additional research could contribute to the knowledge base and allow for the tracking of individual teacher candidates' progression from pre-service educator to certified teacher. This research could assess if such participants intentionally integrated culturally responsive practices during their first year of teaching.

## CONCLUSION

As the need for more teachers to fill the vacancies in today's classrooms increases, so does the need for more educators who are prepared and willing to provide culturally responsive pedagogy that is inclusive of the needs of all students. Educator preparation programs are tasked with the preparation of teacher candidates who are confident and capable of teaching the diverse population of students who make up American classrooms. During their educator preparation, teacher candidates will be faced with the challenge of personal doubt in their ability to create a culturally inclusive and engaging classroom environment (King & Butler, 2015; Scott & Scott, 2015). The more that educator preparation programs can prepare teacher candidates by using a variety of simulations (Pankowski & Walker, 2016), the more confidently prepared they will be to teach in multicultural classrooms (Lew & Nelson, 2016; Ramirez, Gonzales-Galindo, & Roy, 2016), and the better prepared they will be to provide culturally responsive experiences for learners.

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# Recess and Academic Achievement

Sheryl Venable

**Abstract:** Because school systems want to boost academic achievement, some choose to decrease or eliminate recess. Suppose a supervisor of adult workers decided that eliminating breaks would increase the company's productivity. Would workers accept this? They probably would not. Why then would we decrease or eliminate children's breaks? Recess periods are children's breaks from their jobs as students. Review of the literature shows that recess in schools is associated with a boost rather than a decline in academic achievement. Therefore, eliminating recess breaks may be counterproductive to the mission of school systems which is to foster academic achievement.

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**Keywords:** recess, break, academic achievement, distributed practice, massed practice

## INTRODUCTION

Many schools have decreased or eliminated recess in order to raise the academic achievement of their students (Yesil Dagli 2012). Is this wise? If working adults are allowed breaks on their jobs, students have similar opportunities. Schools that have reduced or eliminated recess consider recess periods as lost instructional time periods. However, Pellegrini's (2008) research identified a positive connection between recess and academic achievement.

This article identifies the pros and cons of recess and highlights its effect on academic achievement. An understanding of recess and its role in the educational process may convince school leaders of the importance of recess time for students.

## LITERATURE REVIEW

### *Recess*

Recess can be explained as a break from academic study during which students can spend time with their friends and play (Pellegrini, 2008; Keeler, 2015). Recess is not the same as physical education (Ramstetter, Murray, & Garner, 2010). Physical education is a structured activity; whereas recess is an unstructured activity (Pica, 2008). During physical education, activities are planned

or structured for students, but during recess students have a choice. If they choose to be alone, they can be alone. If they want to run and play, they can run and play.

Pellegrini (2008) explains the need for recess by discussing breaks needed by working adults. He addresses the need for factory workers to have a break to increase their effectiveness. He also provides an example of a person who drives a considerable distance. If this person takes a break, he will be more alert and less likely to be involved in an accident than if he tries to cover the entire distance without a break.

### *Advantages of Recess*

As previously stated, recess is an unstructured activity (Pica, 2008). It therefore allows students to make choices. Recess provides students with a break from the structure of classroom activities and physical education. Ramstetter, Murray, and Garner (2010) identified several social and emotional advantages of recess which include interacting with others and handling stress. Recess is also a time children can practice their self-regulation skills.

Recess boosts physical health (Chang & Coward 2015). It decreases obesity and certain health issues such as myopia and blood disorders.

The break provided by recess contributes to a managed

classroom (Jarrett et.al., 1998). When students are provided with a break, they do not fidget as much and are better able to stay on task.

### ***Disadvantages of Recess***

Even though recess appears to be beneficial, some school administrators have diminished or removed recess from their schools (Ramstetter, Murray, & Garner, 2010). They believe that recess takes away instructional time; however, no studies have equated a decrease in recess with an increase in academic achievement (Pellegrini, 2008; Jarrett, 2002).

Another problem linked to recess is bullying; however, Pellegrini (2008) states that bullying also occurs in halls, restrooms, and any place where supervision may be lacking. Therefore, bullying is not solely associated with recess and can be significantly decreased with adequate supervision.

Child safety is also an issue. Inspections of playground equipment and adequate supervision can help keep the children safe (Ramstetter, Murray, & Garner, 2010).

### ***The Link between Recess and Academic Achievement***

“Minimizing or eliminating recess may be counterproductive to academic achievement” (Ramstetter, Murray, & Garner, 2010, p.524). According to Pellegrini and Bjorklund (1997) and Ramstetter, Murray, and Garner, 2010, students are not able to focus on material for long periods of time. Therefore, recess periods should increase students’ academic achievement. This idea can be explained by using the concepts of distributed practice and massed practice (Pica, 2010; Pellegrini, 2008). The concepts of distributed and massed practice originated with Hermann Ebbinghaus in 1885 (Ebbinghaus, 1885, 2013). Distributed practice means that the practice or learning is divided. Massed practice means that the practice or learning is concentrated. Related to recess, distributed practice incorporates recess. Recess “divides” the learning. Massed practice does not incorporate recess. To explain it another way, distributed practice might mean a student may have spent a week studying for a test; whereas massed practice might mean a student crammed the night before the test. Ebbinghaus found distributed practice to be more beneficial than massed practice. Specifically, the break provided by recess contributes to students’ abilities to focus and study (Chang & Coward, 2015).

Ramstetter, Murray, and Garner (2010) explain the academic benefit of recess with the Cognitive Immaturity

Hypothesis which means that children best learn academic material when breaks are provided. The best type of break is an unstructured recess break. The break allows their brains to process the learned material. Thus, recess is essential to a child’s cognitive development (Dubroc, 2007).

Academic achievement is high in countries that provide students with recess breaks. When comparing Shanghai to the United States, Shanghai’s students have more recess time. Shanghai’s elementary, middle, and high school students’ recesses are 40%, 32%, and 29% of the school day, while the United States’ elementary, middle, and high school students’ recesses are 22%, 12%, and 15% of the school day (Chang & Coward, 2015). Chang and Coward (2015) note that despite the amount of recess in Shanghai’s schools, their test scores are high.

Finnish schools provide their students with a first-rate education; however, their students are provided over an hour of recess per day (Wong, 2016). Finland schools are recognized for their outstanding performance on international tests (Keeler, 2015) even though formal education does not begin until the age of seven (Gross-Loh, 2007).

Students in Japan score high on national tests. The elementary schools in Japan provide students with up to five recesses per day that range anywhere from 10 to 30 minutes (Topolnicki & Smale, 1993). Additionally, they are afforded 40 minutes each day for lunch. Because of the academic advancements of the students in Japan, their schools’ management of recess is used as a model for other nations (Gross-Loh, 2007).

## **IMPLICATIONS**

Many schools in the United States reduced or eliminated recess during the 80’s due to the No Child Left Behind Act (Adams, 2011). These systems believe that more instructional time leads to higher test scores; however, as previously stated this idea has not been shown in research studies. Pellegrini (2008) challenges those who see no benefit in recess to present research to prove their point.

The benefits of recess, especially academic achievement, need to be considered when decisions are made to reduce or limit it (Ramstetter, Murray, & Garner, 2010). Additionally, social and emotional advantages (Ramstetter, Murray, & Garner 2010), improved physical health (Chang & Coward 2015), and a better managed classroom (Jarrett et.al., 1998) are benefits for

the students as well as teachers.

Physical education should not be used as a replacement for recess. Physical education is a structured activity and students need the unstructuredness of recess (Ramstetter, Murray, & Garner, 2010).

Bullying and child safety can be recess issues (Pellegrini, 2008). When students are outside, proper supervision and regular inspections of equipment will help counteract these issues (Kozlowski, 98).

One issue is withholding recess as a form of discipline (Ramstetter, Murray, & Garner 2010). There is a national move to prohibit the withholding of recess due to undesirable behavior and the failure to complete work. Usually the students who are punished with recess are the ones that need it most. Alternative forms of discipline need to be explored (Turner, Chriqui, & Chaloupka, 2013).

## SUMMARY

Recess is a break from structured activities (Pellegrini, 2008; Keeler, 2015). An important benefit of recess is its link to academic achievement which can be explained using the concept of distributed practice (Pellegrini, 2008). In order to increase academic achievement, many schools in the United States have reduced or eliminated recess (Adams, 2011). This may not be a wise move because in places such as Shanghai (Chang & Coward, 2015), Finland (Wong, 2016), and Japan (Topolnicki & Smale, 1993) that provide students with recess, academic achievement is high.

Other benefits of recess include the social and emotional advantages (Ramstetter, Murray, & Garner, 2010), improved physical health (Chang & Coward 2015), and better managed classrooms (Jarrett et.al., 1998). Negative aspects of recess such as bullying and safety can be controlled by appropriate supervision and inspection of equipment (Ramstetter, Murray, & Garner, 2010).

Finally, withholding recess should not be used as a form of discipline. Such a strategy deprives students of the advantages of recess (Turner, Chriqui, & Chaloupka, 2013).

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# Still the One: Writing Workshop Works in the Past, Present, and Future

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**Abstract:** Today's curriculum is driven by standardized tests and is frequently narrowed to information that is tested. Though numerous researchers express this attitude and oppose teaching to the test, many districts urge test preparation through prompts and formula writing in place of teaching writing using best practices. In this manuscript, the author's present information that indicates Writing Workshop is key to developing proficient writers who can pass standardized tests as well as write for authentic purposes.

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**Keywords:** writing instruction, Writing Workshop, best practices

“Literacy assessment should be about student learning, but high stakes testing has largely supplanted literacy assessment in the United States.” (Higgins, Miller, & Wegmann, 2006, p.310).

## SCENARIO

Eight doctoral students and their professor sat around a long table talking about writing instruction in their school districts. Samantha complained that her district mandated the use of writing prompts each and every morning during the designated writing time. Kathy explained that writing was not taught in her grade level as it was not the “writing testing grade.” Maria chimed in that she wanted her students to write for authentic purposes, however, her principal handed her the writing prompts for the week every Monday morning and there was not time for any other type of writing. All of the students agreed that what they were learning about and reading about in their doctorate in literacy program was not what they were experiencing in their schools.

## INTRODUCTION

It has been eleven years since Higgins, Miller, and Wegmann (2006) implored teachers to use best practices such as Writing Workshop, 6 +1 Traits of Writing, and different modes of writing to scaffold students through the writing process, rather than teaching to the test. From what we hear from teachers it has only gotten worse. The authors are both professors of literacy at a regional university in Texas, and most of our students are either at the masters or doctoral level and are teaching in the field. Our students have told us many stories similar to the ones told in the scenario.

Many of our students have stated that the purpose of writing in their districts seems to be passing the state standardized writing test. In some districts, writing is only emphasized in grade levels in which it is tested (4<sup>th</sup>, 7<sup>th</sup>, 10<sup>th</sup>). Other graduate students report that writing consists of grammar exercises and corrections similar to the test questions on the mechanics section of the writing test. Still others describe their districts' writing instruction as consisting of writing prompt after writing prompt and benchmark after benchmark. They have complained their districts' writing plans lack actual writing instruction and do not allow P-12 students to write for authentic writing purposes and choose their own writing topics. Many P-12 students are not motivated to write and do not see themselves as writers.

## RESEARCH OF THE PAST

Over the years, research has shown that Writing Workshop is an effective and authentic way to allow student writers voice and choice to write for a variety of purposes. Students who participate in Writing Workshop use the writing process as identified by various researchers. Murray (1972) describes the writing process as prewriting, writing and rewriting. Each particular writer, according to Murray, spends different amounts of time in each of these stages with the most amount of time typically spent in the prewriting stage. The author emphasized, “instead of teaching finished writing, we should teach unfinished writing, and glory in its unfinishedness. We work with language in action” (p. 4). As Murray stated, writing is a process, and teachers should focus on that process rather than on the finished product. Flower and Hayes (1981; Hayes & Flower, 1986) identified the following components of the writing process: planning, translating, and reviewing. Atwell’s (1987) version of the writing process included prewriting and planning, drafting, revising, editing, and publishing. Atwell combined these components and added peer and teacher conferencing and minilessons to create her writing workshop. Through writing workshop, Atwell’s students’ voices were able to shine through. She stated, “...when they chose their topics, genres, and audiences, and wrote and wrote and wrote, I listened and listened and listened. I needed to learn how to pay attention; to stop performing and become quiet, to let myself fall in love with every one of my students. These were heady times, as many English teachers abandoned the old orthodoxies and cleared the way for our kids’ voices” (p. 17). Graves (1994) wrote the forward for Atwell’s book, *In the Middle*, and afterwards he stated that that made him realize there is not any particular methodology that results in good writing. Instead, “the remarkable work of (Atwell’s) students was a result of the conditions for learning she created in her classroom” (p. 103). According to Graves, the optimal conditions for writing are time, choice, response, demonstration, expectation, room structure, and evaluation (p. 103-112). Writers need a sustained time during which to write every day or as close to every day as possible. In addition, it is important for writers to choose their own topic to ensure it is something they know about and that it is interesting to them. “Students need to hear the responses of others to their writing, to discover what they do or do not understand” (p. 108), Graves described. He further explained, “Writing is a craft. It needs to be demonstrated to your students, in your classroom, which is a studio, from choosing a topic to finishing a final draft” (p. 110). Additionally, teachers must have high expectations of their students and of their efforts

in the writing process. The classroom structure must be predictable and conducive to writing and problem solving. Graves encourages teachers to circulate about the classroom in order to support students and intervene in classroom management problems when needed. Finally students must learn how to evaluate their own writing pieces and know when to add something, revise something, and delete something. Graves stresses the teacher’s role in orchestrating all of these conditions to help students learn what it is to be a writer.

Fu and Lamme (2002) also identified time, choice and response as important factors in writing. They interviewed third grade students who participated in the writing workshop and found that having a sustained time in which to write and choosing their own writing topics helped the students to enjoy writing and to see themselves as writers. In addition, sharing their writing with teacher and peers motivated them to improve their writing and become effective writers. Fletcher and Portalupi (2001), described writing workshop as “...a rigorous learning environment that has its roots in the traditional system in which apprentices learn the skills of their trade by working at the sides of master craftsmen and women. The writing workshop puts kids on the spot and makes them responsible for their own learning” (p. 2-3). Students choose their own topics, prewrite, draft, revise, edit, and publish their own writing pieces. Calkins (1986) states, “For me, it is essential that children are deeply involved in writing, that they share their texts with others, and that they perceive themselves as authors” (p. 9). According to Tompkins (1994), “The writing process is a way of looking at writing instruction in which the emphasis is shifted from students’ finished products to what students think and do as they write” (p. 7).

In recent years, researchers have expressed many of the same frustrations with writing instruction as have our graduate students. Wolf and Wolf (2002) stated that teachers are being driven by standardized tests and that they are being “pulled toward prompt-and-rubric teaching that bypasses the human act of composing and the human gesture of response” (p. 230). According to Routman (2005), “The joy has gone out of writing. From elementary school through high school, many students are receiving extensive test preparation, much of it learning to write to a formula” (p. 244). Miller, Berg, and Cox (2016) also describe test preparation style writing as being formulaic. They state, “This kind of writing instruction focuses on the product, rather than the process” (p. 58). The authors go on to stress that this writing is not written for an authentic audience, and it is judged on standards which are deemed to be important by the test makers. Though many researchers

express similar attitudes and oppose teaching to the test, it still seems to be quite prevalent for districts to urge test preparation through prompts and formula writing in place of teaching writing using best practices. Fletcher (2001) explicitly stated that students can perform well on writing tests through use of best practices, rather than teaching to the test. Manzo (2001) reported that students in classrooms that used effective writing instruction outscored those who received skills-based test preparation. According to Tchudi and Tchudi (1999), instruction based on best practices in writing yields the highest scores on the standardized writing test.

We believe that writing workshop is still the best type of writing instruction, and in this article we delve into recent literature that shows why it is still effective. We hope to reach administrators and teachers to bring awareness of the effectiveness of writing workshop and create an understanding of its relevancy in this era of testing. Writing Workshop “prepares students to be full, literate members of our society and not just people who can pass a test” (Higgins, Miller and Wegmann, 2006). Past generations of P-12 students benefitted from Writing Workshop, but unfortunately, many children from the present generation have learned to write solely through the use of writing prompts. We believe that these same children could make significant gains and become thinkers and writers through the use of Writing Workshop.

## RECENT RESEARCH

Recently, research has continued to support the use of Writing Workshop to meet the demands of standardized writing assessments as well as develop students who are able to write successfully in a variety of genres. According to Tompkins, (2017) writing workshop “is the best way to implant the writing process” (p. 359). In Writing Workshop, young writers are given an uninterrupted time to write every day, and they are able to work at their own pace. Teachers act as facilitators and provide guidance and support as students work through the writing process. Many teachers begin Writing Workshop each day with a mini-lesson to emphasize skills needed for the writing process or to introduce students to different genres. In addition, students can conference with both their peers and the teacher to get feedback on their writing pieces. Students feel ownership of their writing projects, as they are able to choose their own writing topics, and they begin to feel like a community of authors as they collaborate and share their masterpieces with each other. In such a classroom, “there’s a spirit of pride and acceptance,” (p. 359), stated the author.

Miller, Berg, and Cox, (2016 ) discussed their recent study with teachers of English Language Learners (ELLs) in which they interviewed writing teachers and concluded that the teachers were able to help students find a love for writing and still score well on the standardized writing test through Writing Workshop. The teachers were able to access their ELLs’ background knowledge and scaffold the students through use of visuals, choice, extended periods of writing time, conferencing and the 6 +1 Traits of Writing in addition to what the state and school district required for writing instruction. According to the teachers in the study, their students not only were successful on the state standardized writing test, but they learned to love writing, they saw themselves as writers, and they were able to write for a variety of purposes.

Tompkins (2015) emphasized “good writing instruction is the best way to prepare children for on-demand writing assessments” (p. 332). She stressed that children who use the writing process and 6 +1 Traits of Writing to write to a variety of genres are successful writers. However, standardized writing tests further require children to understand what the writing prompt is asking them to write, and they have a limited amount of time to write during the test. Children are accustomed to choosing their own topics in Writing Workshop, but on the standardized writing test they are asked to write to a prompt that they may not be interested in writing about. Tompkins advises teachers to ensure that children are ready for the writing test by teaching them to “analyze the prompt, develop ideas, plan their writing, and proofread” (p. 333). She recommends teachers interrupt Writing Workshop for about six weeks before testing time to learn and practice these testing strategies, as described in a study by Shelton and Fu (2004). Students using this process scored higher on the state test though they disliked the test preparation. Tompkins states these students “eagerly returned to Writing Workshop where they chose their own topics, collaborated with classmates and didn’t have to adhere to time restrictions” (p. 333) when the testing was over.

As we find ourselves in the 21<sup>st</sup> Century, Writing Workshop has begun to look different in certain classrooms. Bogard and McMackin (2016) referred to a study that took place in Bogard’s third grade writing classroom, in which students engaged in “multimodal storytelling” (p. 314) in their Writing Workshop. Students planned out their digital stories by collecting real objects, cutting out pictures and writing phrases in their writer’s notebooks. They sometimes produced “recorded oral rehearsal” (p. 315), in which they made audio recordings of their emerging stories, elaborating and adding details as they went. The authors described a child who listened to his recording as it was played back, “For students like Frank, the process of hearing

his recorded story encouraged him to slow down and pay careful attention to his words before jotting them down on the paper” (p. 319). Other times, they created storyboards on smartboards, using both pictures and words. As part of the storyboard, students chose media with which they would illustrate their stories. They created art and photographed it, used online photos or artwork, and they took photographs of people and places. To create the final digital stories, students used video editing software and podcast microphones. During this entire process, students conferred with each other and with the teacher and collaborated on stories. They shared their final digital stories with each other, with their families, and with an audience who came to the school to view the stories on a big screen on a special night. “Day by day,” the authors stated, “(the students) shape and reshape what it means for them to be literate in the 21<sup>st</sup> century” (p. 322).

Tompkins (2017) recommends that students publish their multimodal writing projects through online publication sites such as *Amazing Kids! Magazine*, *Cyberkids*, *KidsWWwrite*. Through these websites young writers can share their writing creations with a global audience and through this audience, receive feedback about their writing. The author also suggests that students can collaborate with other students across the globe through ePals software, blogs, wikis or Skype.

In *The Digital Writing Workshop*, Hicks (2009) recognized the advent of digital platforms for students to write in. He adheres to five principles for writing in a Digital Writing Workshop. The first principle states students should have choice on their topic of interest while learning new ways to gather and save digital information about their topic. The second principle examines how student and teacher conferencing takes place using web-based tools, such as “blogs and wikis” (p. 12). The third principle discusses author’s craft like a traditional *Writer’s Workshop*. However, students learn to compose through digital modes, such as creating digital stories and podcasts. In the fourth principle, Hicks discusses new modes of publishing and ways to share digital texts. The author points out students are still involved in prewriting, drafting, revising, and editing as they would be in a traditional *Writing Workshop*. Finally, the fifth principle is assessment and how teachers assess digital writing, including “mode and media, audience, purpose, and situation for the writing and the writer,” (p. 109) or MAPS formative assessment. Further, the author recommends a summative assessment that includes the 6+1 Traits, which consist of idea, organization, voice, word choice, and presentation or publication (Northwest Regional Educational Laboratory, 2005; Spandel, 2005).

Hicks (2013) went on to say in a later publication, “With digital writing, we need to think with words, of course; yet we also need to begin thinking like artists, web designers, recording engineers, photographers, and filmmakers. In other words, intentional choices about craft can lead to creative work in a variety of writing media” (p. 18-19). Experiences in various digital formats for writing helps students to prepare for constantly evolving technology.

Many teachers may find it difficult to implement *Writing Workshop* with technology if they are not, themselves, well versed in the ever-changing technologies of today’s society. Ciampa (2016) described her study, in which she provided professional development for urban teachers to help them implement “digital reading and writing workshop” in their K-8 school. The author emphasized the need for teachers to experience the technologies first, themselves, in a workshop model before integrating the digital workshop into their literacy classrooms. The teachers in Ciampa’s study learned to use blogging, Google Docs, WebQuest, *Today’sMeet*, and other software with their students in their *Writing Workshop*. *Today’sMeet*, for instance, is a way students can have a digital conversation with each other while viewing a piece of media in order to brainstorm, ask questions, and share ideas about what they are planning to write during the workshop. In addition, students can collaborate using Google Docs, or they can use it to share their writing and get input from others. The author stressed, “To support our students’ experiences with Web-based and digital resources, we must interact with these resources and texts. Teachers cannot just read about Web-based and digital resources; they must begin exploring these resources for themselves” (p.305).

## CONCLUSION

*Writing Workshop* encourages the enthusiastic contribution of children writing by advocating writing that is not bound by the traditional ways of teaching writing (Lensmire, 1994). In the past, writing instruction has been teacher dominated—the teacher usually has complete control of the topic and the audience, as the teacher assigns the writing, the student responds to a prompt, and the teacher assesses and assigns a grade (Cazden, 1986). Murray (1972) implored, “Teachers... we have to be quiet, to listen, to respond. We are not the initiator or the motivator; we are the reader, the recipient” (p.5). Students are empowered by the choices they make through participation in *Writing Workshop*, and their voices shine through as they take responsibility for their own learning, with the guidance of their teacher. “Learning is social and collaborative, and

Writing Workshop provides the setting for students to collaborate and share what they have learned through the writing process,” stated Higgins, Miller, and Wegmann (2006, p.316). Even though Writing Workshop is known for its routines and structures (Culham, 2014), Writing Workshop also “emphasizes the social and collaborative nature of writing...” (p. 25). We continue to promote writing workshop as the best type of writing instruction, and we hope this article has illustrated, through the recent literature that it is still effective, especially in this era of testing. Furthermore, we hope we have adequately made

the point that Writing Workshop is just as relevant in the digital age as it was in the past. The possibilities for applications of Digital Writing Workshops are endless, and supporting student writing through technology will lead to limitless opportunities for critical thinking and creativity. We believe that students will, not only make significant gains in writing ability and score well on standardized tests, but they will become thinkers and writers and “full, literate members of our society” (Higgins, Miller and Wegmann, 2006, p.318) through participation in Writing Workshop.

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# Why Earning a Master's Degree in Teacher Leadership is a Good Idea

Louis L. Warren

**Abstract:** Earning a master's degree in teacher leadership is a career option that teachers should be encouraged to pursue. Teacher leadership is recognized by the education profession as a critical component of the skills set that effective teacher must possess. A master's degree in teacher leadership provides teachers with several useful skills. The skills obtained by pursuing a master's degree will undoubtedly guide teachers on the exact ways of improving the performance of both the students and the faculty.

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**Keywords:** teacher, leadership, masters, degree, leader, profession

## INTRODUCTION

The qualified administrators in various institutions have a broad range of responsibilities to perform in their workstations (York-Barr and Duke, 2004). Quality is one of the significant aspects that define capable leaders in the education profession. Likewise, a good leader encourages teamwork among his or her colleagues and emphasizes the use of innovative strategies in the management of an organization. Pursuing a master's degree in teacher leadership is one of the ways of achieving the intellectual experience in the teaching profession. Education administration will certainly fail if there is unsatisfactory as well as improper leadership in the education sector. This article will critically examine the likely benefits of obtaining a master's degree in teacher leadership as well as the link between the skills gained and the proper management of the educational institutions.

## BENEFITS

A master's degree in teacher leadership will make one be considered the best among his or her peers. The teacher will as well be the first one to be considered for any leadership position because he or she is the most knowledgeable. The skills and motivation earned from obtaining a master's degree in teacher leadership also provide the teacher with the necessary skills of handling both the educators and students in an institution. Similarly,

through the attained skills, a trained teacher can know the precise weakness that derails the performance of a school (Harris, 2003).

Consequently, the skills gained from the master's program enables the teacher to come up with strategies to improve on the student weakness and ultimately improving their performance. A study conducted by the national evaluation of education body (NAEP) found out that since the year 2000, the students taught by the master's teachers in grade 4 and 8 performed better in a standardized mathematics paper as compared the students who were taught by the teachers with a bachelor's degree. This study clearly indicates that a master's program not only improves the performance of an institution but as well improves the students 'performance (York-Barr and Duke, 2004).

Earning a master's degree in teacher leadership allows a teacher to stand out among her or his peers as a mentor and a role model (Harris, 2003). For instance, if a new teacher is employed in a school, a skilled trainer will ensure that the teacher adopts with the school programs as it is recommended through proper guidance. Besides, being a role model in a given institution will encourage the other teachers to obtain positive traits from their ideal leader. Similarly, a role model portrays a successful professional behavior that leads to the success of the institution due to a comfortable working environment. Finally, through proper support and guidance, a fruitful outcome will always be realized in both the teachers

and the students due to a collective progressive interest regarding performance and appropriate values at the educational institutions Muijs and Harris (2003).

A study conducted by the (BLS) Bureau of Labor and Statistics revealed that the jobs demanding a master's degree would grow by 21% by the year 2020 as compared to the requirement of an associate, bachelor's, and doctorate which will be 18%, 17%, and 19.5% respectively. The statistics show that pursuing master's degree in teacher leadership qualifies one for either promotions or better job in the future. Since the administrative employment in an institution like managers and directors demand employees with proper leadership skills, it is important to gain these skills by pursuing a master's level in the teacher leadership as one is always guaranteed a job.

The promotion from one level to another in teaching profession earns someone respect as well as salary increment. The educational development as well improves the quality of life of such a leader significantly through the wages and allowances received. Moreover, personal happiness and satisfaction are actualized through job promotions leading to constant motivation at working place. A master in leadership as well gives the qualified people the powers to make the decision on the operation of the school as well as the changing or making of new policies that will govern the school (Lieberman and Miller, 2011).

A better pay is a motivation for teachers to pursue a master's degree. According to the BLS report, a master's degree in teacher education increases the salary by 10%. For instance, a survey on teacher salary in the year 2013 and 2014 revealed that a master's degree teacher earned on average \$60,830 as compared to their bachelor's counterparts. Therefore, a master's in Teacher Leadership awards the teachers with a fair pay (Muijs and Harris, 2003). Consequently, most of the schools would like to employ teachers who have excellent leadership skills since they are guaranteed of achievement for both the students as well as the educators. Most school directors as well believe that teachers with a master's in teacher leadership are the best job applicants in their institutions because they have the skills which improve the development of their organization.

Moreover, employers in many academic sectors are assured that hiring highly skilled teachers more specifically those with a master's degree makes a difference in the institution performance as well as the scholastic realization of the students. This assurance is because; a master's degree is an indication of

academic competence and a determined personality of an individual. Currently, people with master's degree have an exceptional opportunity of getting a job in many institutions because they are considered to possess sufficient experience in the teaching profession (Crowther, Ferguson and Hann, 2009); due to this fact, many teachers are motivated to pursue a master's degree in teacher leadership.

The skilled teachers through their experience have the ability to intensify positive change in the institution. According to Muijs and Harris (2003), teachers are intellectuals who are never satisfied with the status quo but are always looking for means to expand their position. Pursuing a master's degree in leadership skills enables teachers to realize this potential by applying and practicing leadership skills not only in their institutions but other areas as well. Teachers with this capability feel secure since they are the administrators of both the academic and school performance in the faculty.

Under normal circumstances, the identification and proper solving of problems in the school setting take time when the leaders are incompetent. The delay subsequently slows down the growth and development of an institution. Therefore, to enhance positive management both financially and academically it requires individuals with excellent leadership skills. This is because positive changes within an organization make the school operations easy and efficient, this, in turn, improves the performance of the school (Crowther, Ferguson and Hann, 2009).

Moreover, pursuing master's degree in teacher leadership makes one learn innovative skills which allows the leaders to acquire extra knowledge which will advance competitiveness in this dynamic society. Therefore, the leader must always gain new strategies that will help the students to achieve their set objectives as well as those of the school in general. To realize these strategies, leaders should organize forums in which teachers learn from each another to hone the skills that can help students meet their objectives. Through these discussions, the leaders will as well recognize their strength which they will continue using for the well-being of the school. Similarly, they will also realize their weakness and come up with ways of improving. (Smylie, Conley and Marks, 2002).

Additionally, being a good facilitator is another benefit of earning a master's degree in teacher leadership. With a master's degree, one can be a perfect arbitrator among the peer teachers as well as within the students. Professional facilitation in school leads to a general

performance on an institution. Proper teacher training will as well improve the students' academic progress since it helps the students to learn on their own and to be able to search for ideas from different resources used in learning. Through this guidance students as well become responsible on their own and can complete specific tasks without the supervision of the teacher. Proper facilitation also makes one understand how to achieve given goals. Moreover, proper guidance will train individuals to be independent when doing their academic activities whether in school or at home (Crowther, Ferguson and Hann, 2009).

According to Danielson (2007), when there is teamwork in an institution, the administration process becomes easier since the managers have ample time to developing new policies of managing the organization for a better outcome. Thus, for one to have better supportive skills, it's better to pursue a master's degree in teacher leadership to have a friendly working environment. Proper support for the administration and the students will as well lead to the provision of the best results academically and in the other aspects of life. Moreover, through the proper supportive skills, employee have been found to work willingly without close supervision from their leaders; similarly, the students have been found to help each other in their academically.

The skills obtained in teacher leadership also provide necessary information that will enable a teacher to develop an understanding of how the school curriculum is developed. These skills as well enable the teachers to link one component of the curriculum with another thus increasing the effectiveness in the overall learning process. A well-understood curriculum will enable the teacher to deliver the relevant content to the students efficiently. The curriculum specialists as well have the ability to modify the curriculum to accommodate the emerging issues. The teachers possessing appropriate curriculum information can as well help their fellow peers to know what the curriculum entails, in the process, the set objectives are quickly realized thus helping the students, and the school at large to achieve its goals (Berry, Johnson, and Montgomery, 2005).

According to Berry et al. (2005), curriculum specialist as well provides guidelines and appropriate standards that should be followed in curriculum development. The use of current pacing chart and the development of shared assessments are examples of curriculum development

that can be used in enhancing performance. Once all teachers have understood the curriculum, the school staffs and the students can then come up with plans that will help in the attainment of the set objectives.

A master's degree in teacher leadership as well makes teachers be an efficient resource provider. By acquiring a master's degree, a teacher will know the sources and information which are helpful to both students and other teachers in school. Similarly, the information shared among teachers will help the students to perform better in their studies. A master's degree as well helps one to identify significant external resources that can help an organization achieve its set goals and objectives. In a school setting, an individual who holds a master's degree in teacher leadership stands to be a significant resource provider to both the school and the students (Crowther, Ferguson and Hann, 2009).

The resources which can be helpful to the institution can be found in different websites, articles and educational books that develop the students' academic ability. The professional support provider as well helps the teachers to get relevant and valuable information on how to work smart in the teaching profession as well as how to make the students perform better. The resources will as well help the teachers to plan their lessons adequately and come up with sound and useful assessment tools for the students and even the staff members. Having enough resources and accurate information will bring a positive impact on students, teachers and the entire institution (Berry et al., 2005).

## CONCLUSION

Finally, pursuing master's degree in teacher leadership provides teachers with several useful skills. The skills obtained by pursuing a master's degree will undoubtedly guide teachers on the exact ways of improving the performance of both the students and the staff members as well. A master in teacher leadership will enhance the implementation of study research-based teaching approaches and explore the educational policies that are applicable in the school setting. Therefore having an instructional specialist in school will bring a significant positive impact on the learning institution. In conclusion, benefits gained from learning master's degree in teacher leadership has an impact on an individual, students, and the education organization.

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# “Something Like It” Behavioral Applications Usually Do Not Work

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**Abstract:** Some practitioners who attempt to implement behavioral teaching tactics change essential elements necessary for these practices to work effectively. They may add, modify, or omit relevant aspects of procedures that render the original practices useless. Such modifications can result in “something like it” behavioral approaches that can lead to unfortunate and unintended behavioral consequences. This paper examines one second grade student’s experiences to illustrate the potential harm of one “something like it” approach, and recommends ways to translate this kind of approach into effective behavioral practices. This paper concludes that teachers should understand how poor behavioral practice can negatively impact students’ behavior and should carefully and correctly use behavioral techniques to ensure positive student and classroom outcomes.

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**Keywords:** positive/negative reinforcement practices, misuse of punishment, measurement, teaching flexibility

When Mollie entered second grade, her mother was informed that Mollie’s teacher practiced “highly behavioral techniques”. Mollie’s mother was uncertain what this meant and described the situation to the authors of this paper who happened to have advanced degrees in special education and applied behavior analysis. We told the mother that we were thrilled with this news and confidently predicted that Mollie’s mother should look forward to the progress Mollie would likely make during the year.

About halfway through the year, however, no one was thrilled. Mollie’s mother became increasingly skeptical about her “behaviorally trained” confidants because the so-called behavioral tactics implemented in Mollie’s classroom seemed inconsistent, unfair, and at times, downright silly. Instead of making dramatic improvements, Mollie became confused and disheartened by some of the “behavioral” systems employed in the class. Once we talked to Mollie and her mother about her situation, we began to understand.

Mollie was and is a delightful child who is very bright and had done quite well during first grade. She entered second grade with enthusiasm. Encouraged by our

enthusiasm for behavioral educators, Mollie’s mother felt confident that her teacher would capitalize on Mollie’s enthusiasm, and with skill and structure provide leaning opportunities that would produce reinforcement of all kinds of terrific classroom behavior. Needless to say, Mollie’s mother and we were disappointed to learn that not only did Mollie not make dramatic academic and social gains, she seemed to regress. Rather than becoming more enthusiastic about her school experiences, Mollie often did not want to go to school and seemed genuinely afraid of her teacher.

What happened in this classroom that turned Mollie off so decisively? Over the course of several conversations, we discovered more about the behavioral procedures practiced by Mollie’s second grade teacher. We saw that many of the practices labeled behavioral were ones more like what one of the pioneers of behavior analysis, Fred Simons Keller, called “something like it” approaches, whereby parts or aspects but not all of the procedural components of an approach are implemented (Heward & Dunne, 1993, p. 344). Keller suggested a “something like it” approach is doomed to fail because the concept of the original approach is either incorrectly implemented, or implemented in part (or both). In

Mollie's case, the primary "something like it" approach used in the classroom, although well intended and designed to be motivational, was based on punishment. Instead of producing an exciting learning environment full of opportunities for student engagement, Mollie's program unfolded in a counterproductive way. We began to see that the teacher had unwittingly engineered an environment that limited Mollie's engagement and established herself as a negative stimulus that Mollie actively avoided.

In the next few pages, we discuss a "behavioral tactic" (described by Mollie and her mother) used by Mollie's teacher that exemplifies how behavioral practices can go wrong. Borrowing from Keller, we call these the "something like it" applications. We argue that these applications led to an unfortunate series of behavioral events that Mollie's teacher did not intend. We contend that many who practice "something like it" behavioral tactics often evoke the same unfortunate student behaviors.

### **A PUBLICLY POSTED PUNISHMENT PROGRAM**

Early on, Mollie described an elaborate "clothespin system" that publicly posted students' inappropriate behavior. Essentially, Mollie's teacher gave each student a clothespin at the beginning of the school year and hung it on a clothesline in the room. The teacher moved a student's clothespin to another section of the line for each instance of inappropriate behavior. These movements resulted in a progression of "punishing" consequences (e.g., time out, loss of classroom and recreational privileges, trips to the principal's office, and notes to the parents). Mollie and her mother noted that students quickly became accustomed to seeing the same students' pins moving through the progression of clothesline consequences. Indeed, this became a daily routine for a handful of typically misbehaving students. We wondered what happened if students behaved well. Did the teacher reinforce student performance if it met or exceeded her expectations? To our dismay we learned that Mollie's teacher relied most heavily on the use or threat of punishment to control student behavior in the classroom. Rarely did she intentionally use basic positive reinforcement strategies to increase appropriate student behavior.

Conversations with Mollie suggested that the teacher may have unwittingly positively reinforced behavior she wanted to eliminate, negatively reinforced behavior that no teacher would want to increase, and punished highly desirable student behavior.

### **UNINTENDED POSITIVE REINFORCEMENT**

Mollie described the glee displayed by the "bad students" when their clothespins were moved. When this occurred Mollie told us that many students laughed at the "bad students'" antics and the teacher often became very "mad" (e.g., yelled at the misbehaving students, told these students to go to the corner, and loudly told the students who laughed to be quiet, etc.). Mollie described how she too sometimes laughed at the "silly" behavior of these students. When we asked if the misbehaving students stopped their inappropriate behavior when their clothespins were moved down the progression, Mollie indicated she didn't think so. She said they seemed to be quiet for a few moments but soon did the same "silly things" that earned them the teacher's wrath (and subsequent clothespin movement).

We presume this well-intentioned teacher hoped to decrease and even eliminate misbehavior of her students with the clothespin system, but we suspect that the actual effect might have been to increase this behavior. Positive reinforcement involves the presentation of an event following behavior that increases the future probability of that behavior (Alberto & Troutman, 2013; Cooper, Heron, & Heward, 2007; Martin & Pear, 2016). It seems likely that the clothespin procedure aimed at decreasing inappropriate behavior may have increased such behavior instead. Teacher attention (e.g., visible anger and annoyance) and other students' attention (e.g., giggling) may have functioned as positive reinforcement for the misbehaving students' inappropriate behavior.

We have seen other teachers and human service professionals use behavioral tactics in similar manners. Their programs focus on what they believe to be punishment contingencies (to decrease unwanted behavior), but which actually function as positive reinforcement programs that increase unwanted behavior. Mollie's teacher might have been shocked to learn that her intended punishment procedure actually functioned as positive reinforcement for the misbehavior she wanted to decrease.

### **NEGATIVE REINFORCEMENT IN THE CLASSROOM**

The teacher's clothespin procedure impacted typically well-behaved students in the classroom as well, albeit in unintended ways. Although generally a well behaved student, Mollie inevitably experienced occasional movement of her clothespin to the graduated "bad

behavior” end of the line. Mollie described to us how she dreaded these occasions and feared future movement of her pin. She painfully and in detail described the occasions her teacher moved her clothespin to the “bad behavior” area (often after she’d laughed at the antics of the typically misbehaving students in the classroom), and emotionally described her shame and anxiety. She began to fear any contact with the teacher and in fact worked very hard (e.g., did not ask questions, did not answer teacher questions, and did not ask for teacher assistance) to avoid being noticed by the teacher.

The effect of the clothespin program implemented in Mollie’s classroom on well behaved students like Mollie is a textbook example of a negative reinforcement contingency at work. Negative reinforcement is a principle of behavior poorly understood by many who purport to use behavior analytic procedures (Flora & Pavlik, 1990; Kimble, 1993; McConnell, 1990). Negative reinforcement occurs when a behavior is increased by the contingent removal or avoidance of an event following the behavior (Alberto & Troutman, 2013; Cooper, Heron, & Heward, 2007; Martin & Pear, 2016). In effect, people behave to escape or avoid unpleasant events. We have seen many teachers and human service practitioners unintentionally use negative reinforcement, with unfortunate results. For instance, Mollie performed all kinds of behavior to escape or avoid contact with her teacher. She told us she no longer asked for assistance or answered questions, but sat at her desk as quietly as possible because she didn’t want to make her teacher angry. Mollie and many other students in her situation stop actively participating in academic activities when teachers begin to function as a stimulus to avoid or escape. If a teacher relies solely or even mostly on punishment contingencies, she runs the risk of creating a class in which students do not actively participate and respond, and as a result, learn less effectively.

## **MISUSE OF PUNISHMENT**

Mollie’s teacher’s practices resulted in student behavior she most likely didn’t intend. As mentioned above, we suspect this teacher may have unknowingly positively reinforced (increased) students’ inappropriate behavior and negatively reinforced (increased) escape and avoidance behaviors of her students (e.g., passive student behaviors like sitting quietly and passively attending to work). Most insidiously, however, she may have also punished student behaviors that most teachers want to see from their students.

Punishment can be defined as events/consequences for behavior that decrease the future probability of that

behavior (Alberto & Troutman, 2013; Cooper, Heron, & Heward, 2007; Martin & Pear, 2016). As Mollie told us, she stopped raising her hand, stopped answering questions, and stopped asking the teacher for assistance because she feared antagonizing her teacher. By relying largely on a punishment contingency to decrease the inappropriate behavior of misbehaving students, Mollie’s teacher likely suppressed key student behaviors that good teachers want to increase. The threat and use of the clothespin technique probably suppressed Mollie’s and other well behaved students’ participation in classroom activities, and decreased their questions and requests for teacher help. As Mollie noted, she just stopped initiating any contact with her teacher.

## **TRANSLATING THESE “SOMETHING LIKE IT” APPLICATIONS INTO “EXACTLY LIKE IT” PROCEDURES**

The clothesline procedure of Mollie’s teacher is a practice we have seen other teachers use, often with very unfortunate results. Behavioral practice suggests some common guidelines that can direct teachers to implement behavioral strategies correctly. Using Mollie’s experience with the clothespin program in her second grade classroom as an example, we suggest some simple strategies intended to turn “something like it” behavioral tactics into effective “exactly like it” practices that enhance student performance.

## **REINFORCE APPROPRIATE STUDENT BEHAVIOR**

Behavioral research overwhelmingly indicates that reinforcing appropriate behavior more effectively produces long-lasting behavior change than punishing inappropriate behavior (Alberto & Troutman, 2013; Cooper et al., 2007; Fiora, 2004; Journal of Applied Behavior Analysis, 1968-2016; Martin & Pear, 2016). Tactics based on reinforcement are the sorts of “exactly like it” behavioral programs that are good bets for classroom management. Positively reinforcing appropriate behavior holds another advantage over punishing inappropriate behavior in that unpleasant emotional responses that result from punishment do not occur (Alberto & Troutman, 2013; Cooper et al., 2007; Martin & Pear, 2016).

In Mollie’s classroom, her teacher could have put these findings to use by commenting, praising, or even moving student clothespins on a line following instances of

appropriate classroom behavior. Positively reinforcing even minor occurrences of appropriate behavior initially displayed by the typically misbehaving students, and building on such over time (a behavioral tactic known as shaping) may have led to better behaved students in the long run.

Teachers need to look for and reinforce appropriate behavior on the spot. Rather than attempting to exclusively punish inappropriate behavior in a “something like it” behavioral approach, this teacher might have focused on setting up situations in which all students’ behavior earned frequent reinforcers. In other words, teachers need to catch students being good (French, Henderson, Lavay, & Silliman-French, 2013; McKenna & Flower, 2014). For an effective behavioral intervention, teachers must look for an instance of behavior to be increased and reinforce it (e.g., praise it, provide a sticker, give a token, etc.) to build appropriate individual behavior and manage classroom behavior more effectively over time.

## **IGNORE UNDESIRE BEHAVIOR**

Mollie described how her teacher often yelled at misbehaving students in her class and yelled at the students who reacted to them as well. We have illustrated how the teacher’s yelling may have functioned as positive reinforcement for inappropriate behavior. One might consider this an example of unintended differential reinforcement of alternative behavior (DRA). DRA occurs when a teacher reinforces one class of behavior and ignores another class of behavior occurring at proximate time intervals (Alberto & Troutman, 2013; Cooper et al., 2007; Martin & Pear, 2016).

Mollie’s teacher may have unknowingly used DRA in a “something like it” approach with unintended consequences. She appeared to effectively ignore (not reinforce) appropriate behavior and reinforce (attend to) inappropriate behavior instead of using DRA to her advantage (reinforcing appropriate behavior and ignoring unwanted behavior). Some may argue it is not easy to implement a DRA program with a room full of second graders, but many such programs often operate unintentionally, as in this teacher’s classroom. Mollie’s teacher, in other words, was already using a highly consistent DRA procedure, but one that positively reinforced inappropriate student behavior and ignored appropriate student behavior. An “exactly like it” DRA procedure demands that teachers assess the effects of the procedure. By doing this Mollie’s teacher would have discovered the unfortunate effect of her DRA procedure.

## **PUNISH UNDESIRABLE BEHAVIOR**

## **ONLY IF ABSOLUTELY NECESSARY**

We do not argue that behavioral punishment (punishment determined by its reductive effect on behavior) is unnecessary. We do argue that it can be used improperly, as was the case in Mollie’s classroom. Punishment strategies, such as the program Mollie’s teacher attempted should be used only when less restrictive procedures fail. Additionally, punishment procedures should be implemented ideally in conjunction with a well formulated positive reinforcement system (Alberto & Troutman, 2013; Cooper et al., 2007; Fiora, 2004; Martin & Pear, 2016; Sidman, 1991).

This decidedly was not the case in Mollie’s classroom where a “something like it” behavior management system was used. Mollie’s teacher used punishment as her primary behavior management tool and did not systematically use positive reinforcement strategies to build appropriate classroom behavior, as an “exactly like it” program dictates. Her inability to design an effective behavioral program that included a system that defined appropriate behavior, and determined how and when appropriate behavior is reinforced, compromised her classroom management effort.

## **MEASURE**

At our prompting, Mollie’s mother asked the teacher if she thought the clothespin program was effective. When she also asked how she knew it worked, the teacher replied that she just knew! The teacher assured Mollie’s mother it was her job to know her students and that she did this very well. We suspect that Mollie’s teacher and many others subjectively assess student performance, and that they might be very surprised by the results of systematic measurement of student behavior versus subjective assessment.

An “exactly like it” behavioral procedure includes measurement of student performance. To ensure any behavioral program is actually effective, one must measure (Alberto & Troutman, 2013; Barrett, et al., 1991; Lindsley, 1992). A teacher should minimally conduct a count of student behavior before a program begins, maintain the count while the program continues, and use her counts to determine the program’s effectiveness. For Mollie’s teacher this may have been eye opening. Failure to measure performance can lead to two serious problems: (a) continuing ineffective programs (as we believe occurred with Mollie’s teacher) and (b) discontinuing effective programs (Cooper, Heron, & Heward, 1987). Failure to measure in Mollie’s

classroom likely led to continuing a “something like it” highly ineffective behavioral program with unfortunate results.

## REMAIN FLEXIBLE

Teachers need to respond to students’ needs. When Lindsley (Potts, Eshleman, & Cooper, 1993) noted that the student is always right, he meant that teachers must carefully observe and measure student performance, and be ready to adapt teaching strategies based on the results of measured performance.

An effective behavioral educator does not blame students if they don’t seem to “get it” or if students do not behave as expected. Rather, a teacher using an “exactly like it” behavioral approach examines the instruction she provides as the primary variable with regard to student performance. Teachers must teach with the flexibility necessary to adapt their instruction to student needs. Mollie’s teacher used an ineffective behavioral program throughout the year, in a “something like it” behavioral application that was never adjusted to better suit students’ needs. If she was sensitive to her students’ performance via measured performance and changed her teaching tactics accordingly, student outcomes would have undoubtedly been better.

## CONCLUSION

In this paper we argue that Mollie’s second grade teacher used a behavioral practice poorly such that it failed to produce the behavior change she intended. In fact, her use of a “something like it” approach may have led to an increase in the inappropriate behaviors of both typically misbehaving and well behaved students. We acknowledge that the examples we used in this paper derived from discussions with Mollie and her mother, and that we did not directly observe her teacher’s classroom. We have observed, however, other teachers and human service practitioners use “something like it” applications in a variety of clinical settings. “Something like it” approaches can doom potentially sound behavioral programming to failure. Teachers and other providers must adequately understand and apply behavioral practices to avoid the sorts of unintended consequences described here. Translating “something like it” behavioral approaches into “exactly like it” behavioral practices will more effectively manage classroom behavior and promote positive academic outcomes.

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