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Table of Contents

<i>From the Interim Editor</i>	1
<i>The Interaction of School Organization and Classroom Dynamics: Factors Impacting Student Achievement</i>	
Nancy J. Ratcliff, Nicholas A. Pritchard, Caroline W. Knight, Richard H. Costner, Cathy, R. Jones, and Gilbert H. Hunt	3
<i>Unpacking the Value of Writing: Exploring College Students' Perceptions of Writing</i>	
Sharon Zumbrunn, Yvette M. Carter, and Sarah Conklin	18
<i>"I Am Kind of a Good Writer and Kind of Not:" Examining Students' Writing Attitudes</i>	
Anna H. Hall and Ysaaca Axelrod	34
<i>The Principal's Vision: Necessity or Non-issue?</i>	
Andrew Kemp, Samuel Hardy and Paulette Harris	51
<i>Demographic and Instructor-Student Interaction Factors Associated With Community College Students' Intent to Persist</i>	
Yolanda F. Mitchell and Gail D. Hughes	63
<i>Examining the Impact of Place on the Cultural Competence of Preservice Teachers</i>	
Vanessa Casciola	79
<i>Experiential Learning and its Role in Training and Improved Practice in High Level Sports Officiating</i>	
Kenda S. Grover	90
<i>Profile for Teacher Decision Making: A Closer Look at Beliefs and Practice</i>	
Robin Griffith and Judy Groulx	103
<i>Academic Achievement of NCAA Division III Athletes</i>	
Kathy Barlow and Ann Hickey	116

<i>The Effect of Therapy Balls on the Classroom Behavior and Learning of Children with Dyslexia</i> Leilani B. Goodmon, Raven Leverett, Amanda Royer, Gracia Hillard, Tracey Tedder, and Lori Rakes	124
<i>Revised-Attitudes Toward Research Scale (R-ATR); A First Look at its Psychometric Properties</i> Elena C. Papanastasiou	146
<i>An Exploratory Study of Instructional Strategies, Academic Integration, and Subsequent Institutional Commitment</i> Jennifer L. Brown and Dawn Robinson-McDonald	160
<i>Partisan Differences on Higher Education Accountability Policy: A Multi-State Study of Elected State Legislators</i> Andrew Q. Morse	173
<i>Assessing the Watson-Barker Listening Test Form C in Measuring Listening Comprehension of Postsecondary Hispanic American Students</i> Debra L. Worthington, Shaughan Keaton, John Cook, Margaret Fitch-Hauser, and William G. Powers	192
<i>Understanding Undergraduate Statistical Anxiety</i> Courtney McKim	204

Winter 2014

From the Interim Editor

I am pleased to submit this issue of the Journal of Research in Education to you. The manuscripts considered for this issue have an interesting history, and involve my three predecessors. To these individuals, Abbot Packard, Andy Shim, and Adam Morris, I most grateful for your hard work and attention to detail.

I am especially indebted to the manuscript reviewers who assisted with this and previous issues of the Journal. Through their hard work, 58 manuscripts were considered for publication with these 15 being selected for inclusion (a 25% acceptance rate).

This is also a wonderful opportunity for me to welcome our two new editors who will assume their duties in January 2015. They are Dr. Barbara Kawulich and Dr. Mary Alice Varga. These two individuals have a rich experience working with the Eastern Educational Research Association and represent the high standards that the JRE has come to be known for. Please join me in welcoming them at our upcoming conference in Sarasota this February.

To all who have supported me during this past year, my eternal gratitude!

Sincerely,

Michael T. Miller
Interim Editor

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The Interaction of School Organization and Classroom Dynamics: Factors Impacting Student Achievement

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Abstract

Research was conducted to determine what impact school organization and classroom dynamics had on student achievement. Results from standardized benchmark tests found no significant differences in scores across all schools and content areas; yet, end of course standardized measures indicated that students in sites employing block scheduling performed significantly lower in all content areas than did their counterparts in traditional settings. Findings suggested that the significant differences in student scores might be due to a dramatic loss of instructional time that was consistently observed in block classes during the last 18 minutes of the instructional period. This loss of instructional time was characterized by a dramatic increase in student behavior problems and student time-off-task.

Recently, administrators in one Southeastern school district sought the authors' help in isolating the variables that might explain why their four high schools exhibited varying levels of academic achievement. Two of the high schools employed traditional scheduling, one employed block scheduling, and one used traditional scheduling for English I and Algebra I but used block scheduling for all other courses. A review of the scores from the state required End of Course (EOC) examinations in English I, Algebra I, U.S. History, and Biology I, indicated that the students in classrooms organized in the traditional manner consistently scored higher on the EOC examinations when compared to their counterparts in classrooms using block scheduling. The district leaders requested that research be completed to determine if these differences in achievement were the result of organizational structure or other factors in the learning environments.

The research design was based on the theory that an examination of classroom dynamics is the preferred method to fully understand how teachers best function in their role and how students best learn (Bracey 2009a; Pianta 2006; Schlechty 1976; Lortie 1975; Jackson 1968; Waller 1961). As Bracey (2009b) noted, educational research should focus on teacher and student interactions and how teachers structure the learning environment to encourage these interactions. Research which focuses on how an average student or average teacher functions on an isolated task fails to take into account the importance of understanding how teachers and students

interact in the learning environment and the impact that this interaction has on both the quality of instruction and the amount of learning that takes place.

Impact of School Organization

Findings related to the impact of school organization and academic performance have been inconsistent. Zepeda and Mayers (2006) noted that findings in the area of block scheduling have been inconsistent and sometimes flawed to the degree that little information has been provided that would allow practitioners to make data based decisions. This inconsistency could be due, in part, to the fact that some teachers are not effectively using instructional time. For example, Queen, Algozzine, and Eaddy (1997) reported that 30% of observed teachers were still relying on lecture while 20 to 30 minutes of instructional time was either wasted or used to complete homework.

Several researchers have investigated the relationship between organizational structure and student academic performance. When standardized test scores were used for comparison, researchers again reported mixed results. Knight, De Leon, and Smith (1999) and Gruber and Onwuegbuzie (2001) reported that students in traditional classrooms scored significantly higher than block students on standardized tests in both mathematics and language arts. Cobb, Abate, and Baker (1999) found that students in traditional classrooms scored significantly higher on standardized tests in mathematics while no differences were found in reading and writing. Conversely, Evans, Tokarczyk, Rice, and McCray (2002) reported higher AP scores for block schedule students; likewise, Fletcher (1997) and Khazzaka (1997) found that block scheduling positively affected achievement. However, Duel (1999) and Lare, Jablonski, and Salvaterra (2002) reported no significant difference when comparing standardized scores. In a study similar to the one being reported here, Lawrence and McPherson (2000), using average EOC examination scores in Algebra I, Biology I, English I, and U.S. History, found that students in traditional classrooms scored significantly higher than students in block classrooms.

Impact of Classroom Dynamics

To create supportive learning environments, one must first understand how teachers and students interact during both instructional and behavior management episodes (Pianta 2006). A major instructional strategy used by teachers to engage students in the learning environment is the use of questioning. The literature has long supported the fact that teachers spend much class time asking questions (Brualdi 1998; Stevens 1912). Classic research by Gallagher and Aschner (1963) developed a hierarchy of academic questions that included the following: low level thinking (cognitive memory and convergent) and high level thinking (divergent and evaluative). However, there are inconsistent findings regarding the relationship between level of cognitive questions and student achievement. For example, Wilen (1991) and Arends (1994) reported no difference between high level and low level questioning as they impact student achievement. Conversely, Rosenshine (1971) found a positive relationship existing between the level of cognitive questions and student achievement. Additionally, Wilen (1991) also found that the asking of high level questions encouraged students to use critical thinking when explaining answers and supporting responses; however, the researcher also reported that teachers asked primarily low level cognitive questions.

Higher student achievement has been associated with active student learning when paired with indirect teaching methods (Barron and Darling-Hammond 2008, Richards 2005); however, it has been reported that many high school teachers may not have been provided the training needed to successfully implement indirect strategies (Jenkins, Queen, and Algozzine 2001). Significantly, in a study of 2,100 students, it was reported that the use of indirect teaching methods that encourage communication, critical thinking, and problem solving were discovered to have a positive relationship to student achievement regardless of the students' previous achievement, race, or gender (Newman, Marks, & Gamoran 1995).

Non-instructional interactions can also have a powerful impact on the dynamics of the learning environment. Rimm-Kaufman, La Paro, Downer, and Pianta (2005) found that a low number of behavior management interactions was most consistently related to high classroom quality. Teachers who created an optimal learning environment minimized the time that students were off-task while encouraging a climate in which teachers and students were working on specific learning tasks. As, Waxman and Huang (1997) reported, on-task interactions between teachers and their students characterized effective classroom climates.

Wiseman and Hunt (2014) reported that an increase in teacher management behaviors were found to be inversely correlated to teacher task behavior and student time-on-task behavior. Furthermore, Clough, Smasal, and Clough (1994) concluded that student behavior issues attracted the attention of all members in the classroom away from instructional tasks and made it more difficult to refocus students' attention back on task. Therefore, the opportunity to dedicate time to learning was created by reducing behavior management problems, thus increasing the amount of time students were on task.

Methods

This study was designed to isolate factors that may have accounted for previously identified differences in student scores on EOC tests. Two research questions were used to examine possible differences across the four schools, four content areas, and two organizational patterns:

Research Question 1: What is the relationship between school organizational pattern and EOC examinations?

Research Question 2: What is the relationship between classroom dynamics and student performance on EOC examinations?

To answer the first research question, benchmark and EOC scores were analyzed using quantitative methods to determine if differences existed between block and traditional classroom settings. To answer the second research question, researchers collected observational data in the selected classrooms; these data were then analyzed using quantitative methods. In order to better understand the dynamics of the individual classrooms, researchers collected data in the following areas: classroom instructional interactions between teachers and their students, classroom management interactions between teachers and their students, the amount of student time-on-

task, the types and number of direct and indirect instructional methodologies employed by teachers, and the number and level of teacher and student questions.

Participants

The four high schools studied made up the total population of high schools in a Southeastern school district serving both rural and small town populations; although much of the population came from low socio-economic families, some students came from working class and upper middle class homes. School 1, which is located in a small town, had an enrollment of 553 students; 414 of whom received free or reduced price lunch. School 2, which is located in a rural area, had an enrollment of 412 students; 257 of whom received free or reduced price lunch. School 3, which is located in the largest town (population approximately 10,000) in the district, served 953 students; 610 of whom received free or reduced price lunch. School 4, which is located in a more affluent area, served 786 students; 257 of whom received free or reduced price lunch. All four schools serve grades 9-12, but they do not all use the same organizational patterns. School 1 is the only high school in the district to use two organizational patterns simultaneously; all freshmen are enrolled in English I and Algebra I classes in a traditional year-long format while all other classes are taught on a block format. School 2 and School 4 both utilize a traditional six period schedule with classes lasting the entire academic year. School 3 utilizes block scheduling. Therefore, the traditional sites were School 1a (Algebra I and English I), School 2, and School 4; the block scheduling sites were School 1b (all classes other than freshmen Algebra I and English I) and School 3.

All teachers who taught English I, Algebra I, U.S. History, and Biology I classes were observed in one of their sections in each of the four high schools. Thus, the sample was composed of 41 Algebra I, English I, U.S. History, and Biology I teachers and the 665 students who were assigned to them during the randomly chosen sections that were observed. Table 1 displays the distribution of teachers across content areas and schools.

Table 1
Distribution of teachers across content areas and schools

Schools	Content Areas			
	Algebra I	Biology I	English I	U.S. History
1a	2		2	
1b		2		2
2	3	3	2	1
3	4	4	2	2
4	4	2	3	3

Procedures and Operational Definitions

Data were collected using observational methods. All observations were unannounced and scheduled randomly to ensure that teachers were seen during the selected sections. All teachers were observed three times for 30 minutes per visit; therefore, each teacher was observed in the

same class period for a total of 90 minutes. The teachers in the schools employing block formats taught in classes that lasted 90 minutes; for these teachers, one observation was made in each the first 30 minutes, the second 30 minutes, and the last 30 minutes. Teachers in schools employing traditional formats taught classes that ranged from 48 minutes to 55 minutes. Since observations lasted 30 minutes, it was impossible to observe these classes during the first, second, and third segments as was done in those schools employing 90 minute blocks. Observations in block classes were completed during the fall semester due to the fact that EOC examinations were given at the end of the semester, and schedules changed at mid-year. In the schools employing traditional scheduling, each teacher was observed once during the fall semester and twice during the spring semester since schedules lasted the entire year.

The researchers worked in pairs to collect data during each 30 minute observation. The first researcher collected data related to student and teacher interactions as well as student time-on-task behavior. The second researcher simultaneously collected data specifically related to instruction. All data collectors were faculty members who had been teaching and supervising field experiences in teacher education programs for a minimum of 5 years. Data collectors were trained in half-day workshops during which they carefully reviewed and discussed operational definitions and recording codes. Prior to actual data collection, the researchers took part in practice observations in public school classrooms where inter-rater reliability was established with agreement exceeding the 97% level.

The first observer recorded teacher and student interactions that were either related to instruction or classroom management. The operational definitions of these behaviors were adapted from the work of Schlechty (1976). Teacher instructional behavior, as defined in this study, includes teachers giving out information, asking questions, and answering student questions; these interactions were recorded as *teacher task behavior*. Behavior management interactions include asking students to change their behavior (*teacher normative behavior*), punishing or threatening to punish students to coerce them into changing their behavior (*teacher coercive behavior*), rewarding students for exhibiting desired (*teacher remunerative behavior*), and ignoring students who are in violation of stated behavior expectations or rules (*teacher retreating behavior*). Additionally, student instructional interactions included students answering content-related questions asked by the teacher or fellow students, asking content-related questions to the teacher or fellow students, and making appropriate content-related comments within the flow of the lesson; these interactions were recorded as *student task behavior*. Student behaviors related to classroom management included students complying with a teacher's request to change their behavior (*student conformity*) and overtly disregarding stated school and teacher conduct rules and requests (*student rebellion*).

Time-on-task scans were conducted every 10 minutes to record the number of students in the classroom who were not attending to or involved in an appropriate learning experience. Students were considered on task unless it was obvious to the observer that the students were not appropriately involved. Time-on-task was recorded as a fraction designating the number of students who were off-task over the total number of students in the classroom when the scan was completed.

The second member recorded the types and duration of both instructional groupings and instructional methods employed. The instructional grouping designations were *whole class*, *small groups*, and *individualized*. The types of methodology were categorized as either direct instruction or indirect instruction and then subcategorized under those headings as found in Hunt, Wiseman, and Touzel (2009). Direct instruction included drill, lecture, modeling, brainstorming, teacher-led discussion, and use of videos; indirect instruction included learning centers, cooperative learning, inquiry, independent projects, and laboratory techniques (i.e., students working together in groups and manipulating items or equipment with teacher guidance). Although seatwork could be considered as a direct strategy, it was analyzed separately. The second observer also recorded questions as either high level or low level using the classification system developed by Gallagher and Aschner (1963).

Results

Data were analyzed to answer the research questions. The answers to these research questions provided researchers with information related to factors impacting EOC scores in high schools under study.

School Organization's Impact on Student test Performance

On average, students in the block classrooms scored 52.02 points on the four benchmark tests while students in traditional classrooms scored 53.52 points. The biggest difference in benchmark scores between block and traditional classrooms occurs in English. The two-way analysis of variance (ANOVA), showed no significant interaction between school organization (block vs. traditional) and course with respect to mean benchmark scores ($F = 0.54$; $p\text{-value} = 0.6582$). Moreover, using the same analysis, there was no significant difference between block and traditional classrooms with respect to mean benchmark scores ($F = 0.20$; $p\text{-value} = 0.6558$).

Figure 1 displays an interaction plot comparing the effect of content area and organizational pattern on the mean EOC scores. From this plot, notice the overall consistent gap in the average EOC scores between traditional and block scheduling for all content areas. Using a two-way ANOVA, content area and organizational format do not significantly interact to affect mean EOC scores ($F = 0.31$; $p\text{-value} = 0.8207$). However, using the same model, a significant difference is found between traditional ($M = 76.34$) and block classrooms ($M = 71.15$) with respect to mean EOC scores ($F = 5.67$; $p\text{-value} = 0.0232$).

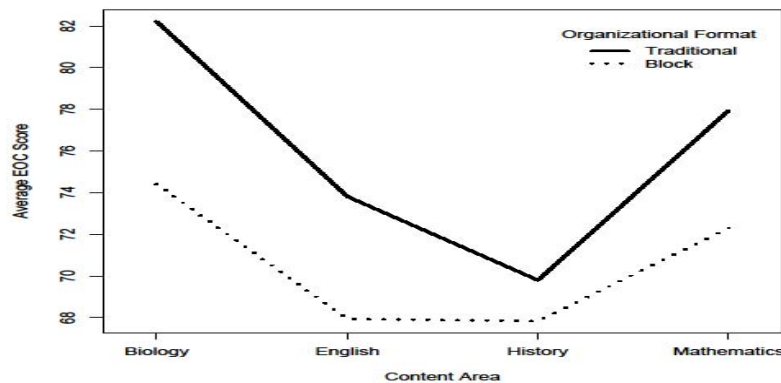


Figure 1

Interaction plot of average EOC test scores against organizational format for each content area.

Note, there was no significant difference between the scores of students in block and traditional classrooms at the beginning of the semester on the benchmark tests; however, at the end of the semester, the students in traditional classrooms achieved significantly higher scores on the EOC than the students in the block classrooms. Moreover, content area did not seem to impact the difference between either benchmark or EOC scores.

Classroom Dynamics' Impact on Student Test Performance

Based on Spearman's rank correlation coefficients between the different teacher/student interactions and EOC examination scores, no teacher or student interaction is significantly related to EOC scores. Moreover, when using multiple linear regression, no student interaction, teacher interaction, nor percentage of students on task were significantly useful in predicting the average EOC score ($F=0.81$; $p\text{-value} = 0.5834$). However, further analyses were helpful in answering Research Question 2.

How teachers interact with students

Teacher task behavior was by far the most prevalent teacher interaction (see Table 2). Using Hotelling's T^2 test, which is a multivariate test for equality of means for two populations, it is possible to test for a significant difference between block and traditional organizational formatting with respect to the different teacher interactions. However, due to low prevalence, teacher remunerative control and teacher coercion were not included in this analysis. The resulting analysis yielded a test statistic of $T^2 = 2.17$ with a $p\text{-value} = 0.5646$. Therefore, there is no significant difference between block and traditional organizational formatting with respect to the mean frequency of teacher task interaction, teacher normative behavior, or teacher retreating.

Table 2
Observed teacher task and management interactions

Teacher Interaction	Schedule	Min	25th Percentile	Median	Mean	75th Percentile	Max
Teacher Task	Block	178	260.5	334	336.12	400.5	498
	Traditional	121	254.5	312	332	391.5	610
Teacher Normative	Block	1	6.5	12	20.18	35.5	54
	Traditional	0	3.5	7	14.12	15	68
Teacher Retreatism	Block	0	1.5	11	17.94	25.5	72
	Traditional	0	0.5	3	10.64	17	58
Teacher Coercion	Block	0	0	2	1.53	3	6
	Traditional	0	0	0	0.92	2	4

Even though no significant difference was found between block and traditional classrooms in regard to teacher interactions, interesting phenomena were observed by looking at teacher retreating as a function of time. Figure 2 displays the change in the average frequency of teacher retreating as time increases for both block and traditional classrooms. In block classrooms, three total observations were made: one during the first third, one during the second third, and one during the final third of the period. Hence, the combined total accounts for the entire 90 minute period. In traditional classrooms, scans were made on three separate visits at roughly the same time of the period. Therefore, only the first thirty minutes of traditional classrooms can be examined. However, by modelling the series of observations with a time series model, forecasts of future observations can be made. Due to the short nature or small sample size of our series, Krishners and Borisov (2012) recommend using the exponential smoothing method to obtain forecasts. These forecasts are displayed in Figure 2 as the dashed line. In addition, 95% confidence limits for the forecasts of the average frequency of teacher retreating for the next hour on traditional scheduling at six minute intervals can be constructed. These limits give plausible values for average frequency of teacher retreating if the traditional classroom environment was observed for additional time. Again, due to the short nature of this series, great caution is taken in the interpretation of the intervals. These intervals will serve as an idea of what would most likely occur if the traditional classroom environment was continued for another 60 minutes. The resulting confidence limits are also provided and are displayed as dotted lines.

As seen in Figure 2, there is an overall increase in the average frequency of teacher retreating for both block and traditional classrooms. This increase is more consistent for traditional classrooms. This consistency or reduced variation is due to having measurements over a similar time period and averaging these repeated measurements. Also, notice that the range of values for the first 30 minutes in traditional classrooms is similar to the first 42 minutes in block classrooms. After the 42 minute mark in the block classrooms, there is more variation in the values. In addition, there is an increasing trend in both the observed average values for block classrooms and the forecasted values for the traditional classrooms as time increases. Also, it is interesting to observe the extreme value observed during the last six minutes of the block classroom. This suggests as time increases, the more likely teacher retreatism will increase.

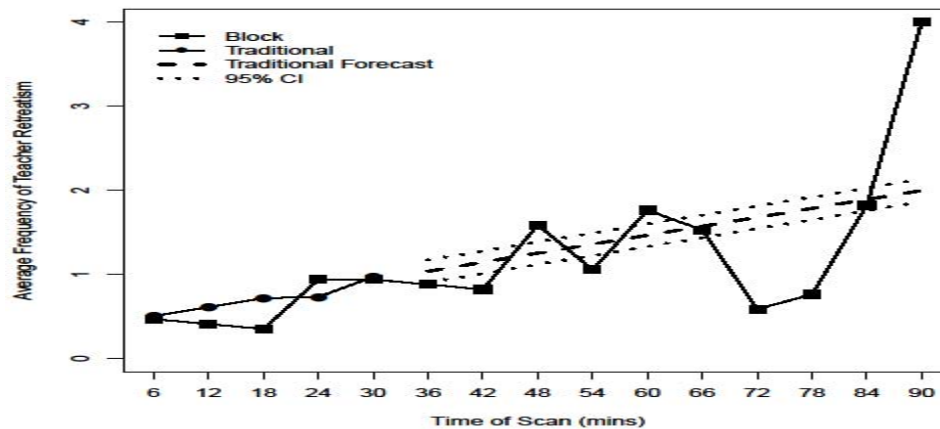


Figure 2

Time series plot of the average frequency of teacher retreatism behavior

How students interact with teachers

Using the multivariate Hotelling's T^2 , no significant differences between block and traditional formatting with respect to the mean frequency of student task interaction, student conformity behavior, and student rebellion behavior were found ($T^2 = 2.28$; $p\text{-value} = 0.5548$). Due to the large amount of variability observed within both types of classroom formats as compared to between both types of classroom formats, this difference was not found to be significant.

Looking at student rebellion as a function of time in Figure 3, a pattern similar to teacher retreating emerges. The average frequency of student rebellion behavior over time for both block and traditional classrooms along with the forecasted average values with 95% confidence limits from exponential smoothing is displayed. For both block and traditional classrooms, there is an overall increase in the average frequency of student rebellion. The values found for the first thirty minutes in traditional classrooms were consistent with the first 36 minutes found in block classrooms. From this figure, it is interesting to notice that what occurred in block classrooms is consistent with what is forecasted for the traditional classrooms in regards to student rebellion. That is, the longer students are in class, the frequency of student rebellion is more likely to increase.

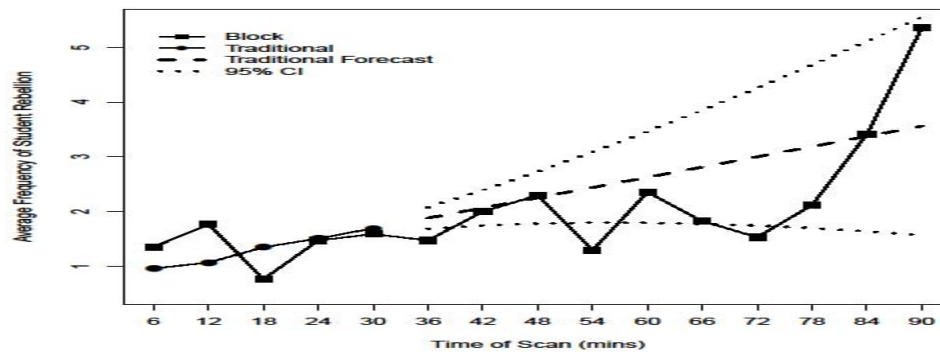


Figure 3

Time series plot of average frequency of student rebellion behavior

Teachers' use of instructional methodology

Nine different instructional methodologies were observed: six were direct strategies, two were indirect strategies, and one was seatwork. The teachers in this study predominantly used direct instruction. Using a two sample t-test, no significant difference was found between block and traditional formatting with respect to the average time spent in seatwork ($t = 0.275$; $p\text{-value} = 0.7846$). However, the average time spent in seatwork changes over time. Figure 4 displays the change in the average amount of time spent in seatwork as time increases for both block and traditional classrooms. Overall, there is an increasing trend for traditional classrooms. For block classrooms, there is a general increasing trend until the 72 minute mark. After the 72 minute mark, there is a general decrease in the average amount of time spent in seatwork. Also, the values for the first 30 minutes of traditional classrooms are roughly consistent with second third of the block. Based on these results, it seems that there is little difference between the average amounts of time spent doing seatwork in block classrooms than what would be likely found in traditional classrooms.

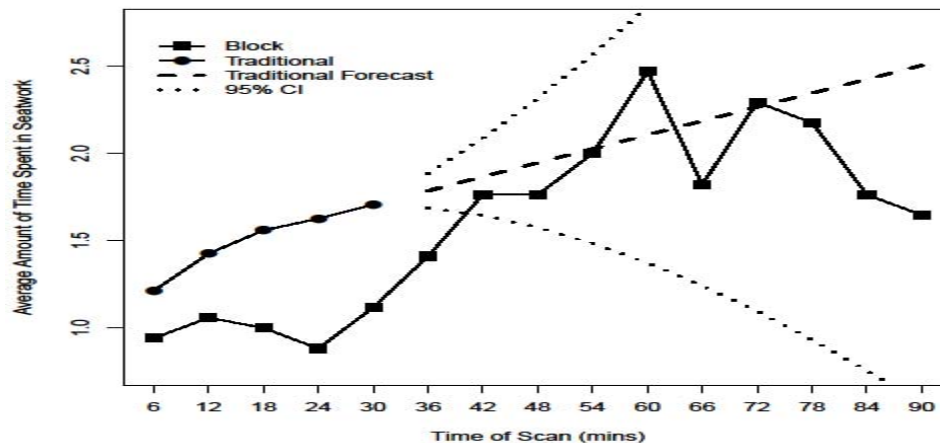


Figure 4

Time series plot of average time spent in seatwork

Levels of questioning

Teachers in block classrooms asked their students an average of 68.59 questions; the teachers in traditional classrooms asked their students an average of 80.04 questions. Using a two sample t-test, no significant difference was found between block and traditional classrooms with respect to the mean frequency of teacher questions asked ($t = -0.87$; $p\text{-value} = 0.3904$). Furthermore, students in block classrooms asked 19.12 questions on average and students in traditional classrooms asked 22.92 questions on average during the combined observations. No significant difference was found between block and traditional classrooms in regard to student questioning ($t = -0.85$; $p\text{-value} = 0.4021$).

Student on-task behavior

Using a two sample t-test, no significant difference was found between block and traditional with respect to the average percentage of students on task ($t = 1.324$; $p\text{-value} = 0.1947$). Figure 5 displays the change in the average percentage of students on task as time increases for both block and traditional classrooms. In block classrooms, an overall decreasing trend in the number of students on task can be seen; this is especially true in the last third of the block period. It should be noted that the range of values for the first thirty minutes in traditional classrooms is similar to the range found in the first 36 minutes of block classrooms. Also, notice that the forecasted values for traditional classrooms is similar for the most part to the actual values that were observed in block classrooms. An examination of Figure 5 illustrates that student time-on-task was negatively affected by time in the block classrooms as were teacher retreating and student rebellion. The same adverse effect is also seen in the forecasted values and confidence limits for traditional scheduling.

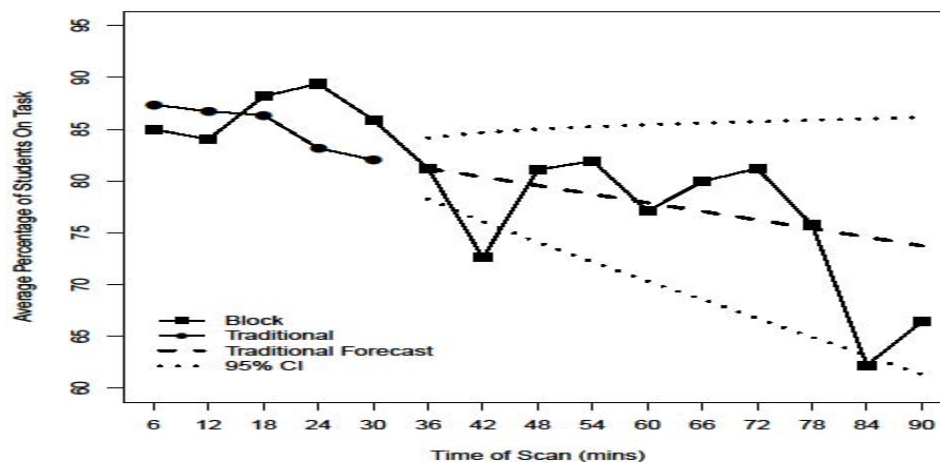


Figure 5
Time series plot of average on-task percentage

Discussion

The purpose of this inquiry was to determine factors that impacted tests scores in specific high school settings, not to make statements about the learning environments of all block classrooms

as compared to all traditionally organized classrooms. An analysis of the data indicated that it was not simply the organizational pattern that impacted performance; it was the use of instructional time within the structure that seems to account for the significant differences in the test scores.

As with all observational data collection, some limitations existed; for example, the research team would have preferred to observe classrooms for the entire class period. However, logistically this was impossible due to time constraints. For example, all block classes had to be observed in a single semester due to the fact that students would be with other teachers in the second semester, and all classes had to be observed in a single year by the four observers who were trained with high inter-rater reliability. Additionally, the data were collected across a representative sampling of the first, middle, and end of all block classes. The researchers feel confident that adequate data sets were collected on all teachers which provide ample evidence of the type of interaction taking place in each learning environment and the relationship between this interaction and student achievement.

An analysis of the test scores indicated that students in block classrooms scored significantly lower on the EOC examinations than those students in traditional classrooms. This finding supports the research of Lawrence and McPherson (2000) who reported that the EOC scores in Algebra I, Biology I, English I, and U. S. History were higher for those students in traditional classrooms versus those students in block classrooms. Furthermore, these findings support those of Knight, De Leon and Smith (1999) as well as the findings of Gruber and Onwuegbuzie (2001); however, they do not support the findings of Fletcher (1997), Khazzaka (1997), and Evans, Tokarczyk, Rice, and McCray (2002) who found that block scheduling positively affects student achievement, as well as the findings of Lare, Jablonski, and Salvaterra (2002) who found that achievement was not impacted by changing from a traditional format to a block scheduling format.

This significant difference between student EOC scores in block and traditional classrooms prompted researchers to conduct further analyses to determine if the students were significantly different in ability when the classes began. At the beginning of the school year, standardized benchmark examinations were administered in each of the courses where students took EOC examinations. An analysis of benchmark scores indicated that no significant difference was found between the students in traditional and block settings; further, this lack of significant difference was consistent across all content areas. Therefore, it was determined that no significant difference existed between block and traditional students when instruction began, and this was true across all content areas.

When teaching methodology was examined, it was determined that teachers in block and traditional classrooms did not vary significantly in how they delivered instruction. The levels of teacher questioning and student questioning were also essentially the same in both traditional and block classrooms. Thus, the researchers concluded that the way teachers and students interacted instructionally had little or no impact on the differences in scores in block versus traditional classes.

The amounts of student rebellion (Figure 2), teacher retreating (Figure 1), and student time-off-task (Figure 4) were all time related; each increased in block classrooms during the last 18 minutes of the 90 minute class period. Therefore, around the 72 minute mark, students in block classes started misbehaving (student rebellion), teachers started ignoring misbehavior (retreating), and students stopped doing academic tasks (student time-on-task). It should be noted that losing an average of 18 minutes a day would be equal to losing an average of one instructional day each five-day week. This finding is supported by the research of Queen, Algozzine, and Eaddy (1997) and illustrates the negative impact that student rebellion, teacher retreating, and loss of time-on-task has on the dynamics of learning environments (Wiseman and Hunt 2014; Rimm-Kaufman, La Paro, Downer and Pianta 2005; Waxman and Huang 1997; Clough, Smasal, and Clough 1994).

Based on these findings, the researchers believe that the significant differences in EOC scores seem to be due to a consistent loss of instructional time during the last 18 minutes of the longer class periods in block classrooms. This loss of instructional time is evident in the significant increase in student behavior problems and student time-off-task. In order to prevent this loss of instructional time, teachers need continuing in-service training and support to improve instructional procedures that are designed specifically for longer class periods. Moreover, building administrators need to clearly articulate the expectation that faculty will implement the skills and strategies focused on during the in-service training. Follow-up observations and feedback based on these expectations should be continuous to ensure proper implementation. Based on these findings, longer class periods associated with block formats may lead to such a large loss of instructional time that significant drops in student scores on standardized tests will occur if careful preparations for instruction are not implemented.

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Unpacking the Value of Writing: Exploring College Students' Perceptions of Writing

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Abstract

This study explored college students' beliefs about the value of writing, their past experiences with writing, and the relationship between students' prior experiences with writing and writing value beliefs. One hundred fourteen undergraduates from a public Southeastern university participated in the study. Using expectancy-value theory as a framework, structural (Saldaña, 2013) and hypothesis (Bernard, 2011) coding was used to analyze student responses. Findings suggested that attainment, utility, and interest value aligned well with student writing value responses. Students noted both positive and negative experiences with writing. Whereas most students discussed the role of good instruction, positive role models, and constructive criticism in their positive past writing experiences, unengaging and daunting tasks were salient memories for students describing negative prior experiences with writing.

Although writing is essential for college and occupational success, students often struggle to produce quality writing. The latest National Assessment of Educational Progress report (NAEP, 2011) showed that one-third of students in 12th grade (20%) scored below proficiency in the areas of expository, persuasive, analytical, and argumentative writing. Moreover, only two percent of students submitted writing that was considered advanced. In a similar report surveying the literacy skills of college graduates of two- and four-year programs, the American Institutes of Research (Baer, Baldi, & Cook, 2006) found that over half of responding students lacked basic writing skills. Considering the importance of writing skills both inside and outside of the classroom, these trends deserve attention.

Little research to date has examined the factors that affect when and why students value writing and the effects of past writing experiences on students' writing beliefs. It is by examining when and why students value writing that we can offer better suggestions for designing instructional settings that encourage student writing motivation and success. In the current study, the reasons students value writing and ways in which students' past experiences with writing shape present feelings about writing tasks and writing value beliefs were explored.

Student Value Beliefs

Despite the importance of developing writing skills, students are less likely to engage in writing tasks they perceive to be lacking in significance (Bruning & Horn, 2000). Expectancy-value theory (EVT), a well-established perspective on student motivation (Eccles, 2005; Wigfield & Eccles, 2000), suggests that the value students place on academic tasks often predicts

engagement in such activities. According to EVT, there are four components of task value: attainment value (the needs and personal values that a task fulfills); interest value (enjoyment from performing an activity or interest in the subject or topic related with the activity); utility value (usefulness of a task for personal goals); and cost (perceptions of negative aspects of engaging in an activity, such as effort, time, lost opportunities, fear of failure, and performance anxiety).

Value studies in academic settings are numerous, though the majority of empirical studies of value have been conducted with children and adolescents in the areas of mathematics and science (e.g., Berndt & Miller, 1990; Simpkins, Davis-Kean, & Eccles, 2006). Findings show that math and science value can predict student cognitive strategy use and self-regulation (Pintrich & DeGroot, 1990), grades (Berndt & Miller, 1990), course enrollment (Simpkins, Davis-Kean, & Eccles, 2006), and future career aspirations (Watt, 2006).

Explorations of student value are less common in studies conducted at the college level, though existing findings show the important role value plays in college student academic decisions, motivation, and success (Battle & Wigfield, 2003). For example, in a study of undergraduates (Bong, 2001), student interest in and perceived importance and usefulness of a course predicted course enrollment and performance. Similarly, Matusovich and colleagues (2010) found positive relationships between engineering students' value beliefs and choices to engage and persist in engineering degrees. Other studies suggest that college student value beliefs predict academic engagement and performance (Bong, 2002; Hulleman, Durik, Schwiebert, Harackiewicz, 2008).

Value beliefs often are shaped by students' past experiences (Eccles, 2009). For example, in a study of talented women studying technology, participants identified technology educational experiences and advanced technology education as important components in their decisions to pursue careers in the field of technology (Autio, 2013). In a similar study exploring male participants' career decisions, findings showed the importance of emotionally supportive and encouraging teacher-student relationships in developing students' technological interest and competence (Autio, 2011).

The Value of Writing

Student values often serve as driving forces for meaningful engagement in writing tasks (Bruning & Horn, 2000). In a number of studies, perceived value of writing is correlated with the writing achievement of students from elementary school to college (Pajares & Johnson, 1996; Pajares & Valiente, 1997). Students in upper-elementary grades often perceive writing tasks as useful (Pajares & Johnson, 1996; Pajares & Valiente, 1997) and writing continues to be highly valued into high school and college (Shell, Murphy, & Bruning, 1989).

What then drives the value students place on writing? Reflecting on his own experiences as a writer, George Orwell (2000) wrote, "I do not think one can assess a writer's motives without knowing something about his early development." Indeed, students' past experiences with writing likely influence the ways in which they value writing, though research has yet to make this connection.

To our knowledge, only one other study to date has examined college student writing values. In a study of 118 undergraduates, Jones (2008) found that students' perceived value of reading and writing positively related to course grades. However, value was quantitatively measured with only two items, and related findings were presented as "informal" (p. 219) and "exploratory" (p. 231). In the discussion of his findings, Jones (2008) calls for further research in this area.

To create meaningful and engaging assignments for their students, instructors should consider students' perceptions of the characteristics that contribute to valuable writing tasks. With a better understanding of student writing value, instructors may be better equipped to convey the importance of academic writing in higher education and therefore, better capable of guiding students through academic writing tasks.

The current qualitative study explored three overarching questions: a) When and why is writing valuable to college students? b) How are students' present feelings about writing influenced by their past experiences? and c) How do students' past experiences with writing relate to the ways in which they value writing?

Methodology

Participants

One hundred fourteen undergraduates from a large Mid-Atlantic university participated in this study. Participants were recruited from introductory English and teacher education courses. Approximately 80% of participants were female. Students ranged in age from 18 – 39 ($M = 20.68$, $SD = 2.94$). Approximately 55% of the participants were Caucasian, 18% were African American, 7% were Latino/Latina, 8% were Asian, 1 % were American Indian, and 9% self-identified their ethnicity as "Other." Approximately 2% of participants chose not to disclose ethnicity.

Data Collection and Analysis

Data collection took place via an online survey. Participants answered focus questions, "When is writing valuable to you? Why is it valuable?" and "How have your past experiences with writing affected your present feelings toward writing tasks?" Participant responses were not limited by character, word count, or time. Student responses varied from no response, to a few words, to 2 – 3 sentences or phrases. Online surveys were completed by participants in the setting of their choice and course extra credit was given for participating in the study.

A phenomenological qualitative investigation was conducted to explore the perceived experiences of student participants (Merriam, 2009). Data analysis was an iterative process using structural (Saldaña, 2013) and hypothesis (Bernard, 2011) coding. That is, both data- and theory-driven codes were used. Student writing value responses and past writing experience responses were first coded separately, then coded responses were merged for the purpose of considering possible differences in student values and experiences.

In the initial phase, authors independently read participant responses in their entirety to become familiar with the data. Responses were re-read and each reader noted reoccurring ideas. Next,

researchers met to discuss initial codes for writing value and past writing experience responses. Using constant comparative analysis of the data (Strauss & Corbin, 2008), connections, contrasts, and comparisons between codes were explored to ensure that codes covered all data and were mutually exclusive. Final structural codes for both value and past experience student responses were co-determined by all authors. All data was re-read and coded by two authors using final codes. Structural codes for writing value and writing past experiences were then grouped as themes. It is important to note that students often included several reasons for valuing writing as well as listed several different types of prior experiences with writing in their responses. Accordingly, it was possible for each student response to align with multiple codes.

Findings

The current study explored the following research questions: a) When and why is writing valuable to college students? b) How are students' present feelings about writing influenced by their past experiences? and c) How do students' past experiences with writing relate to the ways in which they value writing?

When and Why is Writing Valuable to College Students?

Seven themes emerged from the value data: 1) Writing is important for communicating and documenting ideas and for informing and persuading others (46% of responses; hereafter referred to as "Communication"); 2) Writing is valued for learning and doing well in school (45% of responses; hereafter referred to as "Academic"); 3) Personal writing involving choice is valued over academic writing (27% of responses; hereafter referred to as "Choice"); 4) Writing is useful for organizing thoughts (23% of responses; hereafter referred to as "Organization"); 5) Writing is valued as a form of artistic, creative, or emotional expression (22% of responses; hereafter referred to as "Expression"); 6) Writing is a necessary skill for my current or future job or career (11% of responses; hereafter referred to as "Occupation") and 7) Writing is a pragmatic, necessary, and useful skill (9% of responses; hereafter referred to as "Useful").

Components of expectancy-value theory (EVT; Eccles, 2005) were represented in students' responses to writing: attainment value, interest value, and utility value. As aforementioned, attainment value describes how important one perceives a task to be and how consistent that task is with that individual's sense of self, interest value refers to engaging in a task for the enjoyment experienced while doing the task, and utility value includes the perception of the current and future use of engaging in a task (Eccles, 2005; Wigfield and Eccles, 2000). Attainment, interest, and utility value often serve as the reasons students engage in academic tasks, whereas cost perceptions (i.e., student beliefs about the negative aspects of a task) more likely predict reasons students choose to not engage in tasks. As such, we did not anticipate student responses to align with cost aspects of EVT.

Attainment value. One theme, Expression, was categorized as attainment value. All student responses in this category related to personal expression. Some students noted writing as a valuable creative outlet. For example, one female senior commented, "As an illustrator, I find writing useful in expressing both the ideas and intentions of fine art works and in the development of stories and characters." Similarly, a female freshman noted, "Writing is valuable

because it exercises my creativity and fluidity of thoughts.” Other students recognized writing as a vehicle for expressing emotion. A female sophomore explained, “Writing is valuable to me when I do not have anyone to talk to ... I write what’s on my mind on paper.” Another female freshman stated, “Writing is valuable to me when I need to put my thoughts onto paper, which allows me to express how I feel at that moment.” Many student responses seemed to identify the therapeutic nature writing. For example, a female senior noted, “I think that sometimes writing can help me feel better.” A few student responses identified writing as a valuable tool for both creative and emotional expression. One female freshman identified writing as valuable “when it allows me to express my emotions I otherwise might not be able to and when I can create a story or character who expresses something I am passionate about.” Another female senior also commented on the emotional and artistic value of writing, “[Writing] helps me get my thoughts out. [Writing is] poetic to me.”

Interest value. One theme, Choice, was categorized as interest value. All responses in this category referenced the value of choice in writing topic or opportunities to write about personally meaningful topics. Words and phrases such as, “care,” “without restrictions,” and “interesting” were common across student statements. For example, one female freshman responded,

It really does depend on what I’m writing. I value writing the most when I’m writing a narrative or creating a story. I even have fun when I’m writing about a topic that concerns me. But when I have to write about something I genuinely have no interest in, I feel the actual writing ~~is writing~~ is much more difficult, it’s harder to focus, and it’s harder to develop ideas for [the topic].

Similarly, another female freshman commented, “I think [writing] is most valuable when it is something that I have personal involvement in or it is my ideas or I am free to write whatever I want.” Many student responses in this theme devalued academic writing, particularly graded academic writing. One female senior explained,

Writing is most valuable to me when I’m writing on my own free will. I enjoy writing when there isn’t an assignment to it ... It’s valuable because I won’t be graded on my thoughts and no one can judge me.

Another female freshman commented,

Writing is valuable to me when I’m expressing my personal thoughts or writing about something I feel strongly about. It is valuable to me because it actually holds personal meaning, I’m not just doing it for a grade, I’m doing it because I really want to get my point across.

Utility value. Five of the seven themes were categorized as utility value: Useful; Communication; Organization; Academic; and Occupation.

Useful theme. Out of all the themes, student responses in this theme tended to be more general in nature. For example, a female junior answered that writing is valuable “in everyday life. Writing notes, papers, and reminders is what I do every day.” A female senior also replied generally,

“Writing is valuable to me when it is necessary.” Student responses in this theme also referenced specific writing tasks more often than other themes. Tasks included, “notes,” “lists,” “thank you cards,” and “emails.”

Communication theme. Student responses related to this theme also tended to be fairly unspecific. The majority of student comments in this theme broadly described the value of writing as a form of general description and communication. Example responses include: “[Writing] is valuable because it is a form of expression that allows others to understand what you believe and why” (female freshman), and “writing is valuable when you need to articulate your ideas and beliefs about a certain topic” (male sophomore). Many student responses in this theme also identified value in writing to persuade or inform others. For example, a female sophomore noted, “writing can be used to persuade, enlighten, or bring joy to readers.”

Organization theme. Student responses in this theme recognized writing as a useful tool for visualizing and rearranging ideas into a coherent message to the reader. For example, a female sophomore noted the value of writing

whenever I need to organize my ideas or clarify them to myself. Because it allows me to lay them all out, sort through them, and make decisions on the ideas that are important or the ideas that link with another.

A senior student personally shared that writing is most valuable “when I need to express myself to others and I have a difficult time articulating my thoughts orally.” Other students similarly commented, “It is easier to organize thoughts on paper than it is to organize thoughts within my own mind” (female sophomore), and “It is helpful to see all of my ideas written out ...it serves as a great starting point” (female sophomore).

Academic theme. Many students believed that writing fostered their learning and understanding. A female senior shared, “Writing is valuable to me when I’m learning as I’m writing. I don’t like writing on topics I’m overly familiar with because I feel like it’s a waste of time.” Other students found writing useful for communicating their understanding to their instructors. For example, one female sophomore responded, “In order to get my ideas across to the professor, I believe writing is necessary.” Student responses in this theme often recognized writing as an important component in completing course assignments and achieving good grades. In fact, nearly 30% of student responses in this theme referenced “grades.” For example, a female senior student commented, “[Writing] is valuable to me when there is a grade attached to the paper. It is valuable because I want a good grade.” A male senior shared a similar sentiment, “Writing is valuable to me when I need to do an assignment to get a good grade. It is valuable because I want to do well in my classes.”

Occupation theme. Many student responses in this theme referenced documents necessary for securing employment. These included, “job application,” “resume,” and “personal statement.” Some students explained how writing related to their current jobs. For example, a female freshman described how writing related to being an artist, “Writing is valuable in my case to talk about the art that I am producing.” A female sophomore shared her current use for writing, “At my job, I need to write customers and it’s best to sound as professional as I can.” Some students

recognized the role that writing likely will play in their future careers. For example, one male senior commented on the usefulness of writing in “conveying my ideas to my ... future employers.”

How are Students' Present Feelings about Writing Influenced by Their Past Experiences?

Seven themes emerged from the experience data: 1) Positive past experiences and positive present feelings about writing; 2) Negative past experiences and negative present feelings about writing; 3) Good instruction, positive role models, nurturing instructors, and receiving constructive criticism (hereafter referred to as “Instruction”); 4) Positive writing experiences in AP, IB, and Honors classes (hereafter referred to as “Honors”); 5) Investing effort, hard work, and practice (hereafter referred to as “Effort”); 6) Uninteresting, unengaging, or daunting writing tasks (hereafter referred to as “Unengaging”); and 7) Past struggles or challenges with writing (hereafter referred to as “Challenges”). Past writing experience themes were categorized as either positive or negative valence.

Student responses were first coded as either positive or negative for past experiences with writing and either positive or negative for present feelings about writing. Many students (33%) described both positive past experiences with writing and positive present feelings about writing. For example, one female sophomore commented, “My past writings have made me enjoy writing more and made [writing] come a lot easier to me than ever before.” A male sophomore shared, “My past experiences have only encouraged my writing ability and strengthened it.” Some students (13%) described negative past experiences and the negative influence these experiences have had on their present feelings toward writing tasks. One male sophomore commented, “My experiences with writing on dull topics that I have not chosen give me a dislike towards writing. As of now, my overall feeling is that I really do not like writing.” A female sophomore shared, “In high school I didn't like to write and never really had the best grades when it came to writing. So now I don't like writing.” Only three (3%) participant responses were coded as positive past writing experiences and negative present feelings about writing. Only seven (4%) participant responses were coded as negative past experiences and positive present feelings about writing. Approximately 47% of student responses did not clearly indicate past experiences as either positive or negative.

Positive past experiences with writing. To further analyze this question, participant responses were analyzed to identify specific themes of students' prior experiences with writing. Positive past experiences with writing themes included: Instruction (mentioned in 16% of student responses); Honors (mentioned in 5% of student responses); and Effort (mentioned in 8% of student responses).

Instruction theme. Many student responses in this theme referenced previous experiences with positive role models and good instruction. One female senior described the role her family played in her development as a writer, “I have a very strong background in writing. My dad always wrote a lot to help him with his stress and anxiety. I picked up my first journal when I was seven and I've been filling them up since.” A female sophomore shared her experience, “I was very fortunate to have teachers and parents who greatly supported [writing], thus making school and learning enjoyable. This foundation allowed me to challenge myself and to try and

perfect my writing.” Other students commented on the power of instruction in instilling writing value. Specifically, careful feedback from instructors seemed very important. One female freshman described this in detail,

When I was younger, I got a lot of positive feedback on my writing, which gave me the confidence to pursue it. As I got older, I received more critical evaluations which [made] me determined to improve my writing.

Honors theme. A few students identified positive prior experiences in specific high school courses. In all cases across this theme, students noted greater confidence in themselves as writers as a result of this preparation. For example, a female sophomore shared, “I feel confident in my writing. I have taken AP classes before college which I feel have prepared me for entry-level writing.” Similarly, one male freshman commented, “I’ve had a very good high school writing education (honors and IB classes), which has prepared me for my current level of writing assignments.”

Effort theme. When describing their past experiences with writing, many students reflected on the time and effort they have personally invested in their writing. A female freshman shared, “I have always had to write [in] most of my classes so having prior practice with writing helps me to feel more prepared for new writing assignments in the future.” Although all student responses in this theme related to effort, some students reflected on the positive role of persistence in the face of challenge. One female freshman shared,

My past experiences with writing have affected my present feelings toward writing tasks by making me better at writing. The more I write the more I understand how to better organize my thoughts but not without suffering. I still don’t enjoy writing but the more I learn the more I enjoy it.

A female senior shared a similar sentiment, “My past writings have affected me because with each paper I have grown as a writer. I am not the best writer in the world, but I have a positive outlook on each paper I start.”

Negative past experiences with writing. Negative past experiences with writing themes included: Unengaging (mentioned in 19% of student responses); Challenges (mentioned in 11% of student responses).

Unengaging theme. Unfortunately, several students commented on the negative role prior experiences with unrewarding or intimidating writing tasks have played in their present perceptions of writing. Many student responses in this theme outlined specific characteristics of writing tasks perceived as unengaging, including: forced writing; assigned topics with little choice; and inauthentic writing tasks. One female sophomore commented, “I used to really enjoy writing for fun, in terms of creative writing. Once it started becoming about the papers the teacher assigned me, it became more of a chore.” Similarly, a female senior described her experience, “Research papers make me want to cry. I hate all the silly, rigid rules.” Anxiety was echoed in this student’s statement, “[Writing] tasks make me feel like I don’t have a chance.

They become so long and convoluted that it becomes impossible to do without making multiple mistakes” (male freshman).

Challenges theme. When students recalled their previous experiences with writing, many referenced the difficulties they have faced. Some students commented on general writing difficulties, “I do not especially enjoy writing because I have had experiences with getting stuck. This can be a time waster and can sometimes make me dread the entire process” (female senior). Others discussed the process of organizing their writing as a challenge. A female junior described her experience, “It's hard to organize my thoughts sometimes which makes it hard to write.” Many students shared how their struggles affected their beliefs in themselves as writers. For example, a female sophomore stated, “I have had trouble with organizing my thoughts ... This makes me insecure about how well I will do in many writing assignments, especially long papers. I find that I waver off course in my writing.” Another female junior shared,

I feel mediocre about my writing. If I sit down and solely focus on nothing but my subject, I am usually able to come out with a 'B' paper. It has always been difficult to get my ideas in order and convey my point.

Some students related their challenges and lack of confidence to feelings of stress. For example, a female senior commented, “I have never been the best writer and to this day it stresses me out when I have a big paper due.”

How Do Students' Past Experiences with Writing Relate to the Ways in which They Value Writing?

Finally, student writing experiences were explored within writing value themes. That is, each value theme was isolated to explore student experience responses specifically related to that theme. Looking across both value and experience themes, the majority of students reported both positive past experiences with writing and positive present feelings toward writing tasks (see Table 1). The Instruction positive experience theme and the Unengaging negative experience theme aligned well with several value themes: Expression (attainment value); Choice (interest value); Useful (utility value); and Academic (utility value). Alignment percentages are available in Table 1. Although the Occupation value theme (utility value) also aligned well with the Instruction positive experience theme, Challenges was the most salient negative experience theme for this value category. The Communication theme (utility value) aligned well with Instruction and Effort positive experience themes and the Unengaging and Challenges negative experience themes. The Organization value theme (utility value) aligned fairly equally across all positive and negative experience themes. Example corresponding participant responses for value and salient experience themes are available in Table 2.

Discussion

College students—and younger students alike—often ask themselves, “Why should I care about this academic task?” According to expectancy-value theory (EVT; Eccles, 2005; Wigfield & Eccles, 2000), students use the answers to this question to make decisions about the level of involvement they want to invest in tasks. Classroom research has provided strong evidence of the

power of the student value beliefs in determining learning achievement (Sun, Ding, & Chen, 2013), though the majority of research to date has focused on K-12 students in the areas of math and science (Berndt & Miller, 1990; Simpkins et al., 2006; Wigfield, 1994). Findings from the current study extend prior research by exploring college student value beliefs and prior experiences in the specific domain of writing, and by exploring the relationships among student writing beliefs and experiences.

Student Writing Value Beliefs

Within the framework of EVT, attainment, utility, and interest value aligned well with student writing value responses. Attainment value, or the ways in which a task aligns with a student's sense of self, was supported by the Expression theme. Within this theme, students discussed the role of writing as an outlet of creativity or emotion. Social and personal identity is often tied to attainment value and individuals often seek out opportunities to confirm their identity and see more value in tasks related to their self-image (Eccles, 2005). As such, students with responses related to this theme likely inherently saw themselves as writers.

Five of the seven writing value themes corresponded with utility value—student beliefs about the current and future use of engaging in tasks. Utility value themes included: Useful; Communication; Organization; Academic; and Occupation. Across student responses throughout these themes, students discussed ways in which they used writing or the intentions of using writing in the future. Utility value is often particularly salient in late adolescence and adulthood as individuals consider the value of tasks in relation to career and long-term goals (Eccles, 2005). Students often are more willing to put more effort into their studies when they perceive the subject to be of value to their future goals (Greene, Miller, Crowson, Duke, & Akey, 2004). Specifically, studies have shown that students who perceive tasks as instrumental for reaching their current and future life goals use more deep-level learning strategies and are more academically motivated than students who perceive tasks as less instrumental (Lens & Decruyenaere, 1991; Lens, Simons, & Dewitte, 2001). Brophy (1999) suggests that instructional planning be guided by worthwhile purposes and goals; and communicating these purposes and goals to students can facilitate student value and motivation.

Interest value, or the ways in which a task is perceived as enjoyable or interesting, was supported by the Choice theme. Within this theme, students discussed the powerful role meaningful choice played in their value beliefs. Student responses in this category also often undervalued uninteresting, academic tasks completed only for a class grade. Similar to attainment value, interest value is often linked to specific activities related to characteristics of one's sense of self, such as temperament, personality, and motivation (Eccles, 2005). Situational factors, which can often influence student academic interest, are typically under the control of instructors (Bergin, 1999). Studies have shown personal relevance, familiarity, and novelty to be positively related to student interest (Hidi, 1990; Hidi & Baird, 1986).

Influence of Student Past Experiences with Writing on Beliefs and Values

The current study also explored the influence of college students' prior writing experiences on their current perceptions of writing tasks. Overall, more students had both positive past

experiences with writing and positive current beliefs about writing, although a few students noted both negative prior writing experiences and negative current writing beliefs. When considering students' positive past experiences, students discussed salient memories of good instructors, influential role models, specific course experiences, and their personal investments of effort. Students also discussed unengaging or overwhelming tasks and memories with challenge and failure as negative prior experiences with writing.

Certainly, our experiences give us a lens from which we view future events (Eccles, 2009). EVT emphasizes the powerful influence success and failure can have on student value perceptions (Wigfield & Eccles, 2000). In line with EVT, our findings suggested many ways in which students' past writing experiences played into their current beliefs about writing. In general, experience with effective instruction and choice seemed to be meaningfully related to student writing value beliefs.

Instructors—in college and K-12 classrooms alike—might consider several strategies to encourage student writing value. Academic discourse may be new to students, and as such, instructors might consider examining student writing to determine where individual student challenges exist and demystify the process for students through explicit instruction (Bartholomae, 1985). Additionally, NCTE (2008) recommends that writing tasks are holistic, authentic, and varied. Fernsten and Reda (2011) discussed low-stakes writing tasks as an effective instructional strategy to help students meet the challenges of academic writing. Low-stakes writing assignments differ from high-stakes writing assignments in that they typically do not have much effect on student grades. Low-stakes writing tasks often include quick writes, letters, freewrites, think pieces, or early drafts (Elbow, 1997). With these types of tasks, students generally are prompted to reflect about and share their thinking related to course topics and assignments. Low-stakes writing assignments may encourage students to not only see themselves as writers, but also see another use and value of writing—as a tool for thinking.

Author's notes is a specific low-stakes writing assignment that provides students the opportunity to see themselves as writers (Fernsten & Reda, 2011). In this activity, instructors generate questions for students to consider and write as related to their draft of final writing product. Example questions might include: “‘What went well in this piece?’ and ‘Where do you think readers might get stuck or need more information?’” (Fernsten & Reda, 2011, p. 178). Considering questions like these may push students to think about their writing as well as their thinking, encouraging students to be more metacognitive and self-regulated in their writing.

It also is important for college instructors to avoid limiting what George (2012) described as the expressive potentials of students by allowing them to use personal narratives and multiple modalities of expression. Student autonomy is often considered a central human need (Deci & Ryan, 1985). Students need writing activities that they enjoy, as well as authentic and meaningful assignments that will give them opportunities to feel successful as writers (Gambell, 1991). As suggested by our findings, providing students with opportunities for choice and autonomy in their writing may allow students to see writing as more valuable and empower students to feel more motivated to write.

Most students who believed writing to be important to their current or future employment (Occupation) discussed positive prior experiences with writing, though those with more unpleasant previous writing experiences recalled memories of challenge and struggle. Realizing the influence of writing on their current or future occupational success, but facing past and perhaps current writing struggle may present a frustrating conflict for students to overcome. Providing students with explicit instruction as well as resources for seeking necessary help, such as the writing center at the university (Alexitch, 2006), may provide students with the tools and support to be more successful in their writing.

When considering the role past writing experiences played in student beliefs of writing as a valuable means for visualizing and organizing ideas, student responses varied across both positive and negative experience themes. These findings are in line with writing self-regulation literature. Organizing thoughts and writing are self-regulation skills that can be taught as early as first grade (Author, 2013) and through adulthood (Zimmerman & Risemberg, 1997), though this skill can be challenging for students to learn and often requires substantial effort (Graham, Harris, & Troia, 1998). Studies have shown that explicit instruction detailing the process of organizing ideas and writing can improve adult student writing motivation and performance (Berry & Mason, 2012; MacArthur & Philippakos, 2013).

Limitations

These findings represent perspectives of college undergraduate students who were willing to share their perceptions and experiences. As such, we attempted to address potential volunteer bias by including all students enrolled in recruited class sections and offered all participants extra credit. Response bias, whereby participants provide perceived “desirable” responses, was another potential limitation of the current study. We attempted to address this concern in two ways: (1) we included a relatively large sample to help ensure a range in perspectives and experiences; and (2) we provided an online open-response format to enable students to be honest in their responses. Although collecting data online may have allowed students to be more open in their responses, this data collection method did not allow us to ask follow up questions to student responses. Though these limitations may impact the generalizability of our findings, future research might use the results presented here to develop surveys or interview protocols to gain deeper insight on student writing experiences and beliefs.

Conclusions

All experiences exist along a continuum, whereby each experience grows out of other past experiences, and experiences then influence further experiences (Dewey, 1938). When considering prior academic experiences of students, momentum is certainly at play. That is, students with several salient negative academic memories likely will require just as many (if not more) positive academic experiences to tilt the “experience scale.” The findings of the current study illustrate the powerful influence past experiences with writing can have on current writing perceptions and beliefs. When instructors take the time to discuss and acknowledge students’ writing value beliefs and prior experiences with writing, they can validate students and are afforded the opportunity to design effective instructional strategies relevant to both their course and students.

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“I am kind of a good writer and kind of not”: Examining Students’ Writing Attitudes

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Abstract

Since writing ability has been found to be an important predictor of school success and college readiness, it is important for teachers to understand the connections between students’ attitudes toward writing, writing self-efficacy, and writing achievement. This article describes the findings from focus groups conducted with 81 students in grades K-5 during which participants discussed their attitudes and self-efficacy beliefs about writing. Focusing on the power of students’ voices, this study adds a unique perspective not often found in the affective domain of writing research. Five broad themes emerged related to students’ writing attitudes including: (1) feelings about writing, (2) writing self-efficacy, (3) motivators for writing, (4) teacher influence, and (5) writing preferences.

Although writing ability has been found to be an important predictor of school success and college readiness (Graham, Harris, Fink, & MacArthur, 2001; Norman & Spencer, 2005), the National Assessment of Education Progress (NAEP) report card on writing indicates a deficiency in the preparedness and writing ability of most students in the United States. As U.S. students’ literacy skills continue to lag behind competitor nations’ (Thompson et al., 2012), there is a growing acknowledgement that changes need to be made to current instructional practices.

Recent shifts in the U.S. education system include a stronger focus on preparing all students to be college and career ready with the adoption of K-12 Common Core State Standards (CCSS) by the majority of states. In this time of increased accountability, it is critical to gain insights into writing attitudes of elementary school children if we are to motivate all writers to engage with literacy tasks and improve their proficiency as writers (Irvin, Meltzer, & Dukes, 2007). To gain these insights, it is imperative that students’ voices are reflected in research on writing in the affective domain. The purpose of this study was to explore elementary school students’ writing attitudes and self-efficacy and to examine how these motivational factors change and develop over time as a result of experiences within their home and school writing environments. In this study, we asked the following questions: What attitudes and self-efficacy beliefs did students in grades K-5 hold regarding writing? What were the major influences (e.g., teacher, family, personal experience) on these attitudes or beliefs? What were the differences (if any) between younger and older students’ writing attitudes and self-efficacy?

Theories of Writing Development

Sociocultural theories of writing development gained momentum in the late 1970s as researchers challenged cognitive models of writing processes and began developing social models of writing (Nystrand, 1989; Shaughnessy, 1977; Teale & Sulzby, 1986). These new models focused on the functioning of written language within context (e.g., within a classroom writing community), in contrast to previous models which described writing as a solitary cognitive act. Social models of writing continued to garner attention in the 1980s as a result of the success of the process writing movement (Nystrand, 2006). Additionally, motivational research in the area of writing increased during the past two decades, revealing attitudes and self-efficacy as important influences on writing development (Alexander, Graham, & Harris, 1998; Graham, Berninger, & Fan, 2007; Piazza & Siebert, 2008). These developments led to a richer understanding of the writing process as demonstrated by revised cognitive models, in which motivational factors have a more influential function (Hayes, 1996; Hidi & Boscolo, 2006).

Due to the interdependent nature of attitudes, feelings, and beliefs, researchers often struggle to define affective constructs and measure interrelations of affect (Graham et al., 2007; Piazza & Siebert, 2008). There have been mixed findings on how writing attitudes change and develop through the school years, with some researchers reporting a decline in positive attitudes toward writing and perceptions of writing ability (Anderman & Maehr, 1994; Knudson, 1991, 1992; Shell, Colvin, & Bruning, 1995) and others reporting no difference in writing attitudes of younger and older writers (Graham, Schwartz, & MacArthur, 1993; Graham et al., 2007) or an increase in positive attitudes with age (Pajares, 2003).

In this study, we used sociocultural theories of writing (Prior, 2006) to frame our understanding of children's writing development and the possible impact of teachers, curricula, and experiences on children's attitudes towards writing. While interviewing the children, we listened carefully for comments about specific interactions with teachers, peers, and family members, and how these interactions and expectations affected children's writing experiences. Our interest in listening to children and trying to understand how they viewed themselves as developing writers, was grounded in the notion that attitudes, beliefs, and self-efficacy are influenced by social settings such as the classroom. It is possible that by listening to children and studying their experiences, the importance of social influences on writing development and achievement can be illustrated, and in turn help teachers reexamine their curriculum and teaching practices.

The Relationship between Writing Attitudes, Self-Efficacy, and Writing Achievement

The connections between students' attitudes toward writing, writing self-efficacy, and writing achievement are important considerations for teachers in the current school climate of accountability and Common Core implementation. In regards to attitudes, research demonstrates students with more favorable attitudes toward writing have higher efficacy beliefs and are likely to write more often and exert more persistence and perseverance when obstacles arise (Jones, 2008; Kear, Coffman, McKenna, & Ambrosio, 2000; Pajares, 2003; Zumbrunn, 2010). In a recent study, Zumbrunn, Bruning, Kauffman, and Hayes (2010) observed a positive significant relationship between elementary students' writing attitudes and writing self-efficacy. The findings from this study and others suggest that writing attitudes can influence students' beliefs

about their writing competence and in turn affect their writing achievement (Graham et al., 2007; Kear et al., 2000; Knudson, 1995).

Positive attitudes toward writing and high levels of writing self-efficacy may be mutually beneficial. Hidi, Berndorff, and Ainley (2002) found students engaging in interesting activities experienced positive emotions which can provide feedback and information that may strengthen students' writing self-efficacy. Judgments of writing efficacy and personal writing attitudes affect the choices students make by influencing the amount of effort they expend, the types of strategies they use when writing, and the risks they are willing to take on writing assignments (Anderman & Wolters, 2006; Pajares, 2003).

Graham et al. (2007) suggest these differences in student attitudes and writing behaviors often lead to individual differences in writing achievement. In their study designed to test different models of the structural relationship between primary grade students' writing achievement and attitudes toward writing, Graham and colleagues (2007) found students with more positive writing attitudes had greater writing achievement than their peers with less favorable attitudes toward writing. The model that best fit the data in their study suggested that writing attitudes significantly predicted writing achievement.

Methods

This study was informed by sociocultural theories of writing (Prior, 2006) and writing research focused on the affective domain (Alexander et al., 1998; Graham et al., 2007; Piazza & Siebert, 2008). Using qualitative methods, we examined elementary students' attitudes and self-efficacy beliefs about writing (including their feelings and motivation for writing). We used qualitative inquiry because our goal was to learn about children's experiences and their perspective on their development as writers in school. In order to accomplish this goal, we used focus group interviews to collect data because they are useful in promoting conversation among participants and allow participants to "stimulate each other to articulate their views or even to realize what their views are" (Bogdan & Biklen, 2007, p. 109). By generating data based on the synergy of the small groups, we were able to gather information about a range of attitudes and experiences, as well as explore the differences in perspectives across grade levels (Rabiee, 2004).

Participants

The data from this study were collected in accordance with the standards and guidelines of the human subjects review board at the authors' home institution. The participants in this study were 81 students in an elementary school in the South. The school is a neighborhood school with a focus on the arts. Both authors were familiar with the school because it is used as a field placement site for their institution. The demographics of the school are the following: 70% White, 21% Black, 5% Latina/o, 4% Asian. The participants in our study mirrored the demographics of the school.

Using purposeful sampling (Bogdan & Biklen, 2007), we contacted one teacher at each grade level (K-5) based on our knowledge of their daily use of writing instruction from our student

teachers, comments from parents and the principal at the school, and observations from visits to the school. We asked each teacher to send home a letter to all of her students (i.e., approximately 25 students per class) with information regarding the study and permission for their child to participate in the focus groups. We received responses from 10 kindergarten students, 16 students in grade 1, 14 students in grade 2, 13 students in grade 3, 14 students in grade 4, and 14 students in grade 5. All students that returned consent forms were invited to participate in the study and gave verbal consent.

Data Sources and Methods of Analysis

The authors, both familiar with teaching writing in the elementary school setting and experienced with focus group research, moderated the focus groups to ensure an environment in which students felt relaxed and encouraged to engage in conversation about their attitudes and feelings toward writing. Following each focus group, we recorded general impressions and unique responses from students in their group. A research assistant was also present to observe body language and gestures (to add context to oral responses), record the names of speakers, and document the general content of the conversations in order to supplement the oral transcripts. Krueger & Casey (2000) suggest 6-8 participants as an optimum size for focus groups in order to gain a variety of perspectives, while being small enough to converse in an orderly manner. Using these guidelines, we randomly divided the children into groups of 5-8 by grade level (depending on the total number of participants for each grade) and began by introducing ourselves and inviting the children to tell us their names.

We asked students a series of introductory questions such as: (1) Do you like to write?, (2) What do you like about writing?, (3) What does your teacher do to help you write?, and asked them to respond orally. We then used their answers and comments to ask follow-up questions to better understand their responses and attitudes toward writing. For example, in the second grade class the children talked about writing for a school-wide contest. Follow-up interview questions then asked specifics about why they enjoyed writing for the contest, what made a piece of writing “good” for the contest, and why the contest made them feel excited about writing. Focus group conversations were audio recorded and later transcribed.

Using framework analysis (Krueger, 1994; Ritchie & Spencer, 1994), we analyzed our data through four key interconnected stages including familiarization with raw data, identification of themes, indexing and organizing the data, and interpreting the data. Our initial data analysis was our conversations after each focus group to discuss themes that emerged and responses from children that seemed to resonate (or not) with the existing literature (Bogdan & Biklen, 2007). Based on these initial conversations, we created a list of themes and ideas with which to code our transcripts and observation notes. We chose these initial themes based on comments or ideas from the children that stood out to us, ideas that helped us to answer our research questions, and comments that were unexpected. These themes included: role of teacher in students’ perception of writing, motivators, sense of self in relation to writing, utility of writing, discourse of writing, and affective statements about writing.

First, we each coded our individual transcripts (including observation notes) by highlighting student comments with different colors in Microsoft Word that related to our initial themes.

Frequency distributions of students' responses were then created by each author and compared to determine agreement in prevalence of themes. Student responses ranged from 19-56 related comments per theme and 2-29 comments per subtheme (prevalence is noted below in the study findings).

Next, we individually noted additional themes that emerged that were not on our initial lists (i.e., where children prefer to write, what topics children prefer to write about, and what genres of writing children prefer) and coded transcripts a second time by highlighting and creating a frequency distribution of additional themes. After coding for initial and additional themes, we reviewed our shared transcripts to discuss discrepancies and reach an agreement on shared themes and their prevalence.

Findings

Five prevalent themes emerged during the analyses of focus group data including: (1) motivators for writing, (2) writing preferences, (3) writing self-efficacy, (4) feelings about writing, and (5) teacher influence. Each of the themes with supporting evidence, are described below in order from most prevalent to least prevalent. The number of student responses are listed parenthetically after each key theme and subtheme below.

Motivators for Writing (56)

Since motivation is strongly correlated with academic achievement in writing (Alexander et al., 1998; Graham et al., 2007; Piazza & Siebert, 2008), it makes sense to ask children about factors that make them *want* to write. In the current study, four sub-themes emerged within motivators for writing including: *topic choice* (29), *sharing* (14), *freedom* (7), and *praise* (6). Despite the class or age group interviewed, topic choice was the most frequently discussed issue during our focus group sessions. In classrooms where children were given topic choice often, comments were made describing the importance of choosing their own topic and how it motivated them to write. When discussing *topic choice*, children described the importance of being familiar with writing topics and the restrictions they felt when writing about assigned topics. Three children commented on their feelings about familiar topics:

"I really like it when we write about ourselves and things that we know." (1st grade)

"I like choosing my topic because you can tell people stories that you did over the weekend and stuff because they weren't there." (1st grade)

"I like writing on my own cause you can keep it secret if it's private and you can write stuff about anything." (2nd grade)

Others commented on the restrictions of assigned topics and the freedom they felt when allowed to write about their own topics:

"What you really like, you can't write about, cause that person tells you what to write and you have to do it." (3rd grade)

“We just don’t know how to write about fairies because we don’t have the word fairies on our popcorn words, cause in classrooms there’s normally not fairies.” (Kindergarten)

“I like choosing because you know what you want to do and you’re the boss of yourself, so you do what you want to do.” (5th grade)

“...pretty much what he’s trying to say is the sky is the limit when you write about your own topic.” (3rd grade)

Older children (i.e., 3rd-5th grade students) also talked about appreciating *topic choice* within an assigned genre and described instances when they appreciated the teachers’ assistance with topic choice. Two children stated:

“Well, she normally tells us what to write about. Like we are writing our goals piece now and she told us we had to write about our goals, BUT we could come up with our goals and she helped us to kind of get a feel for that.” (5th grade)

“I like getting an idea of what to write out or else I’m kinda stuck and having a little trouble. Sometimes after that, I can write on my own if I get a good start. Then I can build onto that and make it better.” (5th grade)

Some students talked about the daily act of *sharing* as a motivator for writing while others found sharing time to have a negative influence on their attitudes toward writing. Students who enjoyed sharing appreciated feedback from their peers, the feeling of accomplishment when sharing a finished piece, and the emotional connection felt with their audience. Three students described positive experiences with sharing their writing:

“I like sharing because my friend might say maybe you should take out this sentence.” (4th grade)

“It makes me feel like I’ve accomplished something, like all of that practice of writing and help really paid off.” (5th grade)

“When you share with the class, they just realize what you are going through.” (4th grade)

Although children in grades 4-5 reported positive experiences with sharing, they were also more likely to report negative attitudes toward sharing than students in grades K-3. Three older students described negative attitudes toward group sharing because of the personal nature of their writing or because of the quality of their writing:

“I don’t like other people to see my writing. I only like one person. Like just my teacher.” (4th grade)

“Sometimes I like to, but sometimes I don’t, because if we’re doing a piece about a part of our lives, it’s kind of personal so you don’t really want people to listen.” (5th grade)

“I love sharing...but ...sometimes when I feel very strong about what I write and how I feel and stuff, I’ll want to share it, but usually if I don’t want to, if I don’t think it’s the best it can be, I don’t want to share it.” (5th grade)

In addition to sharing, *freedom* was a theme that was interwoven throughout students’ discussion about their motivation to write. Freedom to choose where to write, what to write about, and for which audience were all mentioned with multiple students discussing the benefits of writing at home.

“I like writing at home because nobody else is there and I have a quiet room.” (2nd grade)

“I like it better at home because I don’t have anybody watching me. Sometimes when people are watching me, I get a little nervous like “why are you watching me?” right? Like it’s pressurizing so I don’t really concentrate.” (3rd grade)

Finally, *praise* was a motivator for the young writers interviewed in this study. Comments about *praise* included descriptions of eliciting emotion from others and experiences with public recognition of their writing. Two students described emotional writing moments with their teacher and peers:

“Most of the time with my writing, when I’m reading it to the class, she’ll [teacher] start crying.” (4th grade)

“...and usually all our friends say “yeaaaaaaah!” (4th grade)

Three other students recalled times when their writing had been recognized by the judges of the monthly school wide writing contest:

“There’s this [school wide] contest and you can enter it and they’ll read your poem or writing or whatever you do and they’ll look at it, and if they like it, you win.” (4th grade)

“I have entered a lot of my work in [the school wide contest] and it feels good if you win it because it kinda boosts your writing confidence a lot.” (5th grade)

“When it’s entered, you feel like you’ve accomplished something, and if somebody else likes it, and they think you’ve done it to the best of your ability, and you know that you did, and if it’s all you could do, and it gets picked, you know that it was enough and maybe over the top.” (5th grade)

Writing preferences (41)

In our original meeting to discuss coding themes, we did not identify writing preferences as a major theme. But as we began our secondary analysis of the transcripts, we both found that the writing *genres* (17) students like to use, *what* (16) students like to write about, and *where* (8)

students like to write were very important factors in the development of students' attitudes toward writing.

Students discussed many different writing genres that they preferred including poems, stories, jokes, comics, letters, posters, and songs. Three students shared their genre preferences:

"I like to write letters to the tooth fairy." (Kindergarten)

"Sometimes I go home and I write a little song." (3rd grade)

"I like to write in my journal about my day sometimes." (3rd grade)

There were obvious differences between the writing topic preferences of girls and boys. Boys wanted to write more about "things" such as vampires, zombies, race cars, chemistry sets, Legos, star wars toys, and robots. Girls preferred writing about more personal experiences or places such as vacations, family members, their neighborhood, and gardens. Finally, many students preferred writing in locations outside the classroom (e.g., in the car, outside, at home) and especially in environments free from noise. One student described her ideal location for writing:

"I'd like to write in the quietest building in the quiet world that has quiet things with no intercoms and no cameras." (2nd grade)

Writing Self-Efficacy (32)

It is not surprising that students with higher levels of writing self-efficacy (i.e., belief in their competence as writers) experience higher levels of writing achievement (Graham, Berninger, & Fan, 2007; Kear et al., 2000; Knudson, 1995). As with any complex task, beliefs of competence can affect the effort and persistence level students are willing to expend on writing (Anderman & Wolters, 2006; Pajares, 2003) as well as their enjoyment level.

Four sub-themes emerged when asking students to reflect on their sense of self in relation to writing. Regardless of whether they felt themselves to be "good" or "bad" writers, students reported *experience* (10), *use of conventions* (9), *elaboration* (7), and *teacher response* (6) as indicators of writing competence. Students reported that experience with writing influenced their beliefs in their writing ability and that practice was an important factor in becoming a proficient writer.

"I'm a good writer because I've had a lot of experiments... well, not experiments... experience... [laughs]... experiences." (4th grade)

"If you write a lot and if you practice, you make mistakes over and over and eventually you don't make those same mistakes." (4th grade)

Students also reported that they were "good" or "bad" writers based on their ability to use writing conventions such as spelling and punctuation.

"I'm a good writer because I always use capital letters and commas and periods. It's really important because you need to know when to stop." (3rd grade)

"Good writers can spell and put their words together in the right places." (2nd grade)

Others suggested their ability to elaborate and use details made them a good writer.

"I'm a good writer - I think it's because I use a lot of details." (2nd grade)

"You have to use specific things and you have to make it so people will like it and you have to use words that would make sense." (3rd grade)

Although teacher influence is discussed as a separate theme later in this paper, it is important to note here the influence of teacher response as it specifically relates to students' sense of writing self-efficacy. When students were asked how good of a writer they believed themselves to be, many substantiated their answers based on teacher response.

"I know I'm a good writer when I get a 100 or an A+." (5th grade)

"I only usually have like one or two mistakes and she [teacher] compliments me." (3rd grade)

Feelings about Writing (31)

When examining affective statements from the students, we found that many students had positive attitudes toward writing, but few preferred writing over alternative activities such as playing outside. Girls were more likely than boys to report having a positive attitude toward writing, which is consistent with findings from Graham et al. (2007) and Knudson (1993). We also found that attitudes toward writing declined with age with the most dramatic decline occurring between 3rd and 4th grade and continuing into the 5th grade year. This trend is also consistent with findings from previous studies (Anderman & Maehr, 1994; Knudson, 1991, 1992; Shell, Colvin, & Bruning, 1995).

During the discussion portion of the focus groups, students discussed both *positive* (16) and *negative* (15) feelings about writing. *Positive* feelings centered on expressing ideas through writing and being creative. Three students described their positive feelings:

"I like writing because I can write things that happen instead of talking." (2nd grade)

"I like writing because you can keep it secret if it's private and you can write stuff about anything." (2nd grade)

"One of my favorite parts about writing is that it is sort of like legos. You can build your own characters." (5th grade)

Negative feelings were most often associated with the difficulty and complexity of writing including figuring out how to spell and use punctuation, writing lengthy sentences, and organizing thoughts and ideas. Four students describe their struggles with writing:

“I don’t like writing the words because sometimes I don’t know the words and I want to figure them out myself and I can’t.” (Kindergarten)

“My hand gets tired.” (Kindergarten)

“I don’t like when you have to write something like a very long sentence like fifty something words.” (1st grade)

“You have so many ideas in your head and you just keep losing them.” (4th grade)

Students also stated that writing takes time away from other more enjoyable activities. One student stated this concern clearly:

“I don’t have a lot of free time and I’d rather spend it on something else.” (3rd grade)

Teacher Influence (19)

When children were asked about the role of their teachers in their writing lives, they had a range of answers from positive and supporting to negative and limiting. Children’s responses regarding teachers’ positive roles fell into three categories: (a) *encouragement* (7), (b) *direct assistance with writing* (4), and (c) *tips for improving writing* (2). Two children described experiences of receiving *encouragement* from their teacher:

“She tells us to write more!” (1st grade)

“I like writing when my teacher tells us to do it, because everybody else is doing it. That makes me feel like, yeah, I wanna do writing.” (4th grade)

Examples of *direct assistance with writing* included the teacher providing topic ideas, spelling words for children, providing a writing model to be copied, and helping with punctuation. Four children described *direct assistance with writing* received from their teacher:

“When you’re at home, you’re like I’m stuck and I don’t know what to do, but if you’re at school the teacher can help you and put ideas in your head.” (5th grade)

“If I make mistakes, she tells me. Like if I spell a word wrong, she would tell me how to spell it and then when we did our final draft, I would know how to spell it and get it right.” (4th grade)

“I am kind of a good writer and kind of not, cause sometimes I get like...sentences, eh, jumbled up. But usually I think I’m a good writer because, um, my teacher helps me and we practice a lot.” (4th grade)

“She writes down what we’re supposed to write ...and then we copy it”. (Kindergarten)

Beyond direct assistance, children found a variety of tips from teachers helpful in improving their writing. *Tips for improving writing* included providing examples, suggesting different word choice and sentence structures, and asking children to read their work aloud to hear where changes were needed. One child described how her teacher provided tips through daily conferencing:

“She comes around the room and conferences with us and tells us to read our piece out loud, and she says when we read it, we can see our mistakes more. Then as we read, she tells us where we should change something and keep something. She tells us if it’s really good or not.” (5th grade)

Two negative sub-themes emerged when children were asked about their teachers’ role in their writing process including *limited writing time* (4) and *uncomfortable writing environments* (2). It was obvious interviewing different classes that some teachers allowed more consistent and extended periods for writing than other teachers. An overwhelming complaint from students in classes with limited writing time was that they were “just getting started” and writing time was over. Four children described their frustration with *limited writing time*:

“She always gives us ten minutes and I’m like getting started and I’ve got one dot on my paper and then we have to clean up.” (1st grade)

“If she let us have more time, it would make us more smart.” (1st grade)

“We would have more time to do bigger sentences or it’d be a really nice picture.” (1st grade)

“I wish we could have a certain time for writing, a writing time like for 15 or 30 minutes so that we could write whatever we wanted.” (3rd grade)

Other children described the teachers’ role in creating *uncomfortable writing environments* due to noise and criticism. Many talked about desiring a quieter work space where they could concentrate and write “like they do at home.” Others focused on feelings they experienced when their teacher critiqued their writing in front of their peers. Two children described their struggles with their *uncomfortable writing environments*:

“It’s too noisy – and it’s so annoying...and you probably just mess up at some point.” (2nd grade)

“Well, my teacher shared my writing with the class last year and I got really sad cause you don’t know if she is gonna say you need to fix this in front of the class or if they’ll laugh or something.” (3rd grade)

While children reported both positive and negative roles that their teachers played in their writing lives, it was apparent throughout the interviews that teachers have a major influence in the development of children’s attitudes toward writing. We see the importance of the environment that teachers establish in their classrooms for writing, both in terms of physical

environment and time allotted, as well as creating a climate of a writing community where children feel comfortable and supported in their writing.

Limitations

There are several methodological limitations to this study. Although all of the participating teachers taught writing on a daily basis, the school did not have a consistent writing program or philosophy across all of the grades or classrooms. Therefore, our use of only one teacher per grade level gave us a limited perspective on the writing experiences of children across the school. Children's writing experiences in classrooms were dependent on their individual teachers' writing curriculum and philosophy, as well as varying home experiences, therefore the changes we noticed in writing attitudes over time may or may not have been directly related to age and development. In future studies, we would suggest including all of the teachers at the school in order to understand the writing experiences across the entire school.

We also relied exclusively on the children's perspective and description of their experiences. We did not conduct classroom observations in order to observe writing experiences; however, while this is a limitation of our study, this was also a deliberate choice because we were most interested in understanding the children's perspectives and sense of self as writers.

Conclusions

Although the results of this study are supported by years of writing research and the process writing approach movement, the power of students' voices reflected in this study remind us of the importance of balancing their needs as developing writers with curricular expectations. As teachers transition to CCSS, writing instruction has garnered national attention. Yet in the flurry of implementation, what we have learned from writing research in the affective domain over the past twenty years has been greatly ignored. The findings from this study remind us of the importance of understanding the relationship between children's attitudes and self-efficacy toward writing and their writing achievement.

Five broad themes emerged related to students' writing attitudes including: (1) motivators for writing, (2) writing preferences, (3) writing self-efficacy, (4) feelings about writing, and (5) teacher influence. Each of these themes can support classroom teachers as they develop and implement their writing curriculum and inform teacher education programs on how to better prepare effective writing teachers. Additionally, the study itself, can serve as a model for teachers to ask their students about personal writing experiences, explore their students' attitudes and self-efficacy towards writing, and inform their teaching practices by building on their own students' beliefs and experiences.

Implications for Practice

In order to improve teachers' writing instruction, it is imperative to build on evidence-based practices by examining students' perspectives on writing. Each of the five themes that emerged from our study has important implications for practice.

Motivators for Writing

It is important that teachers understand the relationship between writing motivation and writing achievement (Graham, Berninger, & Fan, 2007; Kear et al., 2000; Knudson, 1995). If teachers understand this important link, they will be more likely to make instructional choices based on the needs and interests of their students. For example, if teachers realize that topic choice is a strong motivator for students, they will be more likely to provide choice of topic even within cycles of writing genres required by CCSS (Fletcher, 2006). Teachers will also be more likely to use process-oriented approaches to writing instruction if they understand the benefits of constructive feedback, a variety of sharing opportunities, and freedom to express one's ideas (Graham et al., 2007).

Writing Preferences

Another key implication from this study was the importance of recognizing audience and purpose (Ray & Glover, 2008). For the younger children in the study, they valued teachers sharing their work or writing for a particular audience, such as the tooth fairy. Their writing preferences seemed less personal in nature versus the older children who recognized the difference between writing for a public audience versus private writing (e.g., writing in a diary or to express feelings). Teachers could choose to offer children the opportunity to write for a variety of purposes and audiences in order to help develop voice as well as explore writing across genres. The children in our study were excited about the opportunities that they had to write in self-selected genres such as poetry, comics, songs and many expressed that these were the forms of writing that they enjoyed outside of the classroom. In a few cases, children who expressed a lack of interest in writing within the classroom were excited about writing in these genres outside the classroom. Teachers can build on these findings by exploring the incorporation of a variety of genres into their writing curriculum in order to engage diverse learners and support each child's unique development as a writer.

Writing Self-Efficacy

Students reported that practice and experiences with writing, together with the use of conventions and elaboration in writing made them good writers. We noticed that these skills and behaviors that they identified reflected their experiences with classroom practices and teacher beliefs of "good writing," and few focused on the content and coherency of the writing process or product. As teachers strive to use evidence-based practices and transition to new writing standards, it is important to consider what practices increase students' feelings of competence as writers (Gillespie, Olinghouse, & Graham, 2013; Graham et al., 1993). To give children the "practice" they recognize as valuable, the writing curriculum could include a variety of daily opportunities to write, both formal and informal so that children can learn to write for different audiences, use different voices and learn how to develop their voice as writers (Ray & Glover, 2008). To help children become confident in using conventions and elaboration, teachers could embed mechanics and craft lessons into authentic writing experiences such as Writer's Workshop.

Feelings about Writing

Although students' feelings about writing are often well-established when they enter a teacher's classroom, feelings and attitudes continue to evolve as students have writing experiences in different grade levels and with different writing teachers (Author, 2010; Ng, Nicholas, & Williams, 2010; Norman & Spencer, 2005). Beyond establishing best practices for writing instruction, our findings imply that teachers could create opportunities for students to share their feelings about writing, as a way of informing instruction and understanding each student's personal relationship with writing. The method of this study can serve as a model for having meaningful conversations with children about their feelings toward writing.

Teacher Influence

The role of the teacher was influential in the development of student writing attitudes in the current study. We can see from the data that children's attitudes towards writing were often directly linked to their experiences in the classroom and children who seemed to prefer writing expressed that their teachers valued writing and were enthusiastic in their teaching of writing. As teachers reflect on their own writing attitudes and instructional practices, they might be encouraged to observe the effects that their personal dispositions have on students' writing attitudes and motivation toward writing (Author, under review).

Final Thoughts

Given what we heard from the students in this study, we encourage teachers to appreciate the differences in their students' writing interests and build on their individual strengths. We also encourage teachers to consider changes in writing attitudes that develop over time, so that if teachers move between grade levels or work with different populations of students, they will take these changes into consideration as they learn about their students' writing attitudes and experiences. As writing expectations continue to increase, it is important to consider future research on the influence of the affective domain on writing achievement and the role teachers play in helping students develop positive attitudes toward writing and a strong sense of efficacy in their writing abilities. Fletcher (2006) states that:

Writing teachers draw on three distinct pools of knowledge: what we know about teaching, what we know about our students, and what we know about the craft of writing itself. (p. 6)

Keeping this in mind, it is crucial for teachers to focus on these inseparable crafts of teaching and writing while keeping a strong focus on each child as author.

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The Principal's Vision: Necessity or Non-issue?

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Abstract

Public school teachers and administrators share a common belief with regard to the principal's articulation of his school's vision. This fact was borne from a survey conducted in Georgia involving 4,700 teachers and other school professionals. The responses of teachers and principals to questions regarding school vision were markedly consistent and point to possibly an overlooked element in school administration – an element to enhance school improvement. In this paper, the authors seek to understand why both teachers and principals value a specific, clear vision and the potential benefits, which can be gained from understanding the nexus.

What is the purpose of public education? How are decisions made? What are the beliefs of educators? These simple, but complicated questions are at the foundation of policy debates that intimately affect the very fabric of the education system. Decisions are made, programs created, and initiatives mandated without much concern for understanding the beliefs of the professionals that are closely involved. The purpose of this research was to more clearly delineate the belief systems of educators from across the educational spectrum—from elementary teachers to school counselors, from administrators to paraprofessionals, from foreign language teachers to Career, Technical, Agricultural education professionals and everyone in between. Using the Purposes of Public Education survey (Page & Author, 2013) with added items regarding beliefs and purposes of special education, school counseling, physical education and school leadership.

Background

Understanding the beliefs of educators allows for a wide variety policy, program and personnel decisions to be made ranging from diversity (Flynn, Author, & Page, 2013), alignment with the goals of an organization (Edwards, Author, & Page, in press), understanding the worldview of teacher educators (Author & Page, in press) or the development of questions for hiring practices (Author, Page, & Wilson, unpublished manuscript). By looking at educator philosophies, a more thorough understanding of the underlying foundations of belief systems can be constructed for the purposes of helping schools meet the needs of 21st century learners.

While the overall purpose of the survey was to examine a wide range of issues dealing with philosophical, administrative, pedagogical and structural elements of public schools, the purpose

of this paper is to address a seemingly obvious, but necessary component of school administration—what is the relationship of the articulated vision of the school leader and the beliefs of the teachers about this vision.

Mendez-Morse (1992/93) in describing vision writes that a vision “provides guidance to an organization by articulating what it wishes to attain.” That a vision, “... is a picture of the future for which people are willing to work” (§ 3). She adds that a vision may function as inspiration, and motivation to engage people as a force which inspires commitment. Therefore, vision becomes more than a picture of the future because it instills a desire to attain that future.

Kantabutra (2005), in particular to educational reform, states that vision is the starting point for educational reform. He continues (citing Baum, Locke and Kirkpatrick, 1998) that positive findings exist between follower performance and vision-based leadership, and that as of the date of their writing no studies indicated a negative relationship between charismatic/visionary leadership and individual performance (p.124). Kantabutra avoids trying to define vision altogether but purports (citing Baum et al. 1998, and Nanus, 1992) that the leader’s own vision guides his actions and choices. Kantabutra prefers this pragmatic definitional approach for two reasons: first, each leader develops a vision in his own way perhaps rationally and objectively but often intuitively and subjectively and, second, visionary leadership differs from leader to leader through the leaders’ own style, the content of the leader’s vision, and the context within which the leader’s vision is developed (p.125).

Accepting Mendez-Morse and Kantabutra’s work and opinion, the actions of the school principal in *living* his vision for his school will inspire and motivate the faculty in crafting plans and strategies for achieving *his* picture of the future for the school. And, the principal’s vision is better shaped by his school’s circumstances and the context within which his school/students/faculty/constituents live. Understanding his school’s environment cannot help but shape the principal’s vision and influence his leadership style in how he will go about expressing his commitment toward his vision.

Korkmaz (2006) in writing about school vision and organizational health emphasizes that the relationship between a school and its environment is strong and that shaping the school’s vision should be a cooperative endeavor involving all stakeholder groups, i.e. administrators, teachers, parents, and even students (p.16). Korkmaz (2006) noted that the development of a vision resulting from a cooperative effort will be sharply related to the administrator’s leadership style. The principal’s function as an effective leader is the catalyst for school change, and little improvement will result otherwise. The reason for this is because it is the principal who must display leadership practices in developing, maintaining, and conserving the school’s vision. Korkmaz (2006) stresses that the development of a school’s vision is directly linked to the organization’s health, which he defines (citing Akbaba, 1997) as: leadership, integrity, interaction, organizational identity, and products as sub-components of organizational health (p.16).

The framework for developing a school’s vision Korkmaz (2006, p.17-18) can be summarized as follows (with related citations).

- The vision of a school is the manifestation of its values, goals and aims (Whitaker &

Monte, 1994).

- A vision that reflects the needs and purposes of the community improves education, but also rebuilds relationships between the school and its publics (Mathews, 1996).
- The existence of a shared vision increases the effectiveness of a school.
- The vision's power lies in its ability to grab the attention of both those inside and those outside the organization and to focus that attention on a common dream (Nanus, 1992).

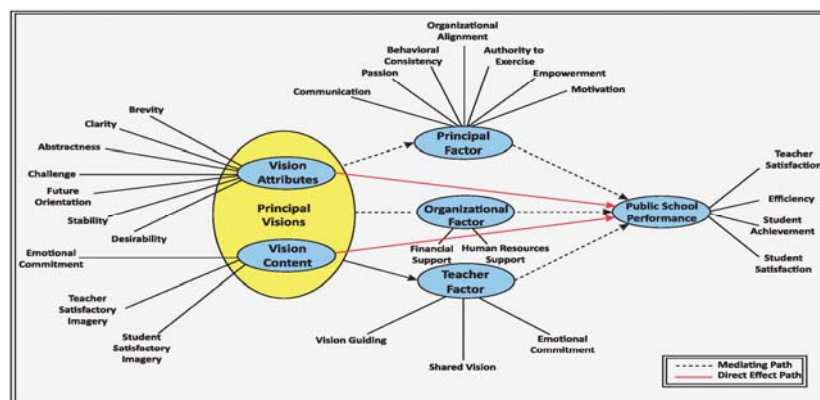
The resultant affect on the organization's health (p.19) can be complied as well (with related citations).

- A healthy organization is considered as a structure which continuously uses its ability to continue its life and overcome difficulties in the long run (Miles, 1969).
- The organizational health of a school is a useful sign of interpersonal relations among people in schools (teachers, students, managers and others).
- Healthy schools adapt themselves to the environment successfully and promote common values in their staff.
- In a healthy school technical, managerial, and institutional levels are in harmony, and the harmony between these three levels supports teaching and student learning (Hoy & Miskel, 1991; Hoy & Tarter 1997).

The results of the Korkmaz (2006) study found that teachers identified a significant relationship between a school's robust [his word] vision and organizational health (p.32). The benefits of knowing this can accrue to a school leader through his involvement in shaping his school's vision, because the vision creates the structure for organizational planning and thus outcomes. For without his direct participation and cooperation, teachers will lack a *compass* for which to develop plans. His study, therefore, was somewhat predictive of the outcome of our survey; in that teachers do place value in the school's vision and teachers will work toward fulfilling a school's clear vision.

Kantabutra's work (2005) is particular to the linkage between what he describes as vision-based leadership and school performance. He cites that vision-based leadership is associated with transformational leadership, which he says is widely regarded as the leadership style necessary for successful organizational change. As a result of his research, he developed a model (Figure 2) illustrating the pathways from the principal's vision through to school performance. From his research he states that, per the literature, vision-based leadership can have a positive effect on performance (p.130) and that a principal's vision should be brief, clear, abstract, challenging, future oriented, stable, and desirable.

Figure 1.



Also, the vision should serve to inspire teacher/student satisfaction, and school efficiency. As the illustration depicts, the pathway from the principal's vision to school outcomes passes through three intervening variables: the principal him/herself, the teachers, and the organizational setting. The implications from this model are clear: the principal should first understand him/herself, he/she should have a finger on the pulse of the faculty, and he/she should know of all organizational constraints within which he/she must operate. After all, the principal remains the major source of leadership influence. Awareness of these three internal and external variables will enable the principal to formulate a vision through which successful planning can occur. Plans made outside the parameters of the principal's ability or likes and dislikes; outside the working climate of the school (teacher variables), and outside the district's directions/policies, cannot be successful. Plans should be congruent within the framework of the leader, the followers, and the organizational setting. Effective principals view planning as a means to understand both the nature and causes of school success.

In order to assess this complicated issue, two questions were included in the survey related to school vision:

- A principal's clear articulation of his/her school's vision gives teachers a sense of the principal's values and beliefs and serves as a guide for teachers which enables teachers to develop plans and strategies for achieving the school's goals.
- Teachers are ambivalent regarding their principal's vision for the school.

Methodology

During the fall of 2013, faculty at Georgia Regents University compiled the results of the Purpose of Public Education Survey (Page & Author, 2013) designed to assess the beliefs of school professionals. This survey, previously used with teacher education students and College of Education faculty from around the United States, was given to teachers (classroom and

SPED), administrators, counselors, and paraprofessionals working in a six county region of eastern Georgia.

The Purpose of Public Education Survey, philosophically grounded in the work of Gutek (2004), is structured to allow respondents the freedom to investigate their own beliefs in relation to common educational philosophies (essentialism, perennialism, progressivism, and critical theory) along with beliefs related to special education, school counseling, school leadership, and health and physical education. The specific number of questions can be found in Figure 1.

Figure 2.
Statement Distribution

Statement Topic	Number of Statements
Essentialism	5
Perennialism	6
Progressivism	6
Critical Theory	6
School Counseling	6
Special Education	6
Health and Physical Education	6
School Leadership/Administration	7

Reliability and Validity

This was the sixty iteration of this survey, however, the first using the items related to school counseling, special education, health/physical education and school leadership. The survey had great internal consistency, with a Cronbach alpha coefficient of .914 which is well higher than the .7 recommended by Pallant (2009).

Table 1
Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.907	.914	50

Because there weren't any particular constructs being tested, the issue of validity was less important. However, content validity was determined to be acceptable due to the collaborative nature of the instrument construction. In a previous use of the instrument (with university faculty), there were efforts made to ensure validity beyond content validity, will also be addressed through convergent validity and discriminant validity. In order to show both of these forms of validity, a series of correlations were conducted to show the relationships between similar subjects. These different relationships are found in Table 1. An argument could be made

that a confirmatory factor analysis would be an appropriate analytical procedure to validity. However, because the instrument was not designed to confirm any particular construct, a confirmatory factor analysis would not be suitable. In addition, convergent and discriminant validity was not used in this case because of the varied nature of the respondents. With items relating to issues that had different meanings across grade levels (i.e., Getting a job and going to college is a purpose of public education), responses would be varied based on purpose of the school.

Table 2
Convergent and Discriminant Validity Correlation Matrix

		Promoting future economic success is one of the main reasons that we have public education.	Getting a job and/or going to college is one main reason for public education.	One main purpose of public education is to promote the American Dream.	Fostering patriotism is a primary purpose of public education.	Promoting the continuance of the cultural values of the United States is one of the main reasons for having a public education system.	A primary purpose of public education is to teach the content that is traditionally taught in schools.	One main purpose of public education is to promote social equality in society.	A main reason for public education is to expose the conditions of domination present in society.
Economic Success	Pearson Correlation	1	.629**	.455**	.361**	.360**	.289**	.067	-.143**
Getting a job/college	Pearson Correlation	*	1	.356**	.257**	.249**	.348**	.155**	-.092*
American Dream	Pearson Correlation	.455**	.356**	1	.470**	.549**	.288**	.030	-.102**
Patriotism	Pearson Correlation	.361**	.257**	.470**	1	.569**	.381**	-.108**	-.118**
Continuing Cultural Values	Pearson Correlation	.360**	.249**	.549**	.569**	1	.357**	-.027	-.075*
Traditional Content	Pearson Correlation	.289**	.348**	.288**	.381**	.357**	1	-.046	-.084*
Social Equality	Pearson Correlation	.067	.155**	.030	-.108**	-.027	-.046	1	.398**
Expose Domination	Pearson Correlation	-.143**	-.092*	-.102**	-.118**	-.075*	-.084*	.398**	1

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Respondents

The survey was distributed to 4,700 school professionals. Because of the various difficulties of sending the survey to multiple districts, all surveys were sent to the principal of the school first to be distributed to the faculty, staff and administration. Of the responses, 539 individuals answered every question (11.46% return rate); while the overall response rate was low in relation to the number of persons provided a survey, it did fall within the range of an acceptable response rate (Nulty, 2008).

*Results and Discussion**Descriptive Statistics*

The descriptive statistics follow from the survey questions by teachers and administrators specific to vision.

Table 3
Teacher Responses

	N	Range	Mean	SD
A principal's clear articulation of his/her school's .735 vision gives teachers a sense of the principal's values and beliefs and serves as a guide for teachers which enables teachers to develop plans and strategies for achieving the school's goals.	502	1 – 6	5.23	
Teachers are ambivalent regarding their principal's 1.377 vision for the school.	498	1 – 6	3.34	

Table 4
Principal Responses

	N	Range	Mean	SD
A principal's clear articulation of his/her school's vision gives teachers a sense of the principal's values and beliefs and serves as a guide for teachers which enables teachers to develop plans and strategies for achieving the school's goals.	41	4 – 6	5.22	.475
Teachers are ambivalent regarding their principal's vision for the school.	41	2 – 5	3.22	1.061

The survey used a Likert scale from 1 through 6, with 1 indicating the lowest value, or belief, and 6 the highest. What is noticeable right away is the near exactness of the means between both groups for the responses to the first question. Although teacher responses ranged from the lowest to the highest on the Likert scale, the low standard deviation indicates teacher responses clustered close to the mean. Likewise, the principal responses shared the same level of consideration; perhaps even more so.

It is significant that the principals did not score the first question below a 4, and the mean score was nearly identical to the teachers. Even more noticeable is the lower standard deviation for the principal responses representing a more consistent commitment (of feeling) toward the value of a school's vision.

The second question is a mirror opposite of the first. Answers to the second question can serve to validate the first by assessing the strength of the beliefs of both parties to the first question. If the mean score for the answers to the first question did signify a strong commitment by the parties, the mean score for the second question should be lower than the first. The mean scores for both groups of responses to the second question were lower, and markedly close to one another, which leads to the conclusion that both groups do indeed feel strongly about the value of the school's vision as articulated by the principal. Now, what can we discern from this data? In general, it is the position of the authors that a school's vision *does* matter to the faculty, and therefore it is incumbent upon the principal to "live" the vision in his/her day to day duties of running the building and in particular in the role of instructional leader. After all, creating conditions under which individual variables combine to reach critical mass in schools fits the job role of the principal.

Correlations

In addition, it is important to realize the beliefs that make up the importance of the vision of the principal. While there were 23 variables related to philosophies and belief systems, only two had a strong correlation regarding vision.

This correlation matrix gives evidence that teachers do have a well-developed foundation for understanding the vision of the school. Because teacher's believe that knowledge is actively constructed and multiple sources of information are important, it suggests that professional educators have a deep and complex construction regarding the purpose of education. It is just a small leap to connect this belief with a deep and rich understanding of their own educational systems, schools and ultimately the vision of their school.

Table 4
Key Correlations

		A principal's clear articulation of his/her school's vision gives teachers a sense of the principal's values and beliefs and serves as a guide for teachers which enables teachers to develop plans and strategies for achieving the school's goals.	The active construction of knowledge is a primary purpose of public education.	Being able to use multiple sources of information to make decisions is a main goal of public education.
A principal's clear articulation of his/her school's vision gives teachers a sense of the principal's values and beliefs and serves as a guide for teachers which enables teachers to develop plans and strategies for achieving the school's goals.	Pearson Correlation Sig. (2-tailed) N	1 502		
The active construction of knowledge is a primary purpose of public education.	Pearson Correlation Sig. (2-tailed) N	.277** .000 497	1 515	
Being able to use multiple sources of information to make decisions is a main goal of public education.	Pearson Correlation Sig. (2-tailed) N	.304** .000 496	.622** .000 512	1 515

** . Correlation is significant at the 0.01 level (2-tailed).

The tenor of the question about the principal's clear articulation of the school's vision is fitting of further analysis. The phrase, "...gives teachers a sense of the principal's values and beliefs..."

Fall and Winter 2014

lends itself to concluding that teachers wish to know the attitude of the principal toward the school in general, and by inference his opinion of their place within the school. This shows this use of multiple avenues of information. Understanding what the administrator truly believes, manifested by his words and in his actions, and lends an air of certainty to the school's climate. The phrase, "... [clear articulation] serves as a guide for teachers which enables teachers to develop plans and strategies for achieving the school's goals" is even more compelling. If the teachers responding to our survey feel as though their understanding of the principal's values and beliefs, through his vision, add to their ability to plan for reaching the school's goals, then isn't it only a matter of the principal designing/ articulating a vision for his school wherein he creates an image of academic success for all? Maybe creating a vision of a *tomorrow* for his school in which specific goals can be laid out, goals which the teachers will accept as their own and strive toward reaching, is an essential element to effective school administration that is not being fully realized by school leaders. Creating a school's vision should be a well thought out process involving more than just a simple alignment with the district's vision. A school's vision should be particular to the school's environment and its constituents and should be developed at a minimum with input from the school's faculty.

Conclusion

The scope of this paper is not to include particular leadership styles as better, or best, for school administrators. But in the opinion of the authors of this paper it is important for school leaders to understand that current writings in educational leadership favor the transformational style of leadership. Without effective transformational leaders most goals of educational improvement are difficult to achieve. Transformational leaders demonstrate the following characteristics (Hughes, Ginnett & Curphy, 2012):

- Instills pride in others
- Displays power and confidence
- Makes personal sacrifices or champions new possibilities
- Considers the ethical and moral consequences of decisions
- Articulates a compelling vision of the future
- Sets challenging standards
- Treats followers as individuals, and
- Helps followers understand the problems they face

Citing Bass, 1985, these authors write "Transformational leaders are believed to be more successful at driving organizational change because of followers' heightened emotional levels and their willingness to work toward the accomplishment of the leader's vision" (p.590). Perhaps our survey merely brought out the desire in teachers to rather follow a leader with transformational characteristics and a leader who articulates a clear, compelling, or robust, vision outwardly displays a characteristic which may mean he/she possesses the other transformational characteristics, and a transformational leader is a more desirable type to follow. Certainly, a major part of being an outstanding leader rests in cultivating leadership in others. And too, perhaps, the principals responding to our survey also know of the importance of a clear vision, whether they display, or not, the other transformational characteristics. Perhaps the results of our

study shows that teachers would really rather follow a leader with a transformational style and school leaders would really rather be transformational leaders and that the school's actual vision statement is secondary to these other conditions. It could be that teachers and principals wish for a clearer vision for their particular schools, and not a vision crafted long ago and around something the district foisted upon them – a vision about which neither the teachers nor the principal feel a connection. But we will leave these questions for further study.

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Demographic and Instructor-Student Interaction Factors Associated With Community College Students' Intent to Persist

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Abstract

The classroom is the main point of contact for community college students due to their part-time status, employment, family responsibilities, and limited campus involvement. To examine the relationship between community college students' demographics and instructor interactions as they relate to intention to persist in college, researchers utilized logistic regression analysis to analyze data from the Survey of Entering Student Engagement. Results indicated all eight predictor variables (instructor-student interaction, student-instructor interaction, age, sex, generation status, children, employment, and enrollment status) made statistically significant contributions to distinguishing between students who were most likely to intend to persist and those who were not.

Student engagement has received significant attention from numerous scholars (Astin, 1993a, 1993b; McClenney, 2007). Described by Hu and Kuh (2001) as the quality of effort students devote to educationally purposeful activities, student engagement is considered to be an important factor in student learning in higher and postsecondary education (Astin, 1993a, 1993b; Kuh, 2001; McClenney, 2007). Examples of engaging activities include classroom discussions, faculty and peer interactions, and interactive course assignments and homework (Hu & Kuh, 2000; Kuh, 2005, 2006; Ryan & Deci, 2000).

College student profile research findings indicate diversity in today's college campuses. Community colleges have traditionally dealt with diverse students; however, initial definitions of diversity primarily focused on race and ethnicity (Jenkins, 2007). More recent definitions have expanded to include the student's level of remediation, full-time versus part-time enrollment, and the age differences of traditional and nontraditional students (Cohen & Brawer, 2003). Diverse campus cultures have also led to changing student expectations in that students want to be challenged and engaged, and they want to know instructors are available to them both in and out of the classroom (Kuh, 2003).

The Center for Community College Student Engagement (CCCSE, 2009b) findings indicated that faculty and student interactions are related to quality student engagement and satisfaction in the classroom. The findings also indicated that the most successful engagement strategies are likely to happen in classrooms. This finding is especially important as most community college students spend little time on campus beyond class time due to attending college part-time, working, commuting, and sometimes caring for dependents.

In response to the 2007 Community College Survey of Student Engagement (CCSSE) findings which indicated that “many students have barely made it through the door before they slip off their college’s radar” (Ashburn, 2007, para. 2), the Survey of Entering Student Engagement (SENSE) was developed (CCCSE, 2009a, 2010). Grounded in research about what works in retaining and supporting entering students, *SENSE* focuses on students’ experiences from the time they decide to attend through the end of their third academic week.

Classroom Instruction

Classroom instruction is a major influence on student success and engagement. John Dewey (1993) believed instructors are guides who help lead students into engaging learning environments. Tinto (1997), who noted the importance of classroom instruction in student persistence, asserted that faculty-student interactions were most likely to occur in the classroom and stated:

The college classroom lies at the center of the educational activity structure of institutions of higher education . . . If academic and social involvement or integration is to occur, it must occur in the classroom. Seen in this light, it is surprising that the classroom has not played a more central role in current theories of student persistence. (Tinto, 1997, p. 1)

Similarly, Seidman (2005) found that for the motivated student, a bad classroom experience ranked high as a reason for withdrawing from classes and college.

Instructor-Student Interaction

As previously noted, due to community college students’ part-time status, employment responsibilities, lack of involvement in student activities, and attendance at non-residential campuses, the classroom is their main point of contact (Cohen & Brawer, 2003). Thus, community college students interact more with instructors than with anyone else. Numerous researchers have examined the role of instructor interaction and outcomes such as student development, students’ satisfaction level, and academic performance. Pascarella and Terenzini (1997, 2005) asserted that student-instructor interaction plays an essential role in the connection between a student and an institution. Likewise, Cotton and Wilson (2006) found that instructor-student interaction is not only positively correlated to student development and achievement, but also improves students’ satisfaction level and academic performance.

The role of instructor interaction on student persistence has also been examined (Braxton, Bray, & Berger, 2000). Bean (1983, 1990) included student-instructor contact as a behavioral measure in his student persistence model. His research findings demonstrated that student-instructor interaction played an important role in persistence, so much so that “When students feel faculty members do not care about their development, their bonds to the institution weaken” (Bean, 2005, pp. 225). Similarly, Filkins and Doyle (2002) found this interaction to be a strong predictor in first-generation students in that it impacts nontraditional students’ understanding of college expectations due to their possible lack of knowledge about college and career choices.

Hagedorn, Maxwell, Rodriguez, Hocevar, and Fillpot (2000) and Nadler and Nadler (2001) examined the differences between male and female community college students regarding peer and faculty-student interactions. Their research found that most students had low rates of contact with faculty outside of the classroom. Their findings also noted that female students were significantly more likely to develop close relations with faculty members and to discuss career plans with faculty than were male students.

Immediacy

The concept of immediacy is defined as communicative behaviors that enhance closeness to and nonverbal interaction with another (Mehrabian, 1969). Immediacy behaviors reduce the physical and/or psychological distance between communicators, thus leading to a perception of closeness and connectedness. Within the instructional context, immediacy is the degree of perceived physical or psychological closeness between instructors and students (Frymier & Houser, 2000). As one of the most influential instructor communication behaviors, immediacy is considered by instructional researchers to be one of the most important variables affecting the instructor-student relationship (Allen, Witt, & Wheelless, 2006) and classroom learning (Chesebro & McCroskey, 2001; Richmond & McCroskey, 1992).

Much of the student success research supports the intuitive theme that an important key to student retention is how likely students are to engage one-on-one with a faculty member (Kuh, 2006). Experts have argued compellingly that engagement promotes a sense of belonging to the institution and provides students with a mentor and role model as they navigate the academic terrain. Similarly, a significant body of research findings, starting with the study by Christophel (1990), substantiates the positive relationship between instructor immediacy, student engagement, and perceptions of learning. As suggested by Myers (2004), students who perceive instructors as more immediate will be more willing, likely, or interested in engaging with them.

Persistence

Extensive attention has been given to community college student persistence from researchers, practitioners, and policymakers in higher education, with community college persistence rates consistently reported as very low. Early research by Clark (1960) cited that 40% of community college freshmen did not return for their second year. In 2003, the Southern Regional Education Board (as reported by Summers, 2003) reported similar results with only 45% of community college first-time, full-time freshmen returning for their second year. Recent data released by the Center for Community College Student Engagement (McClenney, 2010) reported that of the 84% of community college students who indicated their goal was to complete an associate's degree, fewer than half attained that goal by six years after entering college. Overall, researchers and practitioners have continued to find that community college student dropout rates are significantly higher than those of four-year colleges and universities.

Summary

Researchers have studied the impact of a variety of variables on student persistence including student characteristics (age, gender, ethnicity, socioeconomic status), student variables (parental

education level, employment status, marital status), academic ability (high school grade point average, class rank, admission test scores, first-semester college grades), noncognitive factors (motivation, social integration, intent to return, and career aspirations), and availability and use of student services (Summers, 2003). Studies by Lanni (1997); Windham (1995); and Swager, Sarah, Campbell, and Orlowski (1995) found that students who worked full-time were more likely to drop out of college when compared to those who worked part-time or not at all. Gerardi (1996) found that parents' educational background contributed to persistence. Studies at Northern Virginia Community College (2000) found that among the factors reported by students as reasons for dropping out, competing demands from their family was frequently mentioned.

The communication and educational literature have acknowledged that instructor-student interaction is vital to student success. The literature has also recognized that students do not begin college with the intention of dropping out before the end of the term, yet many do. In addition, the research has overwhelmingly recognized that community colleges experience lower persistence rates than do four-year institutions. The research on instructor-student interaction also recognizes that for many community college students, the learning environment is primarily the classroom. Student's perception of instructor's availability, concern, and interest has positive and significant effects on persistence. Similarly, the more students feel connected to their instructors and their peers, the more likely they are to persist.

Students leave college before completing their degree for many reasons, and approximately half of the students who leave college do so within the first year. As many of the reasons are related to community college students' being first-generation, nontraditional students with excessive work and family responsibilities, it is important to investigate the impact of these variables on students' interactions with instructors and their intent to persist. It is also important to identify these factors during the first weeks of the first semester.

Conceptual Framework

The theoretical framework was guided by Tinto's (1975) model of student integration, Astin's (1984) student involvement theory, and Bean and Metzner's (1985) model of nontraditional student attrition. Tinto's model (1993) emphasized that a student's decision to persist begins with personal commitments and intentions and centered on the experiences of students once they were past the entry stage and the effects of institutional experiences. Students' interactions with other students, faculty, and staff were viewed as directly related to their social and academic integration, which in turn impacted persistence.

Astin's student involvement theory asserted that students learn by becoming involved. Student involvement, "the amount of physical and psychological energy that the student devotes to the academic experience" (Astin, 1985, p. 134), leads to behavioral actions that are important in understanding student participation and engagement. Astin also asserted that "the best" way to involve students in learning and in college life is to increase personal contact between instructors and students (p. 162). Variables in this study that related to Astin's (1985, 1993a, 1993b) theory included gender and hours worked per week.

Bean and Metzner's (1985) model of nontraditional student attrition asserted that students' personal background and environmental variables are major factors which affect their dropout and persistence decisions. Background variables include students' age and gender; environmental variables include students' enrollment status, family responsibilities, and hours worked per week. The model also asserted that students' decisions to persist are impacted by the degree to which they enjoy being students and are their interest in courses.

Both Astin's (1984) theory and Bean and Metzner's (1985) model significantly contributed to this study. Both perspectives contained variables included in this study and characterized the student engagement, instructor-student communication, and persistence literature. Both perspectives asserted that student engagement is essential and noted the fundamental importance of student interactions. For this study, researchers asserted that community college students' intent to persist (dependent variable) was impacted by their instructor-student interactions (initiated by the instructor), student-instructor interactions (initiated by the student), age, sex, generation, children, employment, and enrollment status.

The purpose of the current study was to examine the relationship between the student demographic variables (age, sex, and generation status) and time-commitment variables (children, employment, and college enrollment status), instructor-student interaction, and student-instructor interaction on community college students' intent to persist. Specifically, the research question was as follows: *Is there a relationship between the predictor (independent) variables of instructor-student interaction, student-instructor interaction, age, sex, generation status, children, employment, and enrollment status and the dependent variable, intent to persist, among community college students?*

Methods

Research Design

Researchers analyzed existing data from the Survey of Entering Student Engagement (*SENSE*) in this causal-comparative study of community college students' demographics and instructor interactions as they relate to intent to persist in college. Intent to persist in college served as the dependent variable and demographic variables (age, sex, and generation status), time-commitment variables (children, employment, and college enrollment status) and instructor-student interaction and student-instructor interaction served as the independent variables. The demographic and time-commitment variables were selected because of their depiction in the literature as characterizing traditional and nontraditional students, which is a key characteristic of community college students. The terms *traditional* and *nontraditional* are used by researchers to describe the two basic age categories (AACC, 2010). Full-time, post-secondary students between the ages of 18 to 24 are described as traditional students. Students who are age 25 or older and working while enrolled in college are described as nontraditional. The average age of a community college student is 29 years old; 47 % of students are age 21 or younger, 40% are ages 22–39, and 13% are over age 40.

Instrumentation

Developed by national experts in the field of community college research and practice and supported by extensive research on educational practices related to retention and other desired student outcomes, *SENSE* was designed to capture information about students' behaviors in the earliest weeks of college and the institutional practices that affect students during this time (CCCSE, 2009a, 2010). *SENSE* consists of 29 items including dichotomous, frequency, and 5-point Likert scales. The major content sections of the survey include factual items and behavior items associated with students' first impressions of the college; college services (admissions, registration, assessment, placement, orientation and financial aid); how they spend their time; their relationships and interactions with instructors, advisors, and other students; and what kinds of work they are challenged to do.

To create the dependent variable, intent to persist, the response values for the *SENSE* item, "When do you plan to take classes at this college again?," were recoded. Responses of, "I will accomplish my goal(s) this semester/quarter and will not be returning" and "Within the next 12 months" were coded as retained and responses of "I have no current plans to return" and "Uncertain" were coded as not retained. For the independent variable of instructor-student interaction, researchers averaged responses to six survey items pertaining to communication initiated by the instructor, such as, "All instructors clearly explained academic and student support available at this college." The internal-consistency reliability estimate for this scale was Cronbach's alpha = .74. The six item student-instructor interaction scale comprised of items such as, "How often did you discuss an assignment or grade with an instructor?" (Cronbach's alpha = .68). Age data were recoded for this study to reflect traditional (24 and younger) and nontraditional (25 and older) students. Responses to several items were combined to distinguish first-generation college students from other students. The children variable was dichotomous, indicating whether or not the students have children who depend on them for care. Employment was reported as the typical number of hours weekly worked for pay. Enrollment status was measured as either full- or part-time.

Participants and Procedures

Prior to analysis, a request for access to the 2010 cohort dataset for the *SENSE* was requested and approved from The Center for Community College Student Engagement. Additionally, the study was approved by the Institutional Review Board of the University of Arkansas at Little Rock. All data for the study were archival data from the *SENSE* dataset administered at 120 community colleges from 30 states (CCCSE, 2009a, 2010). These colleges represent a total enrollment of 789,012 students, with the survey generating more than 50,000 usable surveys from entering students.

The Center for Community College Student Engagement obtained the fall term Course Schedule File from member colleges (CCCSE, 2009a, 2010). The survey was administered in classes randomly selected from the population of all first college-level English, all first college-level math, and developmental education courses (excluding ESL courses). These courses were selected for the survey because they are the classes most likely to enroll entering students.

Students were sampled at the classroom level (CCCSE, 2009a, 2010). Because full-time students are enrolled in more classes and, therefore, are more likely to be surveyed, this sampling procedure introduces a bias. To more accurately represent the entering student population, *SENSE* results were weighted based on the most recent publicly data available from the Integrated Postsecondary Education Data System. Participant demographics ($N = 51,010$) indicated that 75.53% were nontraditionally aged ($n = 38,528$); 56.85% female ($n = 29,001$); 76.96% without dependent children ($n = 39,255$); 39.83% not employed ($n = 19,299$); 22.20% worked 30 hours or more per week ($n = 11,322$); 59.20% enrolled part-time ($n = 30,199$); 55.53% not first generation ($n = 28,328$); and 54.84% White ($n = 27,974$), 19.46% Hispanic/Latino/or Spanish ($n = 9,927$), and 16.08% Black/African American ($n = 8,204$).

Data Analysis

Researchers used listwise deletion of missing data in that only responses with complete data on all variables were used in the analysis, reducing the sample size from 56,690 to 51,010. Data were coded and entered into the Statistical Package for the Social Sciences (SPSS) software version 19. Logistic regression analysis was utilized to examine the relationship between community college students' intent to persist (dependent variable) and the predictor (independent) variables of instructor-student interaction, student-instructor interaction, age, sex, generation status, children, employment, and enrollment status. Logistic regression assumes that the relationship between predictor (independent) variables is linear; therefore, researchers examined this assumption prior to analysis. Inspection of the Variance Inflation Factors (VIF) for the variables revealed that the assumption appeared reasonable because all values were less than 10 with the values ranging from 1.02 to 1.45.

Results

When all eight predictor variables were considered together, the logistic regression results indicated variables were statistically reliable in distinguishing between students who are most likely to intend to persist and those who are not ($-2 \text{ Log Likelihood} = 54,541.327$; *Hosmer and Lemeshow Goodness-of-Fit*(8) = 11.27, $p = .187$; $\chi^2 = 1,454.258$, $N = 51,010$, $p < .05$). The model correctly classified 76.4% of cases, and Wald statistics indicated that all eight predictors made statistically significant contributions to the model with coefficients presented in Table 1.

Table 1.

Summary of Logistic Regression Analysis Predicting Intent to Persist

Variable	<i>B</i>	<i>SE</i>	<i>OR</i>	95% CI	Wald Statistic	<i>P</i>
Age	0.40	0.03	1.40	[1.40, 1.58]	160.08	.001
Sex	0.26	0.02	1.30	[1.25, 1.36]	148.71	.001
Generation status	0.19	0.02	1.21	[1.16, 1.27]	81.68	.001
Children	0.19	0.03	0.82	[0.77, 0.88]	35.95	.001
Employment	0.11	0.01	1.11	[1.10, 1.12]	410.15	.001
Enrollment	0.29	0.02	1.34	[1.29, 1.40]	177.10	.001
Instructor-student interaction	0.20	0.02	1.22	[1.18, 1.27]	120.30	.001
Student-instructor interaction	0.10	0.02	1.11	[1.07, 1.15]	28.26	.001

The odds ratio for age was greater than one which indicated that nontraditional students were 1.49 times more likely to intend to persist than their traditionally aged counterparts. Female students were 1.30 times more likely to intend to persist than male students. Students who were not first-generation were 1.21 times more likely to intend to persist. The odds ratio for children was less than one (odds ratio = .82), indicating that students who had children were .82 times less likely to intend to persist than students who did not have children. Employment status indicated that students who worked more than 30 hours per week were 1.11 times more likely to intend to persist than students who worked less than 30 hours per week. Students who were enrolled full-time were 1.34 times more likely to intend to persist than students who were enrolled less than full-time. The relationships between students' intent to persist and student-instructor interaction (odds ratio = 1.11) and instructor-student interaction (odds ratio = 1.22) were positively related as well. Specifically, students who have higher student-instructor interactions are 1.11 times more likely to intend to persist, and students who have increased instructor-student interactions are 1.22 times more likely to intend to persist.

Discussion

The logistic regression results supported findings in existing literature of a relationship among the predictor variables included in this study and community college students' intent to persist, correctly classifying 76.4% of cases. When all eight predictor variables (instructor-student interaction, student-instructor interaction, age, sex, generation status, children, employment, and enrollment status) were considered together, they were statistically reliable in distinguishing between students who intend to persist and those who do not.

The odds ratios for instructor-student interaction and student-instructor interaction indicated that students who have these interactions are more likely to intend to persist. These findings support previous researchers who reported that instructor-student interaction is positively correlated to student development and achievement and that interaction with instructors improves students' satisfaction level and academic performance (Cotton & Wilson, 2006; Seidman, 2005). These findings also support Tinto's model (1993) in which students' interactions with faculty were viewed as related to their social and academic integration, which in turn impacted persistence.

Similarly, Bean's (2005) findings demonstrated that student interaction with faculty played an important role in persistence.

The statistically significant association between age and students' intent to persist did not support the findings of previous research, as it relates to nontraditional students. Results of this study indicated that nontraditional students were 1.49 times *more likely* to intend to persist than traditional students. This result is somewhat surprising because previous research found older students are more likely to drop out than are younger students due to marriage, home and work responsibilities, and higher levels of absenteeism than younger students (Leppel, 2002; Summers, 2003; Windham, 1995). Although the cause for this contradictory finding could not be determined, a possible explanation could be that nontraditional students recognize the importance of obtaining a college degree in achieving their financial and career aspirations.

The results of this study indicated that female students were *more likely* to intend to persist than male students. These findings support Voorhees (1987) research which indicated females were more likely to persist. Other research, however, has not specifically indicated whether female or male students were more likely to persist; instead, the findings indicated why male and female students were likely to drop out. Grimes and Antworth (1996) indicated that male students are likely to drop out for academic reasons, and Bean (1983) found that men tend to drop out more during the freshmen year. According to Leppel's (2002) research,

Women may feel that their education is less critical since their husbands serve as the primary breadwinner. Married men may be more inclined to drop out of college because they feel pressured to earn a living and cannot meet the demands of employment and schooling simultaneously. (p. 446)

The odds ratio for generation status indicated that students who were *not* first-generation were more likely to intend to persist than first-generation students. This outcome supports findings from previous studies such as first-generation college students are less likely to persist and graduate in part because they face additional factors such as academic preparation and excessive work and family responsibilities (Ishitani, 2006; Pike & Kuh, 2005). First-generation college students are also more likely to take longer periods of time to complete their degree programs than non-first generation students. For example, Ishanti (2006) found that first-generation students were less likely to complete their degree programs in a timely manner. Specifically, his findings indicated that first-generation students were 51% and 32% less likely to graduate in the fourth and fifth years than were students whose parents graduated from college.

Not surprisingly, the results of this study indicated that students who had children (also known as student-parents) were *less likely* to intend to persist than students who did not have children. This finding supports previous research which found the lack of student persistence is often correlated with students' family responsibilities regardless of the availability of good academic and family support (Bean & Metzner, 1985; Bers & Smith, 1991; Schuetz, 2008). Although some institutions of higher education provide on-campus child care services, many do not (Austin & McDermott, 2004). Consequently, when student-parents are unable to obtain adequate day care, college enrollment is not a viable option and persistence is jeopardized.

Although previous research suggests that students who worked full-time were more likely to drop out of college when compared to those who worked part-time or not at all (Bean & Metzner, 1985; CCCSE, 2009b; Lanni, 1997; Swager et al., 1995), the findings in the current study were the opposite. The results indicated that students who worked more than 30 hours per week were *more* likely to intend to persist than students who did not work more than 30 hours per week. Specifically, students who worked more than 30 hours per week were 1.11 times more likely to intend to persist than students who did not. The cause for this contradictory finding could not be determined. A possible explanation could be the result of students who work full-time being financially responsible for their tuition. Additionally, as with the findings for age, students who work full-time may also recognize the importance of a college degree in achieving their financial and career aspirations. Thus, students who work full-time are more likely to *intend* to persist than those students who do not.

Results of this study indicated that students who were enrolled full-time were *more likely* to intend to persist than students who were enrolled less than full-time. These findings support previous research that suggests part-time students are less engaged and are at greater risk of leaving college without attaining their educational goals due to other responsibilities that may prevent them from attending class regularly (NCES, 2005; Sorey & Duggan, 2008).

Recommendations

In view of the findings, further research is needed. Though this study identified specific predictor variables that impact instructor-student interaction and students' intent to persist, research is necessary to determine if specific instructor-student interactions and instructor immediacy behaviors impact classroom student engagement and student outcomes. Research is also needed to determine if specific instructor-student interactions and immediacy behaviors are more helpful for specific subpopulations than for others. The patterns detected in this secondary analysis of quantitative survey data should be examined in subsequent studies through more direct measures of the constructs quantitatively and with more in-depth qualitative methods.

The cumulative findings of this study seem to identify a pattern of nontraditional students not only engaging *differently* with instructors than traditional students, but also needing and pursuing *more* interactions with instructors. Therefore, community college administrators should provide professional development which includes initiatives that encourage and increase more nontraditional student-instructor interactions and classroom engagement. Because the study results also indicated that male students were not only less engaged than female students but also less likely to intend to persist than female students, professional development should include strategies which promote and increase instructor-student interactions with male students.

The findings of this study also indicated that instructor-student interactions may be more beneficial for students *with* children than those without. Because students with children have competing demands on their time *outside* of the classroom, it is imperative that instructors recognize the importance of instructor-student interactions *inside* the classroom. Thus, professional development should include specific communication strategies to best serve this subpopulation.

Limitations

The variables included in this study were limited to variables available in the dataset, and the questions or survey items could not be changed to provide a better measure of the constructs or to investigate other variables of interest. As with all survey research, the findings may also be impacted by self-report bias. Unlike many educational studies, population and ecological validity threats were not major concerns (Onwuegbuzie, 2003). The *SENSE* survey is administered to a large number of community college students nationwide each year, thus the data is reasonably representative of community colleges across the United States.

Conclusion

As previously noted, the classroom is the main point of contact for community college students due to their part-time status, employment and family responsibilities, and lack of campus involvement. Thus, community college students interact more with instructors throughout the semester than with anyone else. Identifying the impact of these interactions on student persistence during the first weeks of students' first semester is essential, as this period is usually the most critical time of adjustment for college students.

Better understanding instructor-student interactions will allow community colleges to identify strategies to increase classroom engagement, academic performance, and persistence. Implementing strategies that underscore the importance of instructor interactions will also help to inform college administrators and faculty, along with higher education policy makers, about the significant factors that impact instructor-student interaction. In turn, this will assist in the implementation of policies which promote student engagement and positively impact students' intent to persist.

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Examining the Impact of Place on the Cultural Competence of Preservice Teachers

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Abstract

This study examined the significance of place, a Title One elementary school, on the preservice teachers' (PSTs) abilities to make theory to practice connections using culturally responsive teaching. I investigated how PSTs used theoretical knowledge of culture taught in coursework and emerging knowledge of community context to plan and execute lessons. The participants, five PSTs, were in their first field experience in a Title One elementary school. These PSTs conducted inquiries into the surrounding community and the classroom. The PSTs were strongly encouraged to use the information they gained in these inquiries when teaching. Data collection included two formal lesson plans, a KLEW (Know, Learned, Evidence, Wondering) chart, and a reflection on the inquiry into the community. From this data, I found PSTs made changes to their teaching, rethought assumptions about the community, and recognized the importance of using multicultural literature.

Few researchers have taken an in-depth look at how PSTs' beliefs shape what they learn about teaching (Anderson, 2013). In this study, I investigated how these beliefs may shape theory to practice connections when teaching for diversity. Zeichner (2010) noted one problem with teacher education programs is the lack of connection between the coursework and the field experiences. Furthermore, the National Council for Accreditation of Teacher Education Blue Ribbon Report (2010) called for more clinically rich supervision in which the field experiences and the coursework are interwoven. According to Allsopp, DeMarie, Alvarez-McHatton, and Doone (2006), PSTs are "able to make meaningful linkages between their course content and field experiences" (p. 26). One goal for university supervisors is bridging the gap between theory and practice (Allsopp et al., 2006). In this study, I sought to bridge this gap through my work.

Conceptual Framework

According to Freire (1970), true critical reflection leads to action. Freire's (1970) idea of the critical consciousness, *conscientizacao*, involves the questioning of the whole social system, in which education is organized, for inequalities and an awareness of oppression that is present. Through the development of a critical consciousness, PSTs can work to transform the education system. Instrumental in this transformation is Freire's (1970) idea of praxis, which is a balance between theory and practice as well as action and reflection. His ideas of critical reflection and critical consciousness are needed to uphold a social justice stance. In this study, I worked to promote praxis by helping the PSTs critically reflect on the community in which they taught.

The fundamental tenants of critical pedagogy intersect with place-based education. Gruenewald (2003) highlighted the necessity of reflecting on one's beliefs. In this study, I helped my PSTs reflect on their own beliefs before they reflected on their students. I also emphasized the importance of adapting lessons to the lives and interests of their students. Gruenewald (2003) "...encourages teachers and students to reinhabit their place...to pursue the kind of social action that improves the social and ecological life of places" (p. 7). Through engagement in dialogue about culture and place, my PSTs can be the change agents capable of this social action.

Culturally Responsive Teaching

Giroux (2009) asserted "...teacher education programs need to reorient their focus to the critical transformation of public schools rather than to the simple reproduction of existing institutions and ideologies" (p. 445). Understanding culture is central to critical reflection and the possibility of becoming a change agent in education. Culture is a set of practices and beliefs shared by members of a particular group that distinguish groups from each other (Terrell & Lindsey, 2009). In order to better facilitate a theory to practice connection, it is imperative for PSTs to understand their own culture and the culture of their students. Once PSTs better understand the culture of their students, they will be better able to incorporate strategies for culturally responsive teaching. Gay (2000) defined culturally responsive teaching "...as using the cultural knowledge, prior experiences, frames of reference, and performance styles of ethnically diverse students to make learning encounters more relevant to and effective for them" (p. 29). Culturally responsive teaching can be utilized to understand the unique experience of every student since learning depends on how students make sense of their experiences (Kumashiro, 2009). Villegas and Lucas (2002) identified six strands for developing culturally responsive teachers: sociocultural consciousness, affirming attitude towards students from diverse backgrounds, commitment and skills to act as agents of change, constructivist views of learning, learning about students, and culturally responsive teaching practices. Through culturally responsive teaching, PSTs can adapt their teaching to meet the needs of diverse learners. In this study, I examined how my PSTs' knowledge about the surrounding school community influenced their teaching decisions.

How Context can Affect Teaching

The field experience is "at once difficult and exciting and without a doubt one of the most defining moments in a teacher's career" (Pena & Almaguer, 2007, p. 105). Context is one aspect of the field experience crucial to the formation of the PSTs' knowledge. The context in which teachers live and work are important to consider because "...context shapes effective teaching, what teachers know, what knowledge is seen as essential for teaching, and who is warranted to produce knowledge about teaching" (Clandinin & Connelly, 1996, p. 24). Therefore, the context of the field experience can directly impact my PSTs' learning and practice in the classroom. Gruenewald (2003) found "...educative experiences students and teachers pursue depends on the distinctive characteristics of the places they inhabit, as well as on what learning objectives and strategies they employ" (p. 8). Hagevik, Aydeniz, and Rowell (2012) found PSTs constructed actions based on their school context. Furthermore, McDiarmid and Clevenger-Bright (2008) posited the "...knowledge, skills, and dispositions that individual teachers bring to teaching are, to a large extent, the products of the social contexts in which these were developed" (p. 144).

PST learning is influenced by not only the context but also the situation in which they are learning. The context of the field experience can impact the nature of the lessons my PSTs teach.

Why is Inquiry Important for Equitable Teaching?

By engaging in inquiry, PSTs can become change agents. A study conducted by Lynn and Maddox (2007) focused on using inquiry to explore social justice with PSTs. They found “Inquiry became a space where novices could reflect openly and honestly about these issues while drawing important relationships between theory and practice” (Lynn & Smith-Maddox, 2007). Additionally, Cochran-Smith & Lytle (1990) asserted when teachers join together “...as highly professionalized teacher-researchers, they become increasingly articulate about issues of equity, hierarchy, and autonomy and increasingly critical of the technocratic model that dominates much of school practice” (p. 9). Furthermore, Athanases, Wahleithner, and Bennett (2012) noted inquiry promoted reflection and knowledge that supports instruction. These studies show inquiry is a highly reflective process. Inquiry can be utilized as an authentic activity that helps PSTs develop the knowledge needed to teach (Hagevik et al., 2012; Lynn & Smith-Maddox, 2007; Martin, 2005; Mule, 2006; Rock & Levin, 2002). In this study, I used an inquiry process and subsequent reflections to investigate what aspects of teaching my PSTs focused on in their reflections.

Methodology

This study was situated in a constructivist view in which knowledge is socially constructed based on the context of the situation (Crotty, 1998). It also drew upon constructionism in the sense that each PSTs’ own culture has shaped their view of the world (Crotty, 1998). This study investigated the context of the PSTs’ field experience in relation to their ability to make theory to practice connections regarding culturally responsive teaching. I used the following research question to guide this study: In what ways does the context of a field experience at a Title One elementary school influence the ability of PSTs to make theory to practice connections in relation to equity issues in the classroom?

Contextual Description

This study occurred in a teacher education program in a large Southeastern United States university. The field experience elementary school in this study was located in a suburban community set within a very large school district. Sands Elementary School’s demographics have changed over the years. According to the 2010 U.S. Census, this community was comprised of 76.5% White, 13.2% Black, and 15.9% Hispanic/Latino (of any race) residents. The Black and Hispanic/Latino population both increased from the 2000 U.S. Census. From the 1999-2000 school year to 2010, Sands saw an increase in its Hispanic/Latino population from 11.88% to 18.66%. During this time, the White and Black populations have both decreased. Currently, the school population has sixty-two percent of its students on free or reduced lunch.

Participants

The sample of participants was selected from my thirty-two PSTs in the first semester field experience. The selected participants of this study were five PSTs interning at Sands Elementary. This field experience consisted of one full day a week in the classroom and an accompanying one-hour weekly seminar class. The PSTs were part of a cohort teacher education program. Therefore over a two-year period, they took classes with the same group of peers. Anderson (2013) found the literature tended not to focus on how PSTs' backgrounds affected their experience in the field. I used purposeful sampling to choose participants from a variety of backgrounds in hopes to determine how these backgrounds may contribute to their experiences. The participants included four females and one male. Of these participants, one female was a nontraditional student from Jamaica. Another female was of Latina descent and raising her nephew. The two other females were both white and of typical college age. I specifically chose one of these women because she has freely mentioned her low socioeconomic background growing up in a rural area. I included the other female since her mother was a teacher. I chose the sole male PST since he was the only male in this cohort.

Researcher's Role

I was the field supervisor for these PSTs. I also taught their Children's Literature course and had the opportunity to see my PSTs conduct literacy lessons. Anderson (2013) clearly raised the possible controversy of having a researcher as a current instructor/supervisor. However during my time as their instructor, I consistently tried to make each PST feel welcome to share their beliefs and ideas even if they differed from others. I continually tried to create a safe, comfortable learning environment.

Making Theory Relevant

During the Children's Literature course, I specifically addressed the topic of multicultural literature. The PSTs read a chapter on multicultural literature from Kiefer's (2010) textbook, *Charlotte Huck's Children's Literature*. In addition, we read and discussed McDaniel's (2004) article about critical literacy, as "Critical literacy transcends conventional notions of reading and writing to incorporate critical thinking, questioning, and transformation of self or one's world" (McDaniel, 2004, p. 474). After this discussion, we used Meller and Hatch's (2008) protocol for questioning literature through a critical literacy framework.

In the seminar component of the field experience, I specifically addressed the topic of culture. I incorporated activities and discussions that prompted the PSTs to reflect on their own culture and beliefs. In seminar, we discussed the definition of culture. I introduced the idea of hidden culture, the aspects of a person's culture that cannot be easily seen. I encouraged the PSTs to identify their own cultures using a cultural autobiography chart as a guide. From there, the PSTs reflected on where they felt dissonance between what aspects of their culture were important to their identity and what aspects others might use to identify them. In addition, the PSTs completed a social identities portrait in which they first encountered the topic of privilege. Afterwards, we engaged in an activity to further illuminate the effects of privilege on their own lives.

Along with these discussions and activities, I consistently encouraged PSTs to account for their students' diverse cultures within their lessons. As part of the pre- and post-conferences I conducted with my PSTs, I prompted them to think about how their lessons accounted for *all* students.

The table below summarizes the assignments and data collected in each of these courses.

Table 1

Data Collection Sources by Course

<u>Course</u>	<u>Assignment</u>	<u>Purpose</u>	<u>Data Collection</u>
Field Experience and Seminar	Reflection on Inquiry into the Community (classroom context and surrounding community)	PSTs did community drive and researched the community. They inquired into their classroom context. From there, they reflected on what they learned about the surrounding community and classroom context.	Reflections on inquiry
	KLEW chart (Know, Learned, Evidence, Wonderings) See Figure 1.	I used this assignment to analyze the PSTs' initial beliefs about the school context and how their thinking changed.	KLEW chart
	2 lesson plans (One of these lesson plans was specifically for a read aloud lesson)	I wanted to see where the PSTs were making culturally responsive teaching decisions in their own practice.	Lesson Plans
Children's Literature	Reflection on Multicultural Literature class	I collected reflections after a Children's Literature class centered on the use of multicultural literature.	Reflection (online discussion board) on multicultural literature

What do you Know about this community?	What have you Learned about this community?	Evidence of this Learning	What Wonderings are you left with?

Figure 1. KLEW Chart

Data Analysis

The data were analyzed using the constant comparative method (Patton, 2002). I looked across the data for initial themes. During this time I noted PSTs mentioned changes in their teaching and thinking. Then I recoded the data again with more specific themes. I used several data sources in order to triangulate the data and strengthen my findings (Patton, 2002). From the data I developed three main findings: 1) Preservice teachers were able to rethink their initial assumptions about the community, 2) Preservice teachers made changes to their teaching, and 3) Preservice teachers realized the importance of using multicultural literature in the classroom.

Findings

Preservice teachers were able to rethink their initial assumptions about the community.

As I examined the reflections taken from the inquiry into the surrounding community and KLEW charts, I noticed my PSTs were able to rethink their initial assumptions about the community. Initially, many of the PSTs simply judged the Sands community based on what they knew about Title One elementary schools. In the KLEW chart, they commented on the older school building and appearance of students. One PST even stated “The students are clearly more unfortunate” and wear “older dresses on picture day, one student doesn’t own a toothbrush”. However, after the community drive and first few weeks in the field experience I noticed some changes in the PSTs’ thoughts. One PST reflected, “I learned that it is not wise to judge a place merely looking at one context”. Additionally, some PSTs were able to understand how knowing the community and culture of a social context can affect their teaching. Another PST stated, “I have realized that each child is different that each child has their own personal strengths that they bring to the table”. This statement clearly exhibits how this PST was able to see the assets of each individual child instead of the deficits of the learning context. Another PST realized when completing the KLEW chart that her students might not have even travelled outside of the Seffner community before. All of these new ideas about the community will shape and change how PSTs approach their field experience and future teaching experiences.

Preservice teachers made changes to their teaching.

As the semester progressed, their lessons became more culturally responsive. They went from relying on holiday traditions to account for culture to changing their teaching styles. These changes were small, however, they did exhibit two aspects of Villegas and Lucas’s (2002) strands of culturally responsive teaching: constructivist views of learning and learning about students. Also PSTs used information from the inquiries in order to make these adaptations to their lessons. From the inquiry into the classroom community, the PSTs learned more about the students in their class. They specifically mentioned the accommodations they would need to make for specific students in their classes.

Throughout this semester, I was able to witness my PSTs relate teaching to their students’ lives based on the information they learned about their students through the inquiries into the community (school and surrounding community). For example, one PST specifically allowed her

students choice in their writing topics so that they could include their individual interests and backgrounds. I also found my PSTs developed more hands-on learning activities for their students. For example, the PSTs utilized math manipulatives and hands on Science experiments. Additionally, another PST popped popcorn so that all students could use the five senses to experience the popcorn and write about it. Furthermore, one of my PSTs related her own background, life in Jamaica, to the US government and Constitution. These initial changes to my PSTs' lesson plans show they were able to make connections to learning about the diverse needs of their students to actually accounting for these students in their lessons.

Preservice teachers realized the importance of using multicultural literature in the classroom.

Another finding directly related to my work in the Children's Literature course. After studying and discussing critical literacy, I asked my PSTs to all reflect on the use of multicultural literature in the classroom. One PST wrote, "I intend to incorporate critical literacy because I believe it is proactive for students to look at literature through a different lens because eventually children grow to become adults." This PST noted the importance of exploring multiple perspectives and viewpoints with elementary aged children. Another PST reflected on the importance of examining children's literature: "I plan to incorporate critical literacy within my classroom as I want my students to explore and discover the underlying meaning that each story brings." Yet another PST spoke to the relevance of promoting diverse portrayals of people in the classroom through the use of children's literature: "I didn't know how important it was to show students these books until during this research, but now I realize just how little information students receive about some topics." These reflections indicated new understandings about why teachers need to provide multicultural literature in the classroom.

Discussion

From this study, I found support for multiple field experiences with diverse populations. PSTs need consistent theoretical background about culture in order to understand culturally responsive teaching and how to incorporate it. While these findings support my PSTs' abilities to make theory to practice connections in their school contexts, more can be done. These PSTs were able to make some changes to their teaching practice; however, these changes were still superficial. As Villegas and Lucas (2002) posit, culturally responsive teaching includes sociocultural consciousness, affirming attitude towards students, demonstrating a commitment to change, upholding constructivist views of learning, and learning about students. However, my PSTs in this study were only focused on constructivist teaching and learning about students. While they did become change agents in the sense that they were able to make changes to the limited lessons they were required to teach, this aspect of their growth was just one area to consider. They needed more practice making theory to practice connections particularly with regards to sociocultural consciousness, demonstrating a commitment to change, and developing affirming attitude towards students. It is imperative that PSTs see culturally responsive teaching in their field experience classrooms. According to Guskey (2002) and Ellsworth (2000) change is a process rather than an event. As teacher educators, we need to be aware of the ways teachers change and the process of change in order to effectively plan for building knowledge over time. More specifically Guskey (2002) found teachers tend to change when they have evidence in the

form of student outcomes. This catalyst for change can be useful when thinking about PST learning, because as teachers grow they become more focused on student outcomes and will be more receptive to change if they have evidence supporting the reason for that change. If preservice teachers are given the opportunities to engage in culturally responsive teaching in their field experiences they are more likely to see the evidence of their new practices with their students; this evidence could then lead to a more permanent change in their future practice. Future research will need to explore how seeing culturally responsive teaching enacted in the field experience may affect PSTs' ability to incorporate this teaching into their own practice. Additionally, in the future I plan to study the effects of my PSTs staying within the same school contexts with the same field supervisor for the first three levels of their field experiences.

Conclusion

In this study, I investigated how my PSTs were able to enact theory to practice connections with culturally responsive teaching. I used the theory I presented in the seminar component of the field experience and in the Children's Literature course to promote the importance of equitable teaching. I guided my PSTs to make equitable choices and incorporate culturally responsive teaching strategies into their lessons. After our course discussions and activities, my PSTs expressed the importance of incorporating multicultural literature into the classroom. They realized the significance of approaching children's literature with a critical lens. Additionally, my PSTs rethought their initial assumptions about their surrounding school community. These reconsiderations of their assumptions proved critical to how they taught their lessons. They used their new knowledge of the community to plan lessons. I found my PSTs were able to make superficial culturally responsive changes to their teaching by approaching their teaching through a constructivist framework and getting to know their students. These changes showed the first step in my PSTs being more culturally responsive.

These findings indicate implications for field supervision, specifically in regards to culturally responsive coaching. Field supervision can be defined as "an organizational function concerned with promoting teacher growth, leading to improvement in teaching performance and greater student learning" (Nolan & Hoover, 2011, p. 6). As a field supervisor, I will need to study how my coaching can help my PSTs' teaching performance and enhance student learning through culturally responsive teaching. I will investigate how a focus on culturally responsive teaching with my PSTs may influence student learning. With guidance, PSTs are able to make connections between their coursework and the field experience. Through supervision we can enhance these connections and directly link them to culturally responsive teaching.

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Experiential Learning and its Role in Training and Improved Practice in High Level Sports Officiating

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Abstract

This qualitative study investigated how high level sports officials engage in experiential learning to improve their practice. Adult learning occurs in formal, nonformal and informal environments, and in some cases it is difficult to differentiate between these settings. In the case of cycling officials, learning begins in a nonformal environment during training sessions, but it is during the race event itself, in an informal environment, that learning is solidified and occurs in real time. Nine officials, whose training and education must be applied in a dynamic, intense environment, participated in a focus group interview where they explored how their experiences surrounding the race impact learning. Findings reveal how this adult learning theory is manifested through reflective practice, and how interaction with others plays a role in the learning process.

Opportunities for learning are everywhere, a constant aspect of daily life. The word *learning* is frequently associated with educational institutions that offer degrees and credit, which, according to Coombs, Prosser, and Ahmed's (1973) typology of educational settings, would be considered *formal* education. However, attitude, knowledge and skill acquisition occur most often outside of formal environments. The education sports officials participate in would be considered *nonformal* because even though it is an organized learning activity and involves prescribed learning objectives, it is offered through a community-based organization and institution whose mission is something other than education. In reality, the meaningful and significant learning officials experience arguably takes place through *informal* learning. Informal, or incidental, learning is that which happens naturally, through the activities in everyday life. Informal learning occurs in the activities surrounding or during an experience, or in this case a sporting event, thus solidifying the learning that takes place during education and training sessions. It is sometimes difficult to differentiate between these three settings because of the overlap between them. The goal of this study was to explore the ways high level sports officials who officiate bicycle races advance their knowledge and skills through experiential learning, nonformal and informal education, and interaction with one another.

Experiential Learning

Like other theories of adult learning, experiential learning encompasses various dimensions and theoretical conceptualizations (Merriam, Caffarella, & Baumgartner, 2007). As Merriam and

Brockett (2007) put it, “The idea of experience as a core aspect of adult learning is so pervasive in the theory and practice of adult education that it would be difficult to find examples that do not address the role of experience” (p. 15). Written about extensively by researchers in a number of fields, experiential learning has been studied as a pedagogical approach and an instructional strategy in formal education, most often by those who explore how experiential learning is infused into university coursework. Adult learning scholars, on the other hand, focus more on the experience people bring to the learning environment and how that experience might advance or in some cases, thwart the attainment of new knowledge, skills, and attitudes. Training and development programs in the workplace also embed experiential learning activities into curriculum to build on the expertise of participants and make learning more relevant to their jobs.

Generally, the role of experience and its relationship to education is the point of conversations surrounding this concept. Dewey (1938) was a pioneer in the discussion of how the two are inextricably linked. In his succinct book, *Experience and Education*, his attention rests on children and two types of education: traditional, and what he calls “new” (progressive) education. The former, traditional education represents an environment where the student is a passive learner in a rigid system of predetermined information and rules bound by culture and history. Progressive education, which he claims is not necessarily superior to traditional education, allows students the opportunity for individual expression and learning through experience. Dewey advocated for the inclusion of experience, but it must be experience that promotes growth and development and moves the learner forward, and the environment must be created to allow for this growth.

Lindeman (1961), who was a contemporary of Dewey’s and concentrated specifically on adults and their learning, wrote that analyzing personal experience is the core method of adult education. Knowles (Knowles, Holton, & Swanson, 2011), following in Lindeman’s footsteps, was especially interested in the idea of experience as the key resource in adults’ learning. He established the learner’s prior experiences as one of six core learning principles in his *Andragogy in Practice* model. He believed it is the quality and quantity of their life experiences that set them apart from children and youth and inform how they learn. He claimed that these differences should be capitalized on by the adult educator and used to individualize education to maximize learning.

Several models of experiential learning have gained the attention of students and scholars seeking to advance their understanding of the role of experience in adult education, work, and life settings. Jarvis (2006), Tennent and Podgson (1995), Fenwick (2003), and Usher and Bryant (1997) all offer experiential paradigms that frame learning. Kolb’s Experiential Learning Cycle (1984) is one of the most cited in the literature on this topic. It involves four stages that learners navigate during the learning process: concrete experience, reflective observation, abstract conceptualization, and active experimentation. To be an effective learner, each stage requires the learner to possess different abilities, ranging from openness to new experiences, to observational and analytical skills, to problem-solving skills that allow the learner to execute new concepts in practice. The cycle might be entered from any of the four stages but Kolb emphasized that they occur in sequence. The overarching idea is that a person experiences an action and then considers the impact of the action in a situation.

Boud, Keogh, and Walker's (1985) model emphasizes reflection-on-action as part of the learning process. They explain that to learn from an experience, it must be purposefully considered during each of three stages: Returning to experience, attending to (or connecting with) feelings, and evaluating experience. Reflection, according to Boud et al., is a process in which "individuals engage to explore their experiences in order to lead to new understandings and appreciations" (p. 19). The key here is that in addition to thinking, emotion is considered, as emotions also have a role to play in learning. Boud's more recent work (Boud & Miller, 1996) also considers the context (social, political, technical) in which learning occurs, and how one person's experiences promote the learning of others.

Literature Review

Much of the recent literature focuses on experiential learning as part of the curriculum design in formal education, and higher education in particular. Creating experiences where students apply concepts learned in the classroom to real-world settings is an instructional technique adopted by many programs. The idea is to promote student learning outside of the classroom. For example, Wolske, Rhinesmith, and Kumar (2014) describe how a form of experiential learning they titled studio-based learning (SBL) supported "enculturation" into their field, library and information science (p. 166). The authors sought to understand whether their program served as a model for experiential learning by providing students the opportunity to participate in real-world design projects. Students perceived the studio courses allowed them to apply what they were learning in the classroom to the setting in which they might eventually be employed.

In another investigation (Moody, Kostohryz & Vereen, 2014), the focus was on master's level students' engagement in the co-facilitation and observation of small group sessions in a counselor education program. The authors studied how students experience integrating new knowledge related to leadership into live supervision during course preparation for careers in professional counseling. These counselors-in-training perceived that full engagement by the individuals participating in the project, including supervisors and student peers, led to their learning. Prolonged engagement during multiple interactions with faculty, as well as receiving feedback in real-time, impacted students' experiences through development of insight and awareness of their performance.

Hodge et al. (2011) found that students' reflection on their identity and positionality came about through exposure to institutional and workplace contexts. Their research on experiential and situated learning activities at three Australian universities focused on how people learn. Interviews conducted with participants including students, staff, and hosts led to several conclusions about their involvement in internships, student placements, and project-based fieldwork. One major finding was that students experienced transformations of sorts just by reflecting on their experiences and by being on site and in a particular place or location related to their career.

Service learning, another vehicle through which experiential learning occurs, was required of students in a university public speaking class offered specifically for Latina/o students (Colvin & Tobler, 2013). Students delivered speeches to elementary and middle school students whom they were also mentoring as another aspect of service learning requirements for the course. In

this context, participants applied learning to the real-world, and benefitted from sharing their experiences with fellow students in the course.

Research related to experiential learning that occurs in nonformal and incidental education is less prevalent. Teng and Yusof (2014) provide a glimpse of how learning transpired for women who survived the Tsunami in Aceh. More women lost their lives than men as a result of the event and those who survived often lost their livelihood and found themselves caring for others who were impacted by the devastation. In this context, they experienced learning during times of reflection on their beliefs, their values and their assumptions, through talking with others who shared their experience, and by “acknowledging and using feelings”, and building an awareness of those feelings to help them cope with their life situation (p. 24).

Medical education and professional development within healthcare is another area that has adopted strategies that encourage learning during practice or in context. For example, one study sought to determine whether exposure to patients in a primary healthcare community clinic would result in attitudinal change in first-year medical students. Beylefeld (2014) concluded that properly structured learning activities in the field can do two things. One, they can help students understand content in new ways, and two, they have the power to foster self-reflection that impacts how students will ultimately function in their profession. Catangui and Roberts (2014) investigated how nurses working in a hyper-acute stroke unit experienced learning regarding the delivery of one particular treatment approach for which most had no formal training. Participants found that during the experience, the support of senior nurses and stroke doctors was an important factor in their development of confidence and competence.

Methods

The current investigation employed a basic qualitative descriptive design to explore the ways experiential learning is manifested in high level sports officiating. Permission was obtained from the institutional review board (IRB) prior to commencing with the study. A focus group interview was selected as the technique of data collection because of the exploratory nature of the study, allowing the researcher the opportunity to amass a broad range of responses and varying perspectives from participants. The focus group interview allows participants to hear others' responses and build on those or offer alternative views. Marshall and Rossman (1999) point out that focus groups are socially oriented, and because this study explored the experience of learning, working and interacting with others, this method of data collection was deemed appropriate. “This method assumes that an individual's attitudes and beliefs do not form in a vacuum: People often need to listen to others' opinions and understandings in order to form their own” (p. 115).

Participants

Participants were licensed officials from USA Cycling who were attending a summit held every other year by the organization. Officials from around the United States attend the event, which is intended as a professional development opportunity and features seminars on current issues such as continuing education programs, best practices for recruiting and rewarding officials in local associations, leadership during races, and officials' code of ethics. While the summit is attended

primarily by more experienced officials in the upper levels of the sport, some junior officials do take part.

Prior to the summit, an email was sent to all registered summit participants describing the nature of the research and inviting them to be part of the focus group. A follow-up email was sent to those who expressed an interest and included details regarding logistics of the meeting, a more detailed description of the purpose of the study, as well as an informed consent form detailing the voluntary nature of participation and the steps that would be taken to protect their confidentiality. A demographic questionnaire was also sent to participants and included questions regarding the official's age, the number of races they had worked, and their level of formal education. Three open-ended questions were included, asking participants to describe the formal and informal training they had received as an official, as well as how their most valuable learning experiences occurred. Officials had the option to return the form electronically or to return it to the researcher in person prior to the interview.

Nine officials, four males and five females who ranged in age from 41-65, participated in the focus group. In terms of category, several were licensed in more than one area (i.e. road, mountain bike) and were categorized at different levels in each discipline. For the purpose of this study their highest ranking is used: International Commissaire (n=1); National Commissaire (n=2); Category A (n=4); Category B (n=1); Category C (n=1). Between them they have officiated over 2500 races. Four of the officials hold master's degrees, four have their bachelor's degree, and one holds an associate's degree.

Focus Group Discussion

A semi-structured, open-ended focus group interview protocol was used to explore the overall research question framing the study. The interview was audiotaped and transcribed, and notes were taken throughout. Specifically, officials were asked about the relationship between the formal training they receive and learning that occurs during the execution of their job. Additionally, they were asked about the role of reflection in their learning, and how their experiences help them improve their practice.

Data Analysis

The strategy used to examine the data collected during the focus group interview was content analysis. As a first step, the audio recording of the interview, the interview transcript and observation notes were reviewed and notes were made to "develop tentative ideas about categories and relationships" present in the data (Maxwell, 2013, p. 105). Open coding, as explained by Strauss and Corbin (2007), involves developing coding strategies based on what significant ideas emerge in the data. In this case, to help order the data, perceptions of how learning transpired were coded and grouped into broader themes that encapsulated the participants' experiences. These themes were then analyzed for meaning to make sense of the data.

Findings

There was consensus among this group of cycling officials that while learning to carry out their job may begin in a formal classroom, the real learning takes place in the field, in an authentic environment. Three recurrent themes materialized from the analysis of the focus group interview transcripts: How learning occurs on the job, or during the race itself, the value of reflection for learning, and how learning from others helped officials improve their own practice. These are discussed below.

On-the-Job Training: From the Clinic to the Race Course

Entry-level officials begin their education and training in a clinic where they first learn the rules and regulations of bicycle racing. Local associations, which vary in size and scope, offer the training, and in order to obtain their license new officials must take the course and pass a test that assesses their knowledge of the rules. Once licensed, officials are assigned to work a race, often as an apprentice; there is no formal apprenticeship or applied training but some local associations do attempt to provide newly licensed officials with some experience working a race before they take on a formal role on the crew. Those who want to advance their careers and seek promotion to a higher category take specific courses toward the next level and must show evidence of their officiating experience.

Participants shared how during entry-level clinics they learn the rules and discuss various scenarios illustrating how the rules are applied during the race, but they believe learning to officiate actually occurs on the job. According to one official, *“There are the hard and fast rules, but a lot of the judgment calls you make are the things that you really can’t train for”*. Another participant added that:

We seriously teach to the test, because all the test is, is ‘congratulations, you have a license’, just like your pilot’s license and your motorcycle license. Now, you have the license to go out and learn how to be an official. Now you have a license to go and learn how to score a race, officiate a race.

When discussing the impact a race has in relation to the learning that occurs during the clinic, one official stated:

It solidifies it. I feel like the in-class, taking the clinic stuff, it’s a lot of different ideas milling around, but once you get into a situation where you have to pick one of those and apply it, you can tie all of those together into a more cohesive concept or idea for application.

The race environment is dynamic; bicycles are moving objects so the race situation and the environment change continuously and quickly. Safety concerns are just one factor that makes officiating a bicycle race intense. Just as important is the fact that races are typically held outdoors where weather and logistics can make an impact. Additionally, “on-the-spot”, split-second decision-making by an official is part of the job and is required for them to be effective. In this context, no matter their experience, officials must “think on their feet” and apply the rules

and procedures they learned during formal training in real-time. One participant portrayed this as *“Going from the black and white of the rulebook to the unbelievably many shades of gray”*. As a group, participants agreed that it is during the race event itself that meaningful learning occurs. The following exchange further illustrates participants’ perceptions of where and how learning takes place:

There is no book.

That is not classroom. [The] classroom is the race course.

Your best classroom is going to races.

There’s always going to be something that comes up that’s not covered in the book and you just have to take that leap.

Nobody has trained you for that. No rulebook has trained you for that.

Reflection as a Learning Device for Improved Practice

Officials commonly engage in the practice of reflecting on the race, specifically on their own performance and decisions they made. Bicycle races can be single or multi-day events. During a multi-day event standard practice is for officials to meet as a group immediately following each race to debrief and discuss things that went well and areas that need improvement. Debriefing sessions are usually led by the chief referee. On the individual level, reflection often transpires on the official’s drive home or in the days just after the event, helping them make sense of the experience. They also reach out to other officials to deliberate together on how they handled particular situations during the race.

Sometimes I’ll pick up the phone and call another official and say, ‘here’s what happened. Did I really screw this up?’ there’s almost always someone who’s willing to talk me down, talk me through it. Yeah, my in the car conversations are frequently – sometimes it’s me for a while inside my head, but often within a day or two I will have reached out to somebody and say, ‘here’s what happened; what should I have done? Here’s what I did.’ Usually what I get is, ‘yeah, that was OK; here’s another idea.’

Participants questioned whether or not they are able to actually contemplate decisions that need to be made in the moment because of the fast-paced nature of the race and the lack of time they have to ponder past decisions and experiences and how those should impact their course of action now. As one official put it, *“Nine times out of ten, there’s no time for that”*. Another observed that the *“decision has to happen now, not wait a minute; what happened three weeks ago?”*. After some discourse, they decided that in fact they likely *do* reflect on actions and learning experiences in the moment, but may not be aware of it at the time, as illustrated by the discussion below:

I think all of us, and especially if we’re the chief of a race, we’re running through scenarios in our heads the entire event of what if this, what if that, what if the other. You see this happening; what if this happens from that? You’re almost preparing for the decision before the incident even happens.

It’s not a conscious thought; it’s a subconscious thought.

You've seen that before or something like that, and you're also able to prioritize what the outcome is supposed to be, based on those previous situations. You say, last time I did this it didn't work out, so maybe I'd better adjust. I think a lot of that reflection in action happens and we don't realize it until we reflect on the action later.

A related area that generated dialogue during the interview was learning from mistakes. Newer officials admitted to struggling with their performance, especially any decisions that affected the outcome of a race. More experienced officials shared how they, too, ruminated over their judgment calls and how they handled difficult circumstances. The participants agreed that it was important to learn from the mistake and move on, as one stated, "...if you've learned from it".

For me personally, I learn the most from the mistakes I made, because the bigger the screw-up, the bigger the lesson.

It's like people have said before, you learn a lot from your mistakes, but you also learn a lot from things that go really well. If you handle a situation that comes out just like you wanted it, presented with it again in the future, you know what to do. You have the confidence to do it again because it worked so well. You can learn both ways, from both the good and the bad.

Even at a certain point...you just have to let it go. You can agonize over it, you can think about. What should I have done? What shouldn't I have done? But even when you blow it, you're human; you've got to let it go.

Learning from the Experiences of Others

Officials working bike races learn to adapt to the makeup of the crew. The composition of the crew may change from race to race and year to year, especially for those working larger, more prestigious events. More experienced officials working at both local and national levels are accustomed to operating alongside others with whom they may have never worked or perhaps even met. Whether they are officiating at the local or national level, they are assigned a role, and they execute and adapt as necessary. Those advancing to the higher levels of the sport attend training sessions with other officials from around the country. Races and clinics offer opportunities to recall experiences and discuss ways they have handled tough situations.

Participants shared how significant learning comes from this personal interaction, from hearing about others' experiences as well as from sharing their own. As one participant put it, "*I've always found that I learned the most, even in the formal classes, from the war stories.*" Officials perceive that the exchanges that take place informally serve as a vehicle for learning that is more valuable than learning via written curriculum in the classroom or clinic environment. Said one participant:

The most recent one I took is the cycle cross international class. It was people from various areas and everyone talking about how this is what we've seen. I always personally get a lot more from that than I do from the written presentation and the books. Yes, that's important, knowing the rules, but knowing how people apply those rules.

Reflecting on and communicating their own experiences is another way they learn. According to one official:

...we have the tradition at national-level events, we all get together and swap war stories, not just from that event but from other events as well. Same thing – [as] you're reflecting on a previous action and sometimes even telling the story you suddenly get a different idea about it, having seen other people's reactions to it and other people telling their stories. There's really a lot to be gained from that reflection.

Another commented on those who do not participate in these exchanges:

I think a lot of people discount that and don't take that into account. Some officials, when we have those bull sessions, they don't want to mess with them and they'll go off on their own, and I think that's a big mistake because you really can learn a lot from each other from that reflection and talking about it.

Through working with one another, through mentoring, and through being mentored, officials learned to listen to and learn from the narratives of less experienced and more seasoned officials alike. One participant summed it up with, *I try to soak up all I can from people who know more than I do.* Another responded by saying, *Everyone can teach you something.*

Discussion

The findings from this study offer evidence that in some contexts, significant learning occurs primarily when content knowledge is applied in real-world situations. Features or elements of many adult learning theories and models may characterize any one learning experience, but some describe the phenomenon in question better than others. In this case, the theory of experiential learning seems to appropriately represent that which occurs with high level bicycle race officials.

Participants shared that the learning necessary to be an official occurs on the job. The training they undergo prior to working a race acquaints them with the rules and regulations established by the organization. During the race itself they actually learn the procedural aspects of managing the event and they practice the skills associated with their position. They perceive this as on-the-job training because it is difficult, if not impossible, to really learn to officiate in a classroom environment. Learning occurs as a direct result of participation in the experience of officiating.

Rules and procedures can be introduced in a classroom, but an event like a bicycle race cannot be effectively simulated in a static environment; actual learning takes place before, during and after the race event itself. During the experience officials learn to apply rules, they learn ways to handle complex situations, and they learn how to make decisions based on a changing environment.

Donald Schon (1983; 1987) alleged that the most beneficial learning occurs in practice. His work with organizational learning and reflective practice are very relevant to the current study. Reflective practice is characterized by two models closely related to experiential learning: reflection-on-action and reflection-in-action. Reflection-in-action occurs when a person is able

to “think on their feet” while “in the midst of their performance” (Schon, 1983, p. 54) and adjust as necessary. Boud, Keogh, and Walker (1985) maintain that experiences become vehicles for learning when a person reflects on their action, is able to recollect, to walk back through an experience and evaluate all aspects of it. Officials’ remarks and observations about their own behavior and learning support these models. They recognized how they were able to make decisions in the moment based on past experiences, and they acknowledged how reflecting on certain events allowed them to process and make sense of them.

While not the focus of the current study, the conversations among these officials during the focus group support another model associated with experiential learning, communities of practice. Officials discussed how they learned from the narratives and experiences of others, from sharing information and seeking advice. “Communities of practice are groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly” (Wenger, n.d., para. 4). They form when the group engages in mutual knowing and learning and provide opportunities, often informally, for members to increase competence. In this case, the collective learning is not necessarily intentional, but is the outcome of the interaction between officials. Members of a community of practice “develop a shared repertoire of resources: experiences, stories, tools, ways of addressing recurring problems—in short a shared practice” (Wenger, n.d., para. 9). This model aligns well with officials’ descriptions of learning from other officials’ experiences.

Implications for Educators

Experiential learning is characterized differently depending on the various model or theorist, and the ways educators encourage or make use of this type of learning for the benefit of the student changes based on their perspective and the setting. For example, programs in many degree-granting institutions including higher education, career and technical education, and vocational and trade schools emphasize authentic learning activities that require students to apply information and skills in a real-world setting. Some programs require internships or service-learning as part of program design so students are better equipped to enter the workforce. Here, experiential learning is used as a pedagogical technique. Facilitators in adult education settings, who often champion Knowles’ (Knowles, Holton, & Swanson (2011) core principles of adult learning, may approach experiential learning a bit differently. They encourage students in programs such as adult basic education (ABE) and GED preparatory courses to use their prior experiences as a resource for learning. Both of these examples are associated with learning in formal institutions.

Rich opportunities for using experiential learning to promote knowledge and skill acquisition reside in nonformal and informal contexts such as community education as well, and this is where many adults are learning. However, educators in settings outside of formal education may or may not engage in or even be aware of specific practices advocated by theorists like Lindeman and Knowles that embrace a learner’s prior experiences or place them in contexts where learning is more likely to occur. According to Boud and Walker (1990):

Most learning takes place outside of organised educational settings. Such experience is typically haphazard and unplanned, and difficult or impossible for the learner and those facilitating learning to control. One of the questions that arise from this observation is what can we do to enhance the possibility of learning occurring in any given situation? (p. 61)

The challenge lies with finding ways to integrate real-world learning experiences or techniques that encourage learners to call upon prior work and life experience into nonformal education. The concept of experiential learning may appear to be a simple one, but implementation may only occur when the facilitator is familiar with the theory.

Programs that cater to adults should consider the importance of using adult learning theory and models such as experiential learning to enhance student learning and make content more relevant to their lives. It would be worthwhile to take a deeper look into how learning in context, reflective practice and communities of practice advance lifelong learning in the context of leisure, the home, the workplace, and the community. Future research should examine how this is taking place in nonformal and informal environments.

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Profile for Teacher Decision Making: A Closer Look at Beliefs and Practice

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Abstract

The Profile for Teacher Decision Making Survey was developed to capture inservice teachers' beliefs and practices related to instructional decision making. Eighty-seven inservice teachers enrolled in various Master's degree programs responded to the survey. Results indicate that most teachers, regardless of grade level or content area taught adopted student-centered beliefs. Furthermore, the teachers endorsed more student-centered practices than standards-based or curriculum-based practices. This finding indicates that, regardless of possible and probable pressures from outside the classroom, the teachers were most concerned with teaching students rather than just covering standards or adhering to a prescribed curriculum, with one exception being teachers who taught in Reading First schools. These teachers reported that their curriculum-based practices were a result of being told to implement the curriculum and not because they believed it was the right thing to do.

Research related to teacher decision making reached its peak in the 1980's (Borko, Shavelson, & Stern, 1981; Calderhead, 1981; Inglis & Lucas, 1976; Parker & Gehrke, 1986; Peterson & Clark, 1978; Shavelson & Stern, 1981). Recently, research related to responsive and adaptive teaching has once again highlighted the importance of teacher decision making (Bauml, 2011; Corno, 2008; Duffy, Miller, Kear, Parsons, Davis, & Williams, 2008; Griffith, 2014, Griffith, Massey, Atkinson, 2013; Vaughn & Parsons, 2013), particularly in light of increased accountability, scripted programs, and the national standards movement (Garan, 2002; Griffith, 2008; Yatvin, 2005). Glickman (2003) noted that effective teachers make moment-by-moment teaching decisions based upon the needs of students. Taylor & Pearson (2002) noted that exemplary teachers adapt their instruction to meet the needs of the students, while Allington & Johnston (2002) noted that exemplary teachers seized teachable moments in response to student needs. Furthermore, Taylor, Pressley, and Pearson (2003) state that successful instruction goes beyond skill-based, rote memorization, and incorporates higher order thinking. Finally, by adopting a student-centered approach, influential teachers tailor instruction to meet the needs and interests of individual students.

Ruddell (1992; Ruddell & Ruddell, 1995) identified four common characteristics of influential teachers: (1) tend to be energetic, passionate, caring, and flexible; (2) are sensitive to individual student's needs and motivations; (3) are passionate and enthusiastic about the subjects they teach; and (4) are concerned with the value of each student as a person.

Also at play in the beliefs to practice realm are teachers' visions for instruction and the implementation or enactment of those beliefs into practice (Vaughn & Parsons, 2012). Even teachers who hold tight to their set of beliefs about teaching and learning face the challenge of enacting those beliefs when competing forces are at play in the classroom.

While adaptive teaching might be characterized as student-centered, there are additional constructs that influence teacher decision making. With the implementation of the Common Core State Standards and so many teachers are striving to cover all of the standards tested by the state's standardized test, teacher decision making is heavily influenced by the standards-based movement (Ogawa, Sandholtz, Martinez-Flores, & Scribner, 2003; Swanson & Stevenson, 2002). In some cases, student-centered beliefs collide with standards-based practices. One teacher in Barksdale-Ladd and Thomas's (2000)'s study noted, "All these years, I believed we were supposed to teach the child at the child's level, at the zone of proximal development. Now the state tells me that I was wasting my time because their standards are the name of the game, not the children" (p. 389). Teachers must make decisions about how to navigate this hurdle.

As school districts seek the programs "hailed as *the answer* for ensuring that no child is *left behind*" (Altwerger, Arya, Jin, Jordan, Laster, Martens, Wilson, & Wiltz, 2004, p. 120) the impact of adopted and/or mandated curricula significantly influences teacher decision making. At the time of this study, Reading First funds influenced the types of reading instruction being implemented in the public schools. Reading First was "designed to ensure that every child can read on grade level by the end of third grade through the implementation of instructional programs and materials... grounded in scientifically based reading research" (U.S. Department of Education, 2002, p. 9). While there was no listing of accepted programs for Reading First (Garan, 2005), school districts applying for these funds were required to select programs that addressed the five essential components of reading instruction as recommended by the National Reading Panel (U.S. Department of Education, 2002), thereby limiting schools to commercially produced programs with a "very narrow range of acceptable practices and program choices" (Lipson, Mosenthal, Mekkelsen, & Russ, 2004, p. 540). With the acceptance of the Reading First funds, school districts often mandated that teachers implement these reading programs with fidelity, potentially creating dissonance between the teachers' beliefs about reading instruction and the philosophy of the program (Author, 2008). Teacher buy-in of these instructional mandates also influenced teachers' beliefs about instruction. Understandably, when the ideologies behind the reform effort aligned with teachers' beliefs, they were more likely to embrace the reform (Datnow & Castellano, 2000).

Based upon this research, the theoretical threads that guided this study included : (1) the standards-based movement (American Federation of Teachers, 2009; Donnelly & Sadler, 2009); (2) adopted and/or mandated curriculums (Cochran-Smith, 2009; Shelton, 2005; Westerman, 2010); and (3) student-centered beliefs (Corno, 2008; Dole, Duffy, Roehler, & Pearson, 1991; Gill & Hoffman, 2009). The purpose of this study was to report on teachers' self-reported beliefs and practices related to decision making. Specifically, it was hypothesized that elementary teachers would be more student-centered than middle school and secondary teachers. Additionally, it was hypothesized that middle school and secondary teachers would be driven more by the standards than by student-centered decisions. Finally, it was hypothesized that teachers who were required to implement a mandated curriculum or adhere to a specific pacing

guide would report a misalignment of their practices with their beliefs. The researchers hypothesized that when operating in educational settings where autonomy was valued and curriculums were not mandated, teachers' practices would reflect their beliefs.

Method

Initial Survey Construction

The survey development was an outgrowth of many years of working with classroom teachers, particularly during the early years of implementation of No Child Left Behind and the era of scripted reading programs. Many of the questions arose from the conversations the first researcher had with teachers and from the review of literature related to teacher decision making. Since there was no survey available that examined the forces that guide teacher decision making, the first researcher developed the *Profile for Teacher Decision Making (PTDM)*, modeled after DeFord's (1985) *Theoretical Orientation in Reading Profile (TORP)*. The Profile for Teacher Decision Making Survey included thirty questions related to teachers' beliefs with ten questions related to student-centered beliefs (SCB), ten questions related to standards-based beliefs (SBB), and ten questions related to curriculum-based beliefs (CBB). (See Table 1). Responses were arranged on a four-point Likert scale from strongly disagree to strongly agree. Examples of questions related to beliefs included:

1. When planning lessons, teachers should think first about what the students know and then about what they need to know next. (SCB)
2. The main goal for teachers should be to plan and organize tasks so that students can attain the standards for that subject and/or grade level. (SBB)
3. Scripted lessons help the teacher prepare and deliver focused lessons. (CBB)

In addition, fifteen questions related to teacher practice were included in the survey; five questions related to student-centered practice (SCP), five questions related to standards-based practice (SBP), and five questions related to curriculum-based practice (CBP). These frequency responses were arranged on a four-point Likert scale from almost never to usually. Examples of questions related to practice included:

1. When teaching, I base my teaching decisions on ongoing feedback (verbal and nonverbal) that I receive from my students. (SCP)
2. When teaching, I begin my planning with the standards for my grade level and subject area. (SBP)
3. When teaching, I trust the experts who designed the instructional program adopted by my school. (CBP)

In order to capture the reasons behind these responses, one follow-up question was posed after each practice statement.

1. I do this,
 - a. because I believe it is the right thing to do.
 - b. because I am told to do it by my school administration and/or by the adopted curriculum.

- c. because I believe it is the right thing to do AND it is mandated by my school administration and/or by the adopted curriculum.

Pilot Study

Following extensive feedback from other literacy researchers and from practicing classroom teachers, the final survey was distributed to 20 graduate students enrolled in a reading course at a large, state university in the south. To test for reliability, a test/retest option was implemented with participants responding to the survey within five calendar days. Initial responses were compared to the second responses and discrepancies of more than one point difference were noted. All but one curriculum-based question and one standards-based question were reliable. The two unreliable questions were re-worded for the final survey.

Survey Implementation

This study utilized descriptive statistics based on data collected from 87 students enrolled in graduate courses in all MAEd Programs in the Department of Curriculum and Instruction at the same, large state university used in the pilot study. The Profile for Teacher Decision Making Survey was distributed via the university-supported survey software to 270 students in seven Master's degree programs. Eighty-seven of the 270 students responded, achieving the average response rate of 30% for online surveys. These programs included Elementary Education (ELEM), Reading Education (READ), Special Education (SPED), English Education (ENED), History Education ((HIED), Middle Grades Education (MIDG), and Math Education (MATE). Forty-two percent were enrolled in the READ program; 30% were enrolled in the SPED program; 15% were enrolled in the ELEM program; the remaining 13% were enrolled in the MIDG, HIED, and ENED programs. At the time of the survey administration, all of the participants were practicing teachers. Almost 55% of the participants had less than five years of teaching experience; 25% had five to nine years of teaching experience with the remaining 20% having taught more than ten years. The average teaching experience was 5.74 years and the median was 3-4 years. Nine of the participants were male and the remaining 78 were female. Sixty-eight percent identified at least one instructional program adopted by the school that they were expected to follow. Ten percent of the participants were teaching in Reading First Schools and 56% were teaching in schools that had failed to meet Adequate Yearly Progress in the past five years.

Results

Data Analysis

All statistical tests were conducted using SPSS Version 19.0. First order correlations, using Pearson r established the foundation for reliability. Student-centered belief items were then submitted to a test of inter-item reliability ($\alpha = .84$). One student-centered belief item (SC6) was eliminated from the scale because of a low correlation. Following inter-item reliability on standards-based beliefs, one item was eliminated from the scale. One curriculum-based belief item was removed to improve scale reliability.

Beliefs.

To capture the belief systems held by the respondents, a paired sample *t*-test was used to compare the respondents' student-centered belief scores with their standards-based belief scores. The *t*-test results indicates that the participants beliefs were significantly more student-centered than standards-based, with $t(86) = 13.24$, $p = 0.000$ (see Table 2).

Though hypothesized that the elementary teachers would identify with more student-centered beliefs (SCB) than teachers in middle and high school, an independent samples *t*-test revealed that there was not a significant difference in terms of student-centered beliefs between elementary teachers and "other" teachers, $t(85) = .775$, $p = .44$. Table 3 lists the mean scores for the elementary school teachers, the standard deviation, the *t* statistic and the *p*-value.

Additionally, the hypothesis that the teachers at grade levels other than elementary would adhere to more standards-based beliefs was nullified. That is, as Table 4 indicates, there was no significant difference between the elementary teachers and "other" teachers with regards to standards-based beliefs, $t(85) = -0.185$, $p = 0.85$.

Further, the curriculum-based beliefs scores for elementary level teachers were compared with "other" level teachers using an independent samples *t* test and the results were not significant. That is, as Table 5 shows, there was no significant difference between the elementary teachers and "other" teachers with regards to curriculum-based beliefs, $t(85) = -1.031$, $p = 0.306$.

In conclusion, there was no significant difference between elementary level teachers and "other" grade level teachers with regards to student-centered beliefs, standards-based beliefs, or curriculum-based beliefs.

Practice

Frequency of student-centered practices questions revealed that almost every participant identified one's own teaching as student-centered. Student-centered practice 1 had mean = 3.87, $Sd = .367$; Student-centered practice 2 mean = 3.73, $Sd = .538$; Student-centered practice 3 mean = 3.816, $Sd = .389$; Student-centered practice 4 mean = 3.827, $Sd = .379$; Student-centered practice 5 mean = 3.747, $Sd = .487$ (See Table 6).

An independent samples *t*-test was used to compare the student-centered practices between elementary level teachers and "other" level teachers. The results indicated that the difference between the elementary teachers and "other" teachers was not significant in terms of student-centered practices, $t(85) = -0.171$, $p = 0.86$ (see Table 7).

The respondents' standard-based scores have a mean = 3.45, $Sd = 0.655$. Descriptive statistics indicate that the curriculum-based practice is lower, with mean = 2.39, $Sd = 0.742$. Additionally, a *t*-test revealed no significant difference between elementary teachers and "other" teachers with regard to standards-based practices, $t = -.766$, $p = 0.446$ (Table 8). Because the two groups have unequal variance based on the results from Levene's test for equality of variance ($F = 4.989$, $p =$

0.028), the t statistic and p -value reported were based on equal variance not assumed t test results.

Furthermore, a t -test revealed no significant difference between elementary teachers and “other” teachers with regard to curriculum-based practices, $t = 0.238$, $p = 0.813$ (Table 9).

An ANOVA indicated that there is a significant difference among respondents’ scores on the three types of practices ($p < .001$). A follow up t -test indicated a significant difference between respondents’ student-centered practices and standards-based practices ($t = 4.683$, $p = 0.000$) and a significant difference between standards-based practices and curriculum-based practices ($t = -13.020$, $p = 0.000$). These results reveal that teachers endorse a greater agreement with student-centered practices, than standards-based practices than curriculum-based practices.

Relationships between Beliefs and Practices.

Though hypothesized that teachers who were required to implement a mandated curriculum or adhere to a specific pacing guide would report a misalignment of beliefs with practice, the results indicated that it was only true in some contexts with some teachers.

Teachers who taught in Reading First Schools reported a range of reasons they engaged in curriculum-based practices. Four responded that they engage in curriculum-based practices because they were told to do it. Three reported that they engage in curriculum-based practices because they were told to do it and they believed it was the right thing to do. Only one of the eight Reading First teachers engaged in curriculum-based practices because he/she believed it was the right thing to do. These findings indicate a curricular-buy-in issue with at least half of the teachers in the Reading First schools represented in this study.

In comparison, 54% of teacher in non-Reading First schools reported never engaging in curriculum-based practices because it was mandated. Less than 5% of the non-Reading First teachers reported engaging in curriculum-based practices because they believed it was the right thing to do, rather because they were told to do it by their school administration. Seventy five percent reported engaging in curriculum-based practices in part because they believed it was the right thing to do.

Forty-four teachers identified at least one instructional program that was adopted by the school that they were expected to follow. Of those 44 teachers, 29% said they engaged in curriculum-based practices because it was the right thing to do ($\chi^2(5) = 12.6$, $p < .03$).

A number of belief statements significantly correlated with the corresponding practice statements. For example, when a teacher responded with a strongly agree on a belief question, the paired practice question also had a high rate of agreement. This indicates that, if the teacher believed the statement to be true then he/she also usually implemented the corresponding practice. For example, the standards-based statement “When planning lessons, teachers should first think about the standards for the subject area and grade level” (belief) was statistically significant when correlated with the practice statement “When teaching, I begin my planning with the standards for my grade level and subject area.” Additionally, the belief statement related

to student verbal and nonverbal feedback, “When teaching a lesson, teachers should base teaching decisions on the ongoing feedback (verbal and nonverbal) received from students” was highly correlated to the practice statement “When teaching, I base my teaching decisions on ongoing feedback (verbal and nonverbal) that I receive from my students.”

While a number of paired beliefs/practice questions were statistically significant, those that were not are worth examining. They reveal a possible disconnect between the teachers’ beliefs and practices. Tables 10, 11, and 12 present the correlation between student-centered, standard-based, and curriculum-based statements. The strengths of their correlation were indicated by a p-value.

The correlation between student-centered belief statement “When a child enters a classroom knowing less than his/her peers, the teacher should employ strategies that help the student catch up to his/her peers” and the paired practice statement “When teaching, I employ multiple strategies to help students who are performing below grade level to ‘catch up’ with peers.” was not statistically significant ($p = .224$).

Additionally, the correlation between student-centered belief statement “All students are entitled to work on tasks that ensure some level of success” and the paired practice statement “When teaching, I plan tasks of varying levels of difficulty to address the varying needs of my students” was not significant, but approached significance ($p = .071$).

The correlation between student-centered belief statement “All students enter school with varying levels of understandings and the teacher has an obligation to understand what each student knows.” and practice statement “When teaching, I can identify the strengths and needs of each student in my class” was not statistically significant ($p = .221$).

Discussion and Implications

The Influence of Grade Level on Beliefs and Practices

Contrary to the hypothesis that grade level would influence the types of beliefs and practices reported by the teachers, all teachers, regardless of grade level reported being more students centered in beliefs and in practice than driven by the standards or by a specific curriculum. There are several possible reasons for this finding. First, the survey was self-reported which is a possible limitation in terms of validity due to the possibility of response bias (Walker, Schmitt, & Miller, 2006). Second, the participants in this study were a unique population; educators seeking advanced degrees. As graduate students, these participants were immersed in the literature related to best practices in education and would be likely to adopt a stance that aligned with these identified best practices. Finally, most teachers entered this profession with the intent to teach students, not just content (Moje, 1996).

Beliefs/Practice Comparisons

Though we hypothesized that teachers who were required to implement a specific curriculum or adhere to a specific pacing guide would report a misalignment of their practices with their

beliefs, regardless of these factors, the participants in this study reported consistency between their student-centered beliefs and their student-centered practices. This finding indicates that teachers, regardless of the possible and probable pressures from outside the classroom (e.g. high stakes testing) are most concerned about teaching students instead of just covering standards or sticking to a prescribed curriculum. The participants' beliefs about basing teaching decisions on students' verbal and nonverbal feedback aligned with their practices in this domain. A high rate of agreement between the belief and practice statements related to the importance of identifying students' strengths and needs indicate that teachers are mindful of using assessment to inform instruction. Approaching statistical significance were the relationships between the beliefs and practice statements related to providing opportunities to work at a level of success most of the time. In contrast, a strong correlation did not exist between several student-centered beliefs and practice statements, in particular those related to dealing with students who are not on grade level. A possible reason for this finding is the tension between the pressures to cover the grade level standards and the mandated curriculum (Author, 2008).

Most standards-based beliefs and practices were complementary. Teachers believed that the standards should guide their instruction and engaged in practices that supported that belief. They planned instruction to match the standards; a belief they also endorsed. One standards-based belief did not align with practice dealt with the use of pacing guides to ensure that all students were taught the same standards. Given that most of these teachers endorsed student-centered practices, this finding is not surprising. Teachers were much more likely to cover the required standards in light of what the student already knew and what they needed to know next rather than adhering to a pacing guide set forth at the district level. One curriculum-based belief that aligned with teachers' self-reported practice related to the idea of "trusting the experts" who designed the curriculum. Most teachers did not believe they should simply "trust the experts" who designed the curriculum nor did they believe they should rely solely on the modifications offered by the instructional programs. Their reported practices about modifications aligned with this belief statement. Most teachers did not rely solely on the instructional program to offer modifications to meet a range of needs among the learners.

Significance of the Study

In light of the movement by states to adopt a common set of standards, teacher educators, policy makers, and school administrators need to understand how the movement might influence teacher decision making and consequently teaching and learning. This study provides evidence of how state standards are already influencing teachers' decision making.

This study also provides data about the impact of the school culture on teachers' decision making. To better understand these influences, teacher educators can work more closely with public school partners to identify the demands placed on teachers while forging partnerships that help teachers feel more empowered as professionals.

Finally, this study asked teachers to report on their beliefs and practices, allowing the researcher to note discrepancies between the two. Follow up studies will help to develop understanding about how to better assist teachers as they navigate these disparities and work to bring their practices more in line with their beliefs.

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Table 1.
Profile for Teacher Decision Making

		Student-Centered (SC)	Standards-Based (SB)	Curriculum-Based (CB)
BELIEFS (B)	Number of Questions	10	10	10
	Example	When planning lessons, teachers should think first about what the students know and then about what they need to know next.	The main goal for teachers should be to plan and organize tasks so that students can attain the standards for that subject and/or grade level	Scripted lessons help the teacher prepare and deliver focused lessons
PRACTICE (P)	Number of Questions	5	5	5
	Example	When teaching, I base my teaching decisions on ongoing feedback (verbal and nonverbal) that I receive from my students.	When teaching, I begin my planning with the standards for my grade level and subject area	When teaching, I trust the experts who designed the instructional program adopted by my school.
	Follow-Up	I do this, a. because I believe it is the right thing to do. b. because I am told to do it by my school administration and/or by the adopted curriculum. c. because I believe it is the right thing to do AND it is mandated by my school administration and/or by the adopted curriculum		

Table 2

Comparison between Respondents' Student-centered Beliefs Scores and Standards-based Scores

Scores	n	Mean (sd)	<i>t</i>	<i>p</i>
Student-centered	78	3.526 (0.368)	13.235	0.000
Standards-based	78	2.755 (0.417)		

Table 3

Student-centered Beliefs Scores by Group

Group	n	Mean SCB (sd)	<i>t</i>	<i>p</i>
Elementary	59	3.508 (0.358)	0.775	0.44
Other	28	3.444 (0.363)		

Table 4

Standards-based Beliefs Scores by Group

Group	n	Mean SCB (sd)	<i>t</i>	<i>p</i>
Elementary	59	2.750 (0.455)	-0.185	0.85
Other	28	2.767 (0.332)		

Table 5

Curriculums-based Beliefs Scores by Group

Group	n	Mean SCB (sd)	<i>t</i>	<i>p</i>
Elementary	59	2.274 (0.471)	-1.031	0.306
Other	28	2.381 (0.405)		

Academic Achievement of NCAA Division III Athletes

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Abstract

A study of 215 athletes at a small private liberal arts Division III college revealed that athletes (a) begin their college experience with SATs no different from non-athletes; (b) attain GPAs that do not significantly differ from those of nonathletes; (c) achieve GPAs that do not significantly differ between their “in-season” semester and their “off-season” semester, and (d) perceive their GPA as important to their college and future success. These results indicate that Division III athletes are a valuable and important group of students who exhibit “sustainable” behavior as part of their college experience. The sustainability and growth of Division III institutions can rely on the recruitment of athletes to increase student numbers and revenue while maintaining the prestige and mission of the school.

The topics of academic performance and perceptions of athletes about GPA are areas that have been investigated by many researchers in Division III sports programs throughout the United States. Some studies have asserted that academic performance has been enhanced by student-athletes' participation in the varied sports programs while other studies have indicated a decline in this area due to the student-athletes' multi-faceted roles at Division III institutions.

Because of time demands placed on athletes, many researchers are concerned that athletes' GPAs will suffer, especially when the athletes are in season. Much research has been conducted on the academic performance of athletes, comparing GPA and SAT. The mission of Division III athletic programs goes hand-in-hand with the ethos of many small private liberal arts colleges in that athletics is seen as a valuable component of the athlete's overall educational experience and the student-athletes will be able to successfully complete their academic programs (NCAA mission statement). Despite the clarity of the Division III philosophy and the rules it has imposed to safeguard academic performance, evidence indicates student-athletes underperform as compared to their nonathletic peers (Aries, et al., 2004; College Sports Project, 2009; Shulman & Bowen, 2001). The College Sports Project (2009) reported a “consistent and widening academic performance gap between athletes and nonathletes” in a five-year longitudinal study of Division III schools. The Project examined the GPAs of athletes and nonathletes at 77 of the 447 Division III institutions where 80% of the institutions are private and only 20% are public. The most noticeable differences were found between GPAs of male athletes and male nonathletes. There was a smaller gap (reported as modest) between the female athletes and nonathletes. One important criterion to regard during the review of this study was the breakdown of data based on “institutional selectivity”. Schools' “institutional selectivity” was categorized by the use of

athletes' and nonathletes' combined SAT scores. Institutions with students who scored an average combined SAT score greater than 1250 were deemed "highly selective institutions". The GPA difference between student-athletes and nonathletes in this category was reported to be much greater than for those institutions labeled "less selective" with an average combined SAT of 1150 or lower. The CSP (2009) analysis concluded that SAT scores and precollege aptitude may be among the factors but do not fully account for the differences when comparing the GPAs of athletes and nonathletes. While the CSP (2009) analysis reviewed 77 schools, the CSP (2010) included 84 NCAA Division III colleges and universities. The CSP (2010) indicated similar findings to the 2009 report in terms of GPA differences.

Similarly, Umbach et al. (2006) used a national sample of athletes and nonathletes in Divisions I, II, III, and the NAIA to compare their academic achievement. Umbach et al. concluded that even after "controlling for pre-college achievement (SAT), male athletes earn lower grades and the gap between male athletes and nonathletes is greatest at Division III and NAIA schools" (p. 17). For all divisions, the data showed that female athletes and female nonathletes had similar grades.

Conversely, Hood, Craig, and Ferguson (1992) reported no differences in GPAs between athletes and nonathletes when SAT was "controlled for" first-year students. Additionally, no differences in GPAs were found by Richards & Aries (1999) in a study of 219 seniors (73 athletes and 146 nonathletes) at one Division III institution. The results indicated no significant difference between the GPAs of graduating athletes and of nonathletes, even though the athletes entered college with significantly lower combined math and verbal SAT scores than did nonathletes. Robst & Keil (2000) examined athletes' grades and graduation rates at a single Division III institution and found athletes had higher GPAs and higher graduation rates than nonathletes. From these studies, it is evident that certain variables, such as SAT scores, student classification, college size, population samples, and institutional selectivity affect the findings in regard to athlete vs. nonathlete GPAs.

The academic requirements at various Division III Colleges hold students to a very high standard of academic excellence. This is consistent with the findings of Umbach et al. (2006) who reported that both male and female students at Division III schools reported higher levels of academic challenge; furthermore, male and female student-athletes at Division III schools were more engaged than students at DI, DII, or NAIA schools in the following areas: levels of academic challenge, interaction with the faculty, engagement in active and collaborative learning activities, and gains in personal/social development. While Bowen & Levin (2003) found Division III athletes did not participate in effective educational practices to the same extent as nonathletes, Schroeder (2000) found that athletes spent an average of 15 hours per week studying, and that the majority of athletes earn GPAs exceeding 3.0. Moreover, Hada & Bauer (2006) indicated that Division III athletes showed a slight but not significant increase in their GPAs during their competitive season due to improved time-management skills and more time studying.

The researchers in this current study will ascertain the academic performance and perceived importance of GPA of athletes at a small private liberal arts college located in southern California using qualitative and quantitative research tools.

Methods

Participants

The target population for this study was Division III student-athletes at a small liberal arts college in Southern California. This college has approximately 1300 students, one-third of who participate in intercollegiate athletics. The college athletic department offers 21 sports, 11 male programs and 10 female programs. The sample consisted of 215 participants, 146 of whom were males and 69 were females. Of the 215 participants, 175 matriculated as freshman at the present college. The participants were: 62 freshmen, 63 sophomores, 54 juniors, and 36 seniors. Sports represented in this study include baseball, men's and women's basketball, men's and women's cross country, football, golf, men's and women's lacrosse, softball, men's and women's tennis, men's and women's track and field, men's swimming and diving, volleyball, men's and women's water polo, and men's and women's soccer.

Measures

The Athletic and Activity Participation Questionnaire was developed specifically for this exploratory study. The questionnaire was designed to elicit responses in the categories of athletic participation, academic load, time spent outside athletics, and importance of grade point average.

Data was also gathered from other campus resources. Information was collected from: the registrar's office, admissions' office, and the athletic department to ascertain the academic performance of the athletes during the 2009-2010 academic year.

Procedures

After seeking and receiving study approval from the Institutional Review Board/Human Subjects Protection Committee, the authors asked permission from the various coaches of the athletic teams to administer the survey to their athletes. Throughout the 2009-2010 academic year, the authors meet with the athletic teams to complete the survey during a team meeting. The student-athletes participated in the study voluntarily and the survey took approximately 15 minutes to complete. The participants were informed that their answers would remain confidential and their names would not be used in any published reports. After the surveys were completed, the participants' cumulative grade point averages as of the end of the spring semester and SAT/ACT scores were obtained from the registrar's office at the institution.

Data Analysis

To explore the relationship between SAT scores, hours spent studying, and perceived importance of GPA to overall cumulative GPA, Pearson Product Moment correlations were conducted. Paired sample t-tests were used to test the significance between hours spent on various activities while in-season versus during the off-season, GPAs of athletes and nonathletes, and GPAs of

athletes when in-season and off-season. In addition, descriptive statistics were carried out on the questionnaire items.

Results

Descriptive Statistics

During the 2009-2010 academic year, the college enrollment was 1335 students of which 406 were athletes (30.4% of the student population) and 929 were nonathletes (69.6% of the student population). The average number of credits taken by athletes was 13.5 and by nonathletes was 13.6. Data for the sample population of athletes found that the largest percentage of student-athletes (39.1%) was registered for 13 credit hours; however, 70% of the athletes registered for a “1 credit” in-season sport course. Also, the largest percentage of student-athletes (50.8%) said they spent 13-16 hours per week in class and labs. The average scores for the SAT exam for athletes were: Verbal = 507 and Math= 535, Total = 1040; and non-athletes Verbal = 535 and Math = 535;

total =1069. The average overall cumulative GPA for athletes was 2.88 (males = 2.76; females = 3.00) and for nonathletes 2.91 (males = 2.81; females = 3.01).

Grade Point averages for the athletes were compared during in-season and off-season. Athletes’ GPAs in-season were 2.81 and during off-season they compiled a 2.88 GPA.

Mean scores were found for questions related to student athletes’ perceived importance of GPA. On a scale of 1= not at all to 5= very important, in response to the question “How important is your GPA to you?,” athletes reported a mean score of 4.60.

Relationship between Importance of GPA, SAT score and GPA

Examination of the Product Pearson Moment Correlation revealed a positive correlation between the student-athletes perceived importance of their GPA, SAT scores and overall cumulative GPA.

Discussion

The purpose of this study was to investigate the academic achievement of athletes and nonathletes. The study reveals that Division III liberal arts athletes at this college (a) begin their college experience with SATs no different from non-athletes; (b) attain GPAs that do not significantly differ from those of nonathletes; (c) achieve GPAs that do not significantly differ between their “in-season” semester and their “off-season” semester, and (d) perceive their GPA as important to their college and future success.

Academic Achievement

Using the criteria of “institutional selectivity” as defined in the CSP report; this college would be labeled “less selective”, with average SAT scores at admission of 1150 or lower. The findings in this study agree with the findings of the CSP (2009 & 2010), Hood, Craig, and Ferguson (1992), and Richards and Aires (1999) in that cumulative GPA scores for athletes (2.88) and nonathletes (2.92) were not significantly different. The male athletes GPA scores (2.70) were lower than the male non-athletes (2.81), female athletes (3.00) and the female nonathletes (3.01). This study agrees with the Umbach et al (2006) findings that male athletes earn lower GPA scores but it does not agree with his conclusion that the gap between male athletes and nonathletes is greatest at Division III institutions, nor does it agree with athletes having higher GPAs than nonathletes (Robst & Keil, 2000).

In terms of academic performance comparing in-season to off-season, the data reveals that athletes actually perform somewhat better, measured by GPA scores, when they are in the off-season (in-season = 2.81 vs. off-season = 2.88). This finding is evident of a small increase in GPA during the off-season but was not found to be statistically significant. These results are in direct opposition to Hada and Bauer’s (2006) findings that Division III athletes achieved a slight increase in their GPAs during the competitive season.

The admissions criteria for this college in terms of the predictors of college success such as GPA (SAT scores) seem to be fairly consistent. Therefore, based on entering scores, the predicted success of athletes and non-athletes in the academic curricular was positive. All three areas of the SAT (verbal, math, & writing) had a positive correlation to earned GPA, significant at the .01 level. The athletes reported that their GPA was highly important for success in college. The athletes’ perceived importance of GPA to earned cumulative GPA was a positive correlation significant at the .05 level. The majority of athletes (80%) perceived the curriculum as very challenging, requiring them to devote a great deal of time focusing on their course work. The time attributed per day to studying was approximately 3.5 hours for in-season and for off-season was almost 4 hours. If the athletes studied 5 days per week for 3.5-4.0 hours each day they would be studying 17.5-20 hours per week. Study time (17.5-20 hours) and class time (13-16 hours) per week for athletes was very similar (30.5-36 hours per week) to the findings of the College Project (2009) of 39.4 hours a week attributed to academics for Division III athletes. These findings agree with Umbach et al. (2006) who found that male and female students at Division III schools reported higher levels of academic challenge. This was especially noted by the transfer athletes who entered the college from the community college system.

Future Research

Since this study was conducted on a single institution, replication studies are needed to determine if these results hold for other Division III liberal arts institutions. Continued investigation of this segment of the student population will provide greater insights into the importance and impact athletes have on the campus as a whole. A greater understanding of these topics may be attained by comparison between and within each classification (Freshman, Sophomore, Junior, & Senior) and between and within individual and team sports. In order to investigate these topics more fully, the enhancement of the present questionnaire will be

developed to gather more detailed responses from the athletes and the development of a second questionnaire to obtain similar information from nonathletes for comparison purposes. Besides investigating athletes and nonathletes at the institution, the authors intend to explore the perceptions of faculty in regard to expectations of athletes in the areas of attendance, participation in class, participation in group projects and/or research, and the general concern for the athletes' academic success.

The sustainability and growth of Division III institutions can rely on the recruitment of athletes to increase student numbers and revenue while maintaining the prestige and mission of the school. The cross-disciplinary approach of liberal arts institutions provides a challenging educational curriculum. Athletes have the opportunity to succeed in the classroom as exhibited by the similar GPAs of athletes and nonathlete.

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Table 1.
Grade Point Averages of Athletic Teams

Men's Sports	GPA	Women's Sports	GPA
Baseball	2.80	Softball	2.91
Basketball	2.72	Basketball	2.87
Cross Country	3.08	Cross Country	3.02
Football	2.58	NA	
Golf	2.79	No Women	
Lacrosse	2.65	Lacrosse	3.19
Soccer	2.83	Soccer	3.10
Swimming	2.58	Swimming	3.18
Tennis	3.00	Tennis	3.27
Track & Field	2.69	Track & Field	3.00
Water Polo	2.56	Water Polo	2.56
		Volleyball	2.87
Average GPA	2.76		3.00
Cumulative Average GPA for Men and Women	2.88		

Table 2.
Mean Comparison of Athletes GPAs In-season and Off-season

GPAs	Mean	Std. Deviation	sig. (2 tailed)
In-Season	2.8085	.83402	.132
Off-Season	2.8799	.64258	

Table 3.
Correlations of Select Variables with Overall GPA

	GPA
1. GPA Importance	0.15*
2. Verbal SAT	0.39**
3. Math SAT	0.33**
4. Writing SAT	0.49**

Note: * significant at .05 ** significant at .01

The Effect of Therapy Balls on the Classroom Behavior and Learning of Children with Dyslexia

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Abstract

The purpose of this study was to determine if the behavioral and learning benefit found from the use of therapy balls as classroom seats in children with attention deficit and hyperactivity disorder (ADHD) (e.g., Schilling, Washington, Billingsley, & Deitz, 2003) generalizes to children with dyslexia who suffer from similar attention problems as children with ADHD (e.g., Germano, Gagliano, & Curatolo, 2010). We found a positive impact of therapy balls on behavior from the independent observers' and teachers' perspectives in two classes. Although there was no significant improvement in reading comprehension or in student self-reports of behavior, most students indicated an improvement in attention and motivation and a preference for their continued use. Results are discussed in terms the importance of evaluating the individual needs of the students when determining whether the therapy balls should be used as a sensory modulation technique in the classroom.

Dyslexia is a specific learning disorder characterized by a pattern of difficulties with word recognition and spelling despite adequate intelligence and educational instruction (American Psychiatric Association, 2013). In addition to reading impairments, children with dyslexia also suffer from other attention deficits that might impair the learning process, including slower visual and auditory attention (Facoetti, Lorusso, Cattaneo, Galli, & Molteni, 2005), problems with fast attention shifts (for review see Jaskowski & Rusiak, 2005), slower mental rotation (Kershner, 1979), and greater cognitive impulsivity (for review see Donfrancesco, Mugnaini, & Dell'Uomo, 2005).

Others report that children with learning disabilities in reading tend to behave more impulsively in the classroom (Routh, 1979) and are more distractible and hyperactive (Kavale & Forness,

1996). Children with dyslexia are often also diagnosed with ADHD (Willcutt & Pennington, 2000a), with reported rates of comorbidity ranging from 16.9% (Germano et al., 2010) to 20% (Karande et al., 2007). Others report that children or adolescents with dyslexia are more withdrawn, anxious, and depressed, and have more somatic complaints, social problems, and attention problems (e.g., Dahle, Knivsberg, & Andreassen, 2011). There are also reports of more aggressive and rule breaking behaviors (Willcutt & Pennington, 2000b). Given these cognitive and behavioral issues, it is important to explore classroom techniques that might improve the attention, engagement, behavior, and learning of children with dyslexia.

Some physical and occupational therapy researchers suggest that children with attention problems suffer from sensory modulation deficits (e.g., Mulligan, 2001) and move excessively in order to increase stimulation (Zentall, 2007). In support of Optimal Stimulation Theory (for review see Kercood, Grskovic, Lee, & Emmert, 2007), physical activity (e.g., yoga) appears to have a calming effect on children with ADHD (Jensen & Kenny, 2004). Within the context of the classroom, others report the effectiveness of various sensory processing techniques (e.g., Watling, Deitz, Kanny, & McLaughlin, 1999) (also called sensory modulation strategies) designed to provide learning disabled children with the sensory input needed to maintain effective arousal states, appropriate classroom behavior, and academic performance.

One classroom intervention that has shown some promise in improving attention, behavior, and some learning outcomes in children with attention or behavior problems (e.g., ADHD, Specific Learning Disabilities in reading or math, or Autism Spectrum Disorder (ASD)) is the use of therapy balls in place of classroom seats. In addition to the emission of excess energy, the reported benefits of therapy balls in the classroom include improved focus (Fedewa & Erwin, 2011; Schilling et al., 2003; Schilling & Schwartz, 2004), engagement (Fedewa & Erwin, 2011; Schilling & Schwartz, 2004), in-seat behavior (Fedewa & Erwin, 2011; Schilling et al., 2003; Schilling & Schwartz, 2004), legible word productivity (Schilling et al., 2003), and listening comprehension (Kercood & Banda, 2012). The therapy balls are believed to have these benefits because they require the appropriate implementation of physical activity in the classroom allowing the children to emit excess energy in order to attain and sustain an optimal level of arousal needed for learning (Mulligan, 2001).

Although several researchers have reported positive benefits of therapy balls, it is important to note that in addition to a small sample sizes, the majority of these studies were exclusively qualitative in nature, as the researchers did not conduct any significance tests (with the exception of the hyperactivity scores in the Fedewa and Erwin (2011) study). Therefore, it is unclear whether the reported improvements in attention, learning, behavior, and social validity were of any practical significance. Also because the studies did not include more than one sample, there is no way to discern if the improvements would generalize to other children with similar attention problems or to other classrooms with different student dynamics and teaching styles. In only two of the studies (Schilling & Schwartz, 2004; Schilling et al., 2003) did the samples entirely consist of children who had a formal diagnosis of an attention problem in either the form of ADHD or ASD. In the majority of the studies (with the exception of Fedewa and Erwin, 2011) the teachers' social validity reports and preferences were based on teacher comments instead of quantitative, scaled measures.

Finally, to date there is no specific research on the use of therapy balls on children with dyslexia. There are several reasons to believe that children with dyslexia will exhibit similar improvements from the use of therapy balls as children with attention problems in the previously described studies. In addition to the high rate of comorbidity between dyslexia and ADHD, like those with ADHD, participants with dyslexia yield similar time on task behavior (Dhar, Been, Minderaa, & Althaus, 2010), have similar cognitive deficits and slower processing speeds (Willcutt et al., 2010), and fail to develop age appropriate reading skills (Robertson & Joannis, 2010).

Given the aforementioned gap in the literature, the purpose of the current study was to determine the influence of therapy balls on measures of desirable (e.g., *staying in seat*) and undesirable classroom behaviors (e.g., *talking off topic to classmate*), and reading comprehension in two samples of fifth grade students with dyslexia (with and without a diagnosis of ADHD). Although Schilling and colleagues (2003) found an improvement in legible word productivity and Kercood and Banda (2012) found an improvement in listening comprehension, to date no researchers have examined reading comprehension as a learning outcome.

In addition to examining a sample of children with dyslexia, we also improved the scientific rigor of the aforementioned studies by increasing the sample size and objectively measuring behavior from three different perspectives (i.e., independent observers', students', and teachers' quantitative ratings). Also, in order to determine if the results generalized to other students, we included two samples of students from separate classrooms in a time series switching replication design so that the original control class utilized the therapy balls later in the study. With the exception of historical change patterns that match the time sequence of the treatment introductions, this design rules out the majority of threats to internal validity (see Shadish, Cook, & Campbell, 2002).

Method

Participants

Twenty-four fifth grade students (12 from each class) from a school for children with dyslexia participated in this study. All of the students were formally diagnosed with either dyslexia only or with dyslexia and ADHD. The dyslexia and ADHD comorbidity rate was 41.67% in one class and 50% in the other. The sample was 79.2% male and 20.8% female and ranged in age from 9-11 years ($M = 10$). Both classes followed the same curriculum and schedule, and had other similar demographic characteristics.

Apparatus

The therapy balls were systematically sized to each child using a standard height chart (adjusted by weight) so that each child could sit on the center of the ball with hips and knees at a 90-degree angle and feet flat on the floor.

Design and Procedure

We employed a time series (pretest–posttest control group) with switching replications design (shown below, where *T* is Time Wave and *X* is Treatment).

Class A	T ₁	X	T ₂		T ₃
Class B	T ₁		T ₂	X	T ₃

The three time waves of data collection (T₁, T₂, T₃) within the classrooms lasted 15 days each. In each time wave, we collected reading comprehension scores and behavioral data from the independent observers', teachers', and students' perspectives (see measures). After baseline measures were collected (T₁), Class A was randomly assigned to sit on the therapy balls between T₁ and T₂, while Class B sat on normal classroom chairs and served as the control. We then switched the conditions between T₂ and T₃ so that Class B sat on the balls while Class A served as the control. This second phase (T₂-T₃) allowed us to determine if there were any long-term benefits after the students returned to normal classroom chairs and to determine if the benefits observed in Class A (T₁-T₂) could be replicated in Class B (T₂-T₃).

Prior to the introduction of therapy balls, a certified fitness instructor showed the students how to properly sit on the balls (i.e., both feet flat on the floor with backs in a straight and upright posture position). In addition, students in the experimental conditions completed a post-treatment questionnaire designed to assess their seating enjoyment and preference.

Measures

Independent Observations of Undesirable Behavior

Prior to the study, the teachers and experimenters developed a list of 14 undesirable behaviors considered detrimental to the learning process such as “*not participating in choral activities*” and “*not sitting in the WOW position*”⁻¹ (see list of behaviors in Table 1). Five undergraduate research assistants from **Florida Southern College** served as independent observers in the study. As part of their training, the observers sat in each classroom for 45 minutes across three days in order to acclimate the students to the their presence, reduce demand effects (e.g., Steele-Johnson, 2000), and familiarize themselves with the environments and the 14 behaviors of interest. During the study, the observers conducted naturalistic observations in each classroom by recording the frequency with which the students engaged in any of the 14 undesirable behaviors. They observed behavior five times (each 35 minutes long) in both classrooms across each of the three time waves (for a total of 15 observation sessions per class). Two research assistants observed in each classroom in order to establish inter-rater reliability and they observed in both classrooms at the same time of day in order to control for time differences. Inter-rater reliability was high in both Class A (.79) and Class B (.74), indicating that the observers were consistent with each other in their observations within the classrooms.

Teacher Reports of Desirable Behavior

In each time wave, the teachers completed a 15-item questionnaire designed to measure the percentage of time that the teachers observed each student engaging in desirable classroom behaviors (e.g., *looking at the teacher when appropriate*) (see list of behaviors in Table 3). Using a 5-point Likert scale, from 1 (*never or 0% of the time*) to 5 (*always or 100% of the time*), the teachers were asked, “How often on average in the last time wave has the child exhibited the following behaviors?”

Student Self-Report of Desirable Behavior

In each time wave, the students completed a 15-item self-assessment of behavior (see Table 5). This questionnaire was identical in content (using the same Likert scale) as the teacher observation questionnaire except that it was designed to measure the percentage of time that each student believed that they engaged in desirable classroom behaviors (e.g., “How often on average in the last time wave did I look at the teacher when appropriate?”). We also included two questions designed to assess each student’s internal attention level (e.g., “My mind wandered during class”) and motivation level (e.g., “I felt motivated to complete my work to the best of my ability”). These two questions were averaged into a composite attention and motivation score.

Student Seating Enjoyment, Focus, and Preference

Following each treatment phase, the students in the experimental group completed a 3-item questionnaire designed to assess whether they enjoyed / liked using the therapy balls, whether it increased their focus, and whether they found the use of balls by their classmates distracting (reverse scored). The questionnaire utilized a 5-point Likert scale, from 1 (*not at all*) to 5 (*extremely*). An additional yes/no item assessed seating preference (e.g., “Would you like to continue using the therapy balls instead of classroom chairs?”).

Reading Comprehension

In each time wave, students in both classes completed three elementary grade level (first through fourth grade) reading comprehensions tests as part of their normal curriculum. These tests consisted of 12 to 15 sequencing, multiple choice, and true/false questions from the source, “*Reading Comprehension in Varied Subject Matter*” (Ervin, 1997). The tests assessed ability to comprehend the information (e.g., identify the main idea) from one to two single spaced passages on various subjects (e.g., making the world flat). Students were given adequate time to read the passage and were then tested directly after.

Results

We transformed all of the data collected across all of the time wave observation periods (T1- T2 and T2- T3) into difference scores by subtracting the previous observation period data from the subsequent observation period data (e.g., T2 minus T1). Therefore, positive scores indicate an increase in that measure (e.g., behavior, attention, motivation, etc.) from the previous

observation phase (from either the independent observers', teachers' or students' perspective), and negative scores indicate a decrease in that measure.

There were no significant three-way interactions between diagnosis (dyslexia only, dyslexia and ADHD), time wave (T₁, T₂, T₃), and class (Class A, Class B) on any of the measures. In other words, there were no significant differences between children with dyslexia only and children with a dual diagnosis of dyslexia and ADHD on any of the measures we collected. Therefore, we present the results of the data analysis without diagnosis as a variable.

Independent Observations of Undesirable Behavior

The mean differences in observations of behavior, results of the planned comparisons, and effect sizes (*Cohen's d*) across all 14 behavioral indices from the T₁ to T₂ time waves are shown in Table 1 and time waves T₂ to T₃ are shown in Table 2. We computed a composite measure of undesirable behavior by summing the total number of undesirable behaviors that the research assistants observed across 14 individual behavioral dimensions. Data from all five observations sessions per time period in each class were included in a 2 x 3 repeated measures factorial ANOVA with time wave of observations of composite undesirable behaviors (T₁, T₂, T₃) as the within-subjects factor and Class (A, B) as the between subjects factor. There was a significant interaction between time wave and Class, $F(2, 16) = 12.81, p = .000, \eta_p^2 = .62$. Further analysis of this two-way interaction (see below) revealed that the assistants observed a significant decrease in undesirable behaviors overall (from baseline to treatment) in both classes (see last row of Tables 1 and 2).

Planned Comparisons: Independent Observations of Undesirable Behavior, T₁ to T₂

As shown in the composite score row at the bottom of Table 1, planned paired sample t-tests revealed that from T₁ to T₂, the research assistants observed significantly fewer undesirable classroom behaviors in the treatment class (Class A) overall (*Mean difference* = -12.00). A *Cohen's d* effect size of 2.83 indicated high practical significance of this reduction. Specifically, there was a significant reduction in the following four undesirable behaviors ($ps < .05$): (1) *looking away from teacher*, (2) *looking away from material*, (3) *fidgeting*, and (4) *displaying a negative attitude*. *Cohen's d* effect size values ranged from .64 to 4.95 for these four undesirable behaviors, suggesting moderate to high practical significance of these reductions. There was also a moderate reduction in *talking off topic to classmates* in the treatment condition that approached significance ($p = .080, d = .71$). Of the remaining nine non-significant comparisons ($ps > .05$), there was a moderate to large reduction ($ds > .50$) from T₁ to T₂ in five of the undesirable behaviors.

In contrast, the assistants did not observe significantly fewer undesirable behaviors in the control class (Class B, T₁ to T₂) overall (*Mean difference* = -2.17, $p = .860, d = .11$) (see bottom row of Table 1). Specifically, there was only a significant reduction in *looking away from teacher* and *responding inappropriately* ($ps < .05$). *Cohen's d* effect size values were 3.25 and 1.61 respectively, suggesting high practical significance of these two reductions. None of the other comparisons approached significance. Despite a reduction in two of the undesirable behaviors in

the control, there was a significant increase in *complaining* (with a large effect size of 2.56), and all other comparisons were not significant ($ps > .05$). Of the remaining 11 non-significant comparisons, there was a moderate to large increase ($ds > .50$) from T₁ to T₂ in four of the undesirable behaviors in the control condition.

Planned Comparisons: Independent Observations of Undesirable Behaviors T₂ to T₃

As shown in the composite score at the bottom of Table 2, the research assistants also observed significantly fewer undesirable behaviors overall from T₂ to T₃ in the treatment class (Class B) ($M = -34.90, p = .037$), and this reduction was large in size ($d = 1.83$). Specifically, there was a significant reduction in the following five undesirable behaviors in the treatment condition ($ps < .05$): (1) *responding inappropriately*, (2) *failing to raise hand*, (3) *getting out of seat*, (4) *fidgiting*, and (5) *complaining*. Cohen's d effect size values (.94 to 4.24) indicated large reductions in these five undesirable behaviors. There was also a large reduction in *talking off topic to classmates* in the treatment condition that approached significance ($p = .068, d = 1.41$). All other comparisons in the treatment condition were not significant ($ps > .05$). However, of the remaining 10 non-significant comparisons, there was a moderate to large reduction ($ds > .50$) from T₂ to T₃ in two of the undesirable behaviors in the treatment condition.

In contrast, they observed significantly more undesirable behaviors overall in the control class (Class A) ($M = 14.20, p = .029$), and this increase was large in size ($d = 1.80$) (see bottom row of Table 2). Specifically, there was a significant increase in the undesirable behavior of *not sitting in the WOW position* (with a large effect size of 2.30). There was also an increase in *fidgiting* and *talking off topic to classmates* that approached significance ($p = .080$ and $.053$, respectively) and Cohen's d effect size values of .94 and 1.68 (respectively) suggested large increases in these two undesirable behaviors. Of the 11 remaining non-significant comparisons ($ps > .05$), there was 0% change in four of the behaviors and there was a moderate to large increase ($ds > .50$) from T₂ to T₃ in three of the undesirable behaviors in the control.

Teacher Reports of Desirable Behavior

We computed a composite measure of teachers' reports of the percentage of time during the observation period that individual students exhibited desirable behaviors by averaging the teachers' rating of the 15 individual behavioral dimensions shown in Table 3. The average teacher ratings, results of the planned comparisons, and effect sizes (Cohen's d) across all 15 behavioral indices are shown in Table 3 (T₁ to T₂ times waves) and Table 4 (T₂ to T₃ time waves). A 2 x 3 repeated measures factorial ANOVA with time wave of teachers' composite reports of desirable behaviors (T₁, T₂, T₃) as the within-subjects factor and Class (A, B) as the between subjects factor, revealed a significant interaction between time wave and Class, $F(2, 44) = 6.45, p = .003, \eta_p^2 = .23$ (see last row of Table 3 and 4). Further analysis of this two-way interaction (see below) revealed that teachers reported a significant increase in desirable behaviors overall (from baseline to treatment) for both classes (see last row of Table 3 and 4).

Planned Comparisons: Teacher Reports of Desirable Behaviors, T1 to T2

As shown in the composite score in the bottom row of Table 3, planned paired sample t-tests revealed that there was a moderate, significant increase of 9.00% ($d = .68$) in the teacher's composite reports of the percentage of time that students exhibited desirable classroom behaviors for the treatment class (Class A) between T1 and T2. Specifically, there was a significant increase in the following eight desirable behaviors ($ps < .05$): (1) *sitting in the WOW position*, (2) *raising hand*, (3) *participating in choral activities*, (4) *staying in seat*, (5) *participating in conversations on topic*, (6) *talking on topic to classmate*, (7) *keeping hands to oneself*, and (8) *not complaining*. For seven of these eight behaviors, the Cohen's d effect size values ranged from .62 to 1.20, suggesting moderate to high practical significance. There was also an increase in the following four behaviors that approached significance ($ps < .09$): (1) *looking at teacher*, (2) *looking at materials*, (3) *completing assignments on time*, and (4) *responding appropriately*. Two of these increases were of moderate effect size ($ds > .50$). Of the remaining four non-significant comparisons ($ps > .05$), there was a moderate increase from T1 to T2 in *completing assignments on time* in the treatment condition ($d = .51$).

In contrast, there was no significant difference in teacher reports of desirable behaviors between T1 to T2 in the control class (Class B) overall ($M = -.71\%$, $p = .613$, $d = .06$) (see bottom row, Table 3). Specifically, there was a moderate, significant increase in *looking at the teacher* ($p = .039$, $d = .69$) and a moderate, non-significant increase in *looking at materials* ($p = .096$, $d = .65$). However, the behavior of *talking on topic to classmate* decreased significantly ($p = .039$, $d = .46$) and there was a moderate decrease in *sitting in the WOW position* that approached significance ($p = .104$, $d = .69$). Furthermore, all 11 of the remaining comparisons in the control condition from T1 to T2 were not significant and had small effect sizes ($ds < .35$).

Planned Comparisons: Teacher Reports of Desirable Behaviors, T2 to T3

As shown in the bottom row of Table 4, there was a significant increase of 4.25% in teacher's composite reports of percentage of time that student exhibited desirable behaviors between T2 and T3 for the treatment class (Class B), but this effect was small in size ($d = .31$). Specifically, there was a significant increase in the following three desirable behaviors: (1) *displaying a positive attitude*, (2) *talking on topic to classmate*, and (3) *keeping hands to oneself*. The Cohen's d effect size values ranged from .40 to .43, suggesting small practical significance. There was also a small increase in *not complaining* in the treatment condition that approached significance ($p = .082$, $d = .24$). All of the other comparisons in the treatment class from T2 to T3 were not significant ($ps > .05$), with small effect sizes ($ds < .35$). However, of the remaining 11 non-significant comparisons, there was a moderate increase from T2 to T3 in *sitting in the WOW position* in the treatment condition ($d = .58$).

In contrast, there was no significant difference in teacher reports of desirable behaviors between T2 and T3 in the control class (Class A) overall ($M = .04\%$, $p = .987$, $d = .00$). Specifically, although there was a moderate, significant increase in *not fidgeting* ($p = .017$, $d = .74$), there were either decreases or no changes in the remaining behaviors. For example, there was a moderate decrease in *participating in conversations on topic* that approached significance ($p =$

.082, $d = .55$) and although not significant, there was also a moderate decrease in *talking on topic to classmates* ($p = .137$, $d = .51$). All 11 of the remaining comparisons in the control class were not significant ($ps > .05$), and had small effect sizes ($ds < .42$).

Student Self-Report of Composite Desirable Behaviors

We computed a composite measure of student self-reports of the percentage of time during the observation period that they exhibited desirable behaviors by averaging across the 15 individual behavioral dimensions shown in Table 5. The average student ratings, results of the planned comparisons, and effect sizes (*Cohen's d*) across all 15 behavioral indices are shown in Table 5 (T1 to T2 time waves) and Table 6 (T2 to T3 time waves). We conducted a 2 x 3 repeated measures factorial ANOVA with time wave of students self-reports of composite desirable behaviors (T1, T2, T3) as the within-subjects factor and Class (A, B) as the between subjects factor. There was interaction between time wave and Class that approached significance, $F(2, 44) = 2.37$, $p = .11$, $\eta_p^2 = .097$. Further analysis (see below) revealed that there was only a significant increase in students' self-report of desirable behavior in the treatment condition (Class A) between T1 and T2.

Student Self-Report of Desirable Behaviors, T1 to T2

As shown in the bottom row of Table 5, planned paired sample t-tests revealed that in the treatment class (Class A) there was a significant increase of 7.92% in the students' self-reports of the percentage of time that they exhibited desirable classroom behaviors between T1 and T2. The Cohen's d effect size value of .93 suggested high practical significance of this increase in student self report. Specifically, there was a significant increase in the following four desirable behaviors: (1) *talking on topic to classmate*, (2) *keeping hands to oneself*, (3) *not complaining*, and (4) *asking related questions*. Cohen's d effect size values ranged from 1.41 to 2.33, suggesting large increases in these four behaviors. There was a large, significant reduction in *raising hands* ($p = .004$, $d = 1.41$) and a large reduction in *participating in choral activities* that approached significance ($p = .089$, $d = .87$). However, all nine of the remaining comparisons in the treatment condition were not significant ($ps > .05$), and eight of them had small effect sizes ($ds < .47$).

In contrast, there was no significant difference in student self-reports of desirable behaviors between T1 and T2 in the control class (Class B) overall ($M = 5.27\%$, $p = .142$, $d = .56$). There were large, significant increases in (1) *completing assignments on time*, (2) *talking on topic to classmate*, (3) *keeping hands to oneself*, and (4) *not complaining* ($ds = .77$ to 1.44). However, there was a large, significant decrement in *not fidgeting* ($p = .017$, $d = 1.46$), and a large, decrement in *displaying a positive attitude* that approached significance ($p = .056$, $d = .92$). All nine other comparisons in the control condition between T1 and T2 were not significant ($ps > .05$), and six had small effect sizes ($ds < .42$).

Student Self-Report of Desirable Behaviors, T2 to T3

As shown in the bottom row of Table 6, there was a small, non-significant increase of 5.15% (p

= .159, $d = .46$) between T2 and T3 in students' composite self-reports of desirable behaviors in the treatment class (Class B) overall. Although there were moderate, significant reductions in *responding appropriately* and *not fidgeting* ($p = .034$, $d = .69$ and $p = .044$, $d = .66$, respectively), all of the other 13 comparisons in the treatment condition between T2 and T3 were not significant ($ps > .05$) and 10 had small effect sizes ($ds < .48$).

In contrast, there was a moderate decrease of -4.73% ($d = .56$) in self-reports of desirable behaviors in the control class (Class A) between T2 and T3 that approached significance ($p = .09$). Specifically, there was a significant decrement in *sitting in the WOW position* and *displaying a positive attitude towards learning*. The Cohen's d effect size values of .88 and 1.16 (respectively) suggested high practical significance of these reductions. Although, there was a moderate increase in *raising hand when responding* that approached significance ($p = .05$, $d = .66$), all of the other 13 comparisons in the control condition between T2 and T3 were not significant ($ps > .05$) and 11 had small effect sizes ($ds < .49$).

Student Self-Report of Attention and Motivation

We computed a composite measure of student self-report of the percentage of time during the observation period that they were attentive and motivated by averaging across the two questions that assessed attention and motivation. A 2 x 3 repeated measures factorial ANOVA with time wave of student self-report of composite attention and motivation (T1, T2, T3) as the within-subjects factor and Class (A, B) as the between subjects factor, revealed a significant interaction between time wave and Class, $F(2, 44) = 7.59$, $p = .001$, $\eta_p^2 = .26$.

Planned comparisons revealed that between T1 and T2 there was a significant increase of 13.54% in student self-reports of attention and motivation in the treatment condition (Class A) from T1 ($M = 53.65\%$, $SD = 7.75$) to T2 ($M = 67.19\%$, $SD = 11.03$), $t(11) = -2.60$, $p = .025$. A Cohen's d effect size value of 1.42 suggested a high practical increase in attention and motivation in the treatment condition. In contrast, there was a significant, large decrement in attention and motivation (-13.02%) between T1 ($M = 65.12\%$, $SD = 11.45$) and T2 ($M = 52.08\%$, $SD = 16.50$) in the control condition (Class B), $t(11) = 2.23$, $p = .047$, $d = .92$.

There was less of an impact of treatment on students' self-reports of attention and motivation between T2 and T3. In the control condition (Class A, T2 to T3), there was no change in attention and motivation (0%) between T2 and T3 ($M = 67.19\%$, $SD = 11.96$), $t(11) = .00$, $p = 1.00$, $d = .00$. In contrast, there was an increase of 6.25% in student self-reports of attention and motivation between T2 and T3 ($M = 65.12\%$, $SD = 11.45$) in the treatment class (Class B), $t(11) = -1.27$, $p = .230$. Although this increase in attention and motivation was not significant, a Cohen's d value of .92 suggested that this increase in the treatment condition was of large practical significance.

Student Seating Enjoyment and Focus

On a 5 point Likert scale where 1 was the "least enjoyable / focused – attentive" and 5 was the "most enjoyable / focused-attentive," students reported an average enjoyment level of 3.96 ($SD =$

1.12) and an average focus - attentive level of 3.88 ($SD = 1.30$) while sitting on the therapy balls. On a 5 point Likert scale, where 1 was “*strongly disliked the therapy balls*” and 5 was “*strongly liked the therapy balls*,” students reported an average likeability rating level of 3.71 ($SD = .85$). Both classes reported high positive reactions to the use of the therapy balls because a series of between subject ANOVAs revealed that neither enjoyment ratings, $F < 1$, nor focus - attentive ratings, $F(1, 22) = 3.30, p = .080, \eta^2 = .13$, nor likeability ratings differed significantly as a function of Class, $F < 1$.

Student Seating Preference Frequencies

According to a chi-square analysis, significantly more students reported a desire to continue using the therapy balls ($n = 19$) than students who reported a desire to return to their regular classroom chairs ($n = 5$), $\chi^2 = 8.17, p = .004$. However, unlike the ratings of enjoyment, preference frequencies did vary as a function of Class: significantly more Class A students indicated a desire to continue using the balls ($n = 10$) than students who wanted to return to their normal chairs ($n = 2$), $\chi^2 = 5.33, p = .021$, but in Class B this preference for the therapy balls only approached significance, (9 vs. 3), $\chi^2 = 3.00, p = .083$.

Reading Comparison

A 2 x 3 repeated measures factorial ANOVA with time wave of reading comprehension scores (T₁, T₂, T₃) as the within-subjects factor and Class (A, B) as the between subjects factor revealed no significant interaction between time wave and Class, $F < 1$. Paired sample t-tests also revealed no significant improvement in reading comprehension scores between T₁ ($M = 90.02, SD = 7.93$) and T₂ ($M = 86.08, SD = 8.39$) in the treatment class (Class A), $t(11) = 1.92, p = .08, d = .48$, or between T₁ ($M = 86.61, SD = 9.28$) and T₂ ($M = 83.96, SD = 14.83$) in the control class (Class B), $t(11) = .68, p = .510, d = .21$. There was also no significant improvement in reading comprehension scores between T₂ and T₃ ($M = 82.08, SD = 14.47$) in the treatment class (Class B), $t(11) = .41, p = .690, d = .13$, or between T₂ and T₃ ($M = 83.55, SD = 8.32$) in the control class (Class A), $t(11) = 1.10, p = .291, d = .30$.

Discussion

With the exception of the students' self-ratings of behavior, the behavioral results and the students' attention and motivation reports and seating preferences support the use of therapy balls in the classroom. The results of both the independent observations and the teacher reports suggest that the therapy balls significantly improved behavior in both classrooms. Importantly, by replicating the overall results in Class B, we provide evidence that the benefits were not class, student, or teacher specific. These results are consistent with previous research showing a behavioral benefit from the use of therapy balls in the classroom on children with attention issues (e.g., Schilling et al., 2003). The behavioral benefits in our study did not depend on the presence of ADHD, for students with dyslexia only, yielded the same improvements as those who also had an ADHD diagnosis. Thus, our results provide evidence that the behavioral benefit found in other studies on children with ADHD or ASD also generalizes to children with dyslexia only as well as those with a dual diagnosis of dyslexia and ADHD.

Although both classes benefited from the use of therapy balls, each class exhibited a unique

pattern of improvement. However, the differential benefits we found as a function of class are most likely due to different levels of specific behaviors during baseline. A review of the research assistants' data, for example, revealed that a class failed to exhibit a decrease in a specific undesirable behavior because they either exhibited that problem behavior at a very low rate or not at all during baseline (i.e., a floor effect). For example, Class A exhibited *complaining about school work* at a very low rate during baseline ($M = .33$, $SD = .41$), while Class B exhibited this behavior at a higher rate ($M = 1.50$, $SD = .50$). This meant that although both Class A and B exhibited reductions in *complaining about school work* post-treatment (*mean difference* = $-.13$ and -1.50 , respectively), only Class B exhibited a statistically significant reduction because Class A's baseline was near the floor. This floor effect left relatively little quantitative "room" for a reduction in *complaining* behavior post-treatment in Class A. In short, there was only a significant reduction in the undesirable behaviors that appeared to be problematic for the class (A or B) at baseline.

Similarly, our failure to find a significant improvement in some of the teacher's report of a specific behavior was the result of a ceiling effect or a high reported rate of that behavior during baseline, that left little statistical room for improvement of that behavior during treatment. In support of this explanation, there was only a significant increase in the desirable behaviors that the teachers reported at a lower rate during baseline. Overall, the results of the independent observations and teacher reports, suggest that therapy balls can be used to modify any number of different behaviors within the context of a classroom.

Students' subjective reports of behavior paralleled those of the teachers and the research assistants, but to a much lesser degree and with not as much consistency. However there are reasons to question the validity of the student data. For example, the teachers had to read some of the items on the student self-report questionnaire to the students because they had difficulties reading and understanding some of them. Because the students' reading comprehension levels ranged from first to fourth grade, it was difficult to construct a questionnaire that not only mirrored the behaviors assessed on the teachers' report, but that also matched each student's reading level. It is therefore unclear whether our null effect with regard to students' self report was in fact credible (i.e., the students did not perceive an improvement in their behavior) or whether the results reflect a lack of understanding of the questions. In addition to misunderstanding some items, the students had relatively little experience answering Likert scaled items. Future research should include a manipulation check to ensure that the students truly understand the questions and student training on how to answer Likert scaled items. In addition to improving the validity of the student questionnaires, we propose adding parental screenings of behavior (Reddington & Wheeldon, 2002).

Although students' subjective reports of behavior failed to completely mirror the observations of the research assistants or the teachers, the students reported high levels of enjoyment and focus while seated on the balls. The majority of students also clearly preferred the balls to normal classroom seats. Furthermore, the students in both classes also indicated improvements in attention and motivation. Thus the majority of the present findings support the use of therapy balls in the classroom.

While the behavioral, attention, and motivation results of the experiment could be due to maturation (i.e., students growing older and behaving better as the experiment goes on), we can assume that both classes matured at the same rate. If maturation was responsible for improvements, then we would not have found improved behavior during treatment compared to control in both classes. Another argument against maturation as an explanation is the fact that the benefits of the balls were short-lived. After the balls were removed from Class A, the research assistants observed significantly more undesirable behaviors and the teachers reported decreases or no change in 14 desirable behaviors. If maturation was responsible for improvements, there would have been behavioral improvement in absence of the balls in the later time waves. Therefore, it is unlikely that the results are simply due to maturation.

We failed to find an impact of therapy balls on reading comprehension. This null learning result is inconsistent with the previous research showing a learning benefit in the form of legible word productivity (Schilling et al., 2003) and listening comprehension (Kercood & Banda, 2012). Therefore the learning benefit found in other studies may not generalize to reading comprehension skills. The high average score on the reading comprehension tests overall ($M = 85.38$, $SD = 10.54$) may account for our failure to find any significant improvement. Future studies might increase the number of reading comprehension measures (e.g., fluency or reading speed) (Cutting, Materek, Cole, Levine & Mahone, 2009) in order to more accurately determine the effects of therapy balls on reading comprehension as a learning outcome.

Poor motor coordination paired with abnormal eye movements might also explain why reading comprehension scores did not improve. Magnocellular theory lends support for the idea that the area in the cerebellum that controls reading deficits also controls difficulties in motor coordination (Benassi, Simonelli, Giovagnoli & Bolzani, 2010), motion coherence (Cornelissen, Richardson, Mason & Fowler, 1995), and mental rotation (Kershner, 1979). Researchers have also shown that dyslexics exhibit impairments if balancing is paired with another task (Kaltner & Jansen, 2014; Brookes, Tinkler, Nicolson, & Fawcett, 2010). Dyslexics also tend to have problems with fast attention shifts, symptoms of unilateral neglect syndrome and abnormal eye movements, which have all been linked to the parietal lobe (Jaskowski & Rusiak, 2005; Facoetti et al., 2005). Therefore, poor motor coordination, inhibited motion coherence, and abnormal eye movements could explain why reading comprehension did not improve while on the ball because the students may have found it difficult to read and balance simultaneously.

Overall our results support the use of therapy balls in the classroom for improving the attention, motivation, and behavior of children with dyslexia. Our results are noteworthy given that we observed benefits after only five days of treatment. However, it is important to note that not every child enjoyed or preferred sitting on the ball. Thus, educators need to evaluate the individual needs of their students when determining whether the balls should be used a sensory modulation technique.

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Footnote

⁻¹. WOW stands for “watch our writing” and includes the five following components: 1. Feet placed flat on the floor, 2. Back positioned straight but with slight arch at the top leaning toward paper, 3. Proper placement of writing hand and the “bossy” hand to guide the paper upright as one moves down the paper so as to keep the writing arm on the table instead of off the table, 4. Paper placed in correct direction, and, 5. Gripping pencil.

Table 1.

Independent observations of the differences in average number of undesirable behaviors from T₁ to T₂.

Undesirable Behavior	Class A				Class B			
	Mean Difference (SD)	t (4)	p	d	Mean Difference (SD)	t (4)	p	d
Looking away from teacher when inappropriate	-1.87(0.61)	6.89**	.002	2.25	-8.33 (1.96)	9.52*	.001	3.25
Looking away from materials when inappropriate	-2.13 (0.73)	6.53**	.003	4.95	1.33 (2.34)	-1.27	.273	0.68
Responding inappropriately	-1.20 (1.30)	2.06	.109	1.54	-1.92 (.72)	5.94*	.004	1.61
Not sitting in WOW position	-1.40 (2.61)	1.20	.296	0.96	0.17 (4.71)	-0.08	.941	0.05
Failing to raise hand when responding	-0.53 (0.93)	1.28	.269	0.55	1.92 (4.93)	-0.87	.434	0.58
Silent during choral activities	-0.67 (0.82)	1.83	.142	1.16	1.08 (1.48)	-1.64	.177	0.78
Getting out of seat when inappropriate	0.20 (0.45)	-1.00	.374	0.63	-0.08 (2.20)	0.08	.937	0.06
Not participating in conversations on topic	-0.13 (0.61)	0.49	.648	0.30	0.25 (2.86)	-0.20	.855	0.09
Fidgeting	-2.20 (1.10)	4.49*	.011	0.64	0.83 (1.26)	-1.48	.213	0.24
Talking off topic to classmate	-0.47 (0.45)	2.33	.080	0.71	0.75 (11.79)	-0.14	.894	0.10
Putting hands on classmate	0.00 (0.00)	0.00	1.00	0.00	-0.50 (1.50)	0.75	.497	0.63
Failing to complete assignments on time	-0.33 (0.41)	1.83	.142	1.14	0.50 (.50)	-2.24	.089	1.41
Complaining about work	-0.13 (0.18)	1.63	.178	0.30	1.17 (.50)	-5.22*	.006	2.56
Displaying negative attitude towards learning	-1.13 (0.73)	3.47*	.026	2.63	0.67 (1.47)	-1.01	.368	0.49
Composite negative behavior score	-12.00 (6.78)	3.96*	.017	2.83	-2.17 (25.22)	0.19	.860	0.11

Note. Bold indicates treatment phase. Class A received the therapy balls treatment during the T₁ to T₂ period. Difference scores were calculated by subtracting the T₁ observation period data from the T₂ observation data (T₂ – T₁). Therefore, positive scores indicate an increase in observations of undesirable behavior from T₁ to T₂, and negative scores indicate a decrease. Composite negative behavior scores were calculated by summing all of the 14 undesirable behaviors that were observed. *indicates a significant difference at the .05 level and **indicates a significant difference at the .01 level.

Table 2.

Independent observations of the differences in average number of undesirable behaviors from T₂ to T₃.

Undesirable Behavior	Class A				Class B			
	Mean Difference (SD)	<i>t</i> (4)	<i>p</i>	<i>d</i>	Mean Difference (SD)	<i>t</i> (4)	<i>p</i>	<i>d</i>
Looking away from teacher when inappropriate	0.00 (1.00)	0.00	1.00	0.00	-0.20 (2.28)	0.20	.854	0.15
Looking away from materials when inappropriate	1.20 (1.30)	-2.06	.109	1.38	-0.80 (1.30)	1.37	.242	0.37
Responding inappropriately	0.40 (.55)	-1.63	.178	0.41	-1.15 (.78)	3.29*	.030	0.94
Not sitting in WOW position	4.40 (2.41)	-4.09*	.015	2.30	-1.50 (3.39)	0.99	.379	0.41
Failing to raise hand when responding	0.00 (1.58)	0.00	1.00	0.00	-8.25 (4.66)	3.96*	.017	2.50
Silent during choral activities	0.20 (.45)	-1.00	.374	0.63	-0.35 (2.21)	0.36	.741	0.17
Getting out of seat when inappropriate	-0.20 (.45)	1.00	.374	0.63	-2.25 (1.79)	2.82*	.048	1.78
Not participating in conversations on topic	-0.20 (.46)	1.00	.381	0.63	-1.85 (4.21)	0.98	.382	0.66
Fidgeting	1.40 (1.34)	-2.33	.080	0.94	-5.30 (4.09)	2.90*	.044	1.85
Talking off topic to classmate	6.60 (5.41)	-2.73	.053	1.68	-9.75 (8.79)	2.48	.068	1.41
Putting hands on classmate	0.20 (.45)	-1.00	.374	0.63	0.50 (1.50)	1.29	.266	0.81
Failing to complete assignments on time	0.00 (.00)	0.00	1.00	0.00	-0.10 (1.24)	0.18	.866	0.14
Complaining about work	0.20 (.45)	-1.00	.374	0.40	-1.50 (.50)	6.71*	.003	4.24
Displaying negatives attitude towards learning	0.00 (.71)	0.00	1.00	0.00	-1.40 (2.88)	1.09	.338	0.86
Composite negative behavior score	14.20 (9.58)	-3.32*	.029	1.80	-34.90 (25.39)	3.07*	.037	1.83

Note. Bold indicates treatment phase. Class B received the therapy balls treatment during the T₂ to T₃ period. Difference scores were calculated by subtracting the T₂ observation period data from the T₃ observation data (T₃ – T₂). Therefore, positive scores indicate an increase in observations of undesirable behavior from T₂ to T₃, and negative scores indicate a decrease. Composite negative behavior scores were calculated by summing all of 14 observed undesirable behaviors. *indicates a significant difference at the .05 level and **indicates a significant difference at the .01 level.

Table 3.

Teacher reports of the average percent of time that students exhibited desirable behaviors from T₁ to T₂.

Desirable Behavior	Class A						Class B					
	T ₁ Mean (SD)	T ₂ Mean (SD)	Mean Difference (SD)	t (11)	p	d	T ₁ Mean (SD)	T ₂ Mean (SD)	Mean Difference (SD)	t (11)	p	d
Looking at teacher when appropriate	54.17 (20.87)	60.42 (22.51)	6.25 (11.31)	-1.92	0.082	0.29	56.25 (11.31)	64.58 (12.87)	8.33 (12.31)	-2.35*	0.039	0.69
Looking at materials when appropriate	54.17 (20.87)	60.42 (22.51)	6.25 (11.31)	-1.92	0.082	0.29	56.25 (15.54)	66.67 (16.28)	10.42 (19.82)	-1.82	0.096	0.65
Responding appropriately	52.08 (19.82)	62.50 (19.94)	10.42 (16.71)	-2.16	0.054	0.52	64.58 (12.87)	64.58 (12.87)	0.00 (10.66)	0.00	1.000	0.00
Sitting in WOW position	52.08 (12.87)	66.67 (16.28)	14.58 (12.87)	-3.92**	0.002	0.99	56.25 (15.54)	47.92 (7.22)	-8.33 (16.28)	1.77	0.104	0.69
Raising hand when responding	47.92 (16.71)	64.58 (16.71)	16.67 (16.28)	-3.55**	0.005	1.00	58.33 (16.28)	60.42 (12.87)	2.08 (16.71)	-0.43	0.674	0.14
Participating in choral activities	56.25 (18.84)	64.58 (16.71)	8.33 (12.31)	-2.35*	0.039	0.47	62.50 (16.86)	62.50 (13.06)	0.00 (15.06)	0.00	1.000	0.00
Staying in seat when appropriate	64.58 (12.87)	75.00 (0.00)	10.42 (12.87)	-2.80*	0.017	1.14	68.75 (11.31)	72.92 (12.87)	4.17 (9.73)	-1.48	0.166	0.34
Participating in conversations on topic	52.08 (19.82)	70.83 (9.73)	18.75 (15.54)	-4.18*	0.020	1.20	62.50 (16.86)	60.42 (12.87)	-2.08 (16.71)	0.43	0.674	0.14
Not fidgeting	47.92 (22.51)	50.00 (15.08)	2.08 (24.91)	-0.29	0.777	0.11	50.00 (15.08)	43.75 (24.13)	-6.25 (15.54)	1.39	0.191	0.31
Talking on topic to classmate	47.92 (19.82)	66.67 (22.19)	18.75 (24.13)	-2.69*	0.021	0.95	54.17 (14.43)	45.83 (20.87)	-8.33 (12.31)	2.35*	0.039	0.46
Keeping hands to oneself	91.68 (22.19)	77.08 (24.91)	14.58 (16.71)	-3.02*	0.012	0.62	75.00 (28.20)	77.92 (19.82)	2.08 (16.71)	0.43	0.674	0.12
Completing assignments on time	56.25 (26.38)	66.67 (12.31)	10.42 (16.71)	-2.16	0.054	0.51	62.50 (13.06)	64.58 (22.51)	2.08 (19.82)	-0.36	0.723	0.11
Not complaining about work	52.08 (19.82)	68.75 (21.65)	16.67 (16.28)	-3.55**	0.005	0.80	56.25 (24.21)	52.08 (24.91)	-4.17 (9.73)	1.48	0.166	0.17
Positive attitude towards learning	60.42 (12.87)	66.67 (16.28)	6.25 (15.54)	-1.39	0.191	0.43	52.08 (16.71)	47.92 (19.82)	-4.17 (9.73)	1.48	0.166	0.23
Asking related questions	66.67 (12.63)	70.83 (23.44)	4.17 (23.44)	-0.62	0.551	0.22	58.33 (24.62)	56.25 (24.13)	-2.08 (12.87)	0.56	0.586	0.09
Composite desirable behavior score (Teacher observation)	57.11 (12.63)	66.11 (13.69)	9.00 (8.75)	-3.56**	0.004	0.68	59.61 (11.91)	58.90 (12.65)	-0.71 (22.08)	0.52	0.613	0.06

Note. Bold indicates treatment phase. Class A received the therapy balls treatment during the T₁ to T₂ period. Difference scores were calculated by subtracting the T₁ observation period data from the T₂ observation data (T₂ – T₁). Therefore, positive scores indicate an increase in teachers' observations of desirable behavior from T₁ to T₂, and negative scores indicate a decrease. *indicates a significant difference at the .05 level and **indicates a significant difference at the .01 level.

Table 4.

Teacher reports of the average percent of time that students exhibited desirable behaviors from T₂ to T₃.

Desirable Behavior	Class A						Class B					
	T ₂ Mean (SD)	T ₃ Mean (SD)	Mean Difference (SD)	t (11)	p	d	T ₂ Mean (SD)	T ₃ Mean (SD)	Mean Difference (SD)	t (11)	p	d
Looking at teacher when appropriate	60.42 (22.51)	64.58 (12.87)	4.17 (14.43)	-1.00	0.339	0.23	64.58 (12.87)	64.59 (12.87)	0.00 (0.00)	0.00	1.000	0.00
Looking at materials when appropriate	60.42 (22.51)	64.58 (12.87)	4.17 (14.43)	-1.00	0.339	0.23	66.67 (16.28)	62.50 (13.06)	-4.17 (14.43)	1.00	0.339	0.28
Responding appropriately	62.50 (19.94)	64.58 (12.87)	2.08 (12.87)	-0.56	0.586	0.12	64.58 (12.87)	64.58 (16.71)	0.00 (.60)	0.00	1.000	0.00
Sitting in WOW position	66.67 (16.28)	70.83 (14.43)	4.17 (9.73)	-1.48	0.166	0.27	47.92 (7.22)	56.25 (18.84)	8.33 (19.46)	-1.48	0.166	0.58
Raising hand when responding	64.58 (16.71)	66.67 (12.31)	2.08 (16.71)	-0.43	0.674	0.14	60.42 (12.87)	64.58 (16.71)	4.17 (20.87)	-0.69	0.504	0.28
Participating in choral activities	64.58 (16.71)	62.50 (13.06)	-2.08 (12.87)	0.56	0.586	0.14	62.50 (13.06)	62.50 (16.86)	0.00 (10.66)	0.00	1.000	0.00
Staying in seat when appropriate	75.00 (0.00)	72.92 (7.22)	-2.08 (7.22)	1.00	0.339	0.41	72.92 (12.87)	72.92 (12.87)	0.00 (0.00)	0.00	1.000	0.00
Participating in conversations on topic	70.83 (9.73)	64.58 (12.87)	-6.25 (11.31)	1.92	0.082	0.55	60.42 (12.87)	62.50 (13.06)	2.08 (12.87)	-0.56	0.586	0.16
Not fidgeting	50.00 (15.08)	60.42 (12.87)	10.42 (12.87)	-2.80*	0.017	0.74	43.75 (24.13)	52.08 (24.91)	8.33 (16.28)	-1.77	0.104	0.34
Talking on topic to classmate	66.67 (22.19)	56.25 (18.84)	-10.42 (22.51)	1.60	0.137	0.51	45.83 (20.87)	54.17 (20.87)	8.33 (12.31)	-2.35*	0.039	0.40
Keeping hands to oneself	77.08 (24.91)	75.00 (23.81)	-2.08 (16.71)	0.43	0.674	0.09	72.92 (19.82)	81.25 (21.65)	8.33 (12.31)	-2.35*	0.039	0.40
Completing assignments on time	66.67 (12.31)	64.58 (12.87)	-2.08 (7.22)	1.00	0.339	0.17	64.58 (22.51)	68.75 (15.54)	4.17 (14.43)	-1.00	0.339	0.22
Not complaining about work	68.75 (21.66)	68.75 (15.54)	0.00 (21.32)	0.00	1.00	0.00	52.08 (24.91)	58.33 (26.83)	6.25 (11.31)	-1.92	0.082	0.24
Positive attitude towards learning	66.67 (16.28)	62.50 (13.06)	-4.17 (14.43)	1.00	0.339	0.28	47.92 (19.82)	56.25 (18.84)	8.33 (19.46)	-2.35*	0.039	0.43
Asking related questions	70.83 (23.44)	72.92 (12.87)	2.08 (16.71)	-0.43	0.674	0.11	56.25 (24.13)	62.50 (29.19)	6.25 (15.54)	-1.39	0.191	0.23
Composite desirable behavior score (Teacher observation)	66.11 (13.69)	66.15 (8.71)	0.04 (8.44)	-0.02	0.987	0.00	58.90 (11.65)	62.90 (13.41)	4.25 (3.39)	-4.09	0.002	0.31

Note. Bold indicates treatment phase. Class A received the therapy balls treatment during the T₂ to T₃ period. Difference scores were calculated by subtracting the T₂ observation period data from the T₃ observation data (T₃ – T₂). Therefore, positive scores indicate an increase in teachers' observations of desirable behavior from T₂ to T₃, and negative scores indicate a decrease. *indicates a significant difference at the .05 level and **indicates a significant difference at the .01 level.

Table 5.

Student self-reports of the average percent of time that they exhibited desirable behaviors from T₁ to T₂.

Desirable Behavior	Class A						Class B					
	T ₁ Mean (SD)	T ₂ Mean (SD)	Mean Difference (SD)	t (11)	p	d	T ₁ Mean (SD)	T ₂ Mean (SD)	Mean Difference (SD)	t (11)	p	d
Looking at teacher when appropriate	83.33 (16.28)	79.17 (14.43)	-4.17 (14.43)	1.00	0.339	0.27	70.83 (14.43)	77.08 (16.71)	6.25 (18.84)	-1.15	0.275	0.40
Looking at materials when appropriate	83.33 (24.62)	72.92 (29.11)	-10.42 (40.53)	0.89	0.392	0.39	75.00 (21.32)	64.58 (29.11)	-10.42 (36.08)	1.00	0.339	0.41
Responding appropriately	79.17 (29.84)	91.67 (12.31)	12.50 (32.86)	-1.32	0.214	0.55	79.18 (20.87)	62.50 (31.08)	-16.68 (37.44)	1.54	0.151	0.63
Sitting in WOW position	54.17 (17.79)	60.42 (12.87)	6.25 (24.13)	-0.90	0.389	0.40	54.17 (29.84)	62.50 (25.00)	8.33 (28.87)	-1.00	0.339	0.30
Raising hand when responding	85.42 (16.71)	56.25 (24.13)	-29.17 (27.87)	3.63**	0.004	1.41	60.42 (16.71)	64.58 (31.00)	4.17 (33.43)	-0.43	0.674	0.17
Participating in choral activities	93.75 (15.54)	79.18 (17.94)	-14.58 (27.09)	1.87	0.089	0.87	83.33 (22.19)	83.33 (22.19)	0.00 (33.71)	0.00	1.00	0.00
Staying in seat when appropriate	85.42 (12.87)	77.08 (22.51)	-8.33 (24.62)	1.17	0.266	0.45	75.00 (26.11)	75.00 (23.84)	0.00 (15.08)	0.00	1.00	0.00
Participating in conversations on topic	77.08 (16.71)	70.83 (23.44)	-6.25 (32.20)	0.67	0.515	0.31	56.25 (28.45)	68.75 (15.54)	12.50 (29.19)	-1.48	0.166	0.55
Not fidgeting	41.67 (32.57)	47.92 (29.11)	6.25 (57.53)	-0.38	0.714	0.20	79.17 (31.68)	31.25 (33.92)	-47.92 (58.83)	2.82*	0.017	1.46
Talking on topic to classmate	31.25 (21.65)	58.33 (16.28)	27.08 (29.11)	-3.22**	0.008	1.41	39.58 (22.51)	66.67 (19.46)	27.08 (34.47)	-2.72*	0.020	1.29
Keeping hands to oneself	14.58 (29.11)	64.58 (29.11)	50.00 (33.71)	-5.14**	0.000	1.72	20.83 (23.44)	64.58 (36.08)	43.75 (50.14)	-3.02*	0.012	1.44
Completing assignments on time	64.58 (24.91)	70.83 (23.44)	6.25 (33.92)	-0.64	0.536	0.26	54.17 (27.87)	75.00 (26.11)	20.83 (23.44)	-3.08*	0.010	0.77
Not complaining about work	29.17 (23.44)	75.00 (15.08)	45.83 (27.87)	-5.70**	0.000	2.33	20.83 (20.87)	54.17 (29.84)	33.33 (44.38)	-2.60*	0.025	1.29
Positive attitude towards learning	79.17 (14.43)	70.83 (20.87)	-8.33 (26.83)	1.08	0.305	0.46	79.17 (14.43)	60.42 (24.91)	-18.75 (30.39)	2.14	0.056	0.92
Asking related questions	29.17 (20.87)	75.00 (26.11)	45.83 (38.19)	-4.16**	0.002	1.94	43.75 (28.45)	60.42 (27.09)	16.67 (41.74)	-1.38	0.194	0.60
Composite self-report desirable behavior score	62.06 (7.74)	69.98 (9.22)	7.92 (8.72)	-3.15**	0.009	0.93	59.46 (8.10)	64.73 (10.63)	5.27 (11.55)	-1.58	0.142	0.56

Note. Bold indicates treatment phase. Class A received the therapy balls treatment during the T₁ to T₂ period. Difference scores were calculated by subtracting the T₁ observation period data from the T₂ observation data (T₂ – T₁). Therefore, positive scores indicate an increase in students' self-reports of desirable behavior from T₁ to T₂, and negative scores indicate a decrease. *indicates a significant difference at the .05 level and **indicates a significant difference at the .01 level.

Fall and Winter 2014

Table 6.

Student self-reports of the average percent of time that they exhibited desirable behaviors from T₂ to T₃.

Desirable Behavior	Class A						Class B					
	T ₂ Mean (SD)	T ₃ Mean (SD)	Mean Difference (SD)	t (11)	p	d	T ₂ Mean (SD)	T ₃ Mean (SD)	Mean Difference (SD)	t (11)	p	d
Looking at teacher when appropriate	79.17 (14.43)	77.08 (16.71)	-2.08 (12.87)	0.56	0.586	0.13	77.08 (16.71)	75.00 (15.08)	-2.08 (12.87)	0.56	0.586	0.13
Looking at materials when appropriate	72.92 (29.11)	62.50 (25.00)	-10.42 (29.11)	1.24	0.241	0.38	64.58 (29.11)	68.75 (15.52)	4.17 (27.87)	-0.52	0.615	0.18
Responding appropriately	91.67 (12.31)	85.42 (16.71)	-6.25 (18.84)	1.15	0.275	0.43	62.50 (31.08)	83.33 (28.87)	20.83 (29.84)	-2.42*	0.034	0.69
Sitting in WOW position	60.42 (12.87)	50.00 (10.66)	-10.42 (12.87)	2.80*	0.017	0.88	62.50 (25.00)	62.50 (32.86)	.00 (42.64)	0.00	1.000	0.00
Raising hand when responding	56.25 (24.13)	68.75 (11.31)	12.50 (19.94)	-2.17	0.053	0.66	64.58 (31.00)	66.67 (28.87)	2.08 (19.82)	-0.36	0.723	0.07
Participating in choral activities	79.17 (17.94)	79.17 (17.94)	0.00 (28.20)	0.00	1.00	0.00	83.33 (22.19)	70.83 (29.84)	-12.50 (40.59)	1.07	0.309	0.48
Staying in seat when appropriate	77.08 (22.51)	75.00 (26.11)	-2.08 (19.82)	0.36	0.723	0.09	75.00 (23.84)	87.50 (19.94)	12.50 (50.09)	-1.59	0.139	0.57
Participating in conversations on topic	70.83 (23.44)	66.67 (19.46)	-4.17 (23.44)	0.62	0.551	0.19	68.75 (15.54)	77.08 (16.71)	8.33 (24.62)	-1.17	0.266	0.52
Not fidgeting	47.92 (29.11)	60.42 (22.51)	12.50 (29.19)	-1.48	0.166	0.48	31.25 (33.92)	52.08 (29.11)	20.83 (31.67)	-2.28*	0.044	0.66
Talking on topic to classmate	58.33 (16.28)	58.33 (22.19)	0.00 (23.84)	0.00	1.00	.00	66.67 (19.46)	60.42 (19.82)	-6.25 (18.84)	1.15	0.275	0.52
Keeping hands to oneself	64.58 (29.11)	54.17 (35.09)	-10.42 (31.00)	1.16	0.269	0.32	64.58 (36.08)	75.00 (21.32)	10.42 (36.08)	-1.00	0.339	0.32
Completing assignments on time	70.83 (23.44)	68.75 (26.38)	-2.08 (12.87)	0.56	0.586	0.08	75.00 (26.11)	77.08 (27.09)	2.08 (32.78)	-0.220	0.830	0.35
Not complaining about work	75.00 (15.08)	64.58 (19.82)	-10.42 (24.91)	1.45	0.175	0.59	54.17 (29.84)	64.58 (24.91)	10.42 (29.11)	-1.24	0.241	0.09
Positive attitude towards learning	70.83 (20.87)	41.67 (28.87)	-29.17 (45.02)	2.24*	0.046	1.16	60.42 (24.91)	60.42 (29.11)	0.00 (21.32)	0.000	1.000	0.00
Asking related questions	75.00 (26.11)	66.67 (19.46)	-8.33 (28.87)	1.00	0.339	0.36	60.42 (27.09)	66.67 (26.83)	6.25 (26.38)	-0.821	0.429	0.23
Composite self-report desirable behavior score	69.98 (9.22)	65.25 (7.52)	-4.73 (8.82)	1.86	0.09	0.56	64.73 (10.63)	69.88 (11.74)	5.15 (11.80)	-1.51	0.159	0.46

Note. Bold indicates treatment phase. Class A received the therapy balls treatment during the T₂ to T₃ period. Difference scores were calculated by subtracting the T₂ observation period data from the T₃ observation data (T₃ – T₂). Therefore, positive scores indicate an increase in students' self-report of desirable behavior from T₂ to T₃, and negative scores indicate a decrease. *indicates a significant difference at the .05 level and **indicates a significant difference at the .01 level.

Revised-Attitudes Toward Research Scale (R-ATR); A First Look at its Psychometric Properties

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Abstract

The purpose of this study was to establish the psychometric properties of the Attitudes Toward Research scale (ATR), including the validity of the scale through confirmatory factor analysis. After slightly altering the scale by deleting 19 items, and by narrowing down the subscales to four, the fit of the model was established. The revised version of the ATR scale (R-ATR) includes 13 items, which measure Research usefulness, Research anxiety, and Positive predisposition towards research. Overall, the analyses performed on the R-ATR suggest that it has strong psychometric properties, and that it can prove helpful to researchers interested in examining issues related to research methods attitudes, as well as to practitioners to be used for evidence-based practice.

Given that evidence-based practices are a cornerstone of the accountability movement, professionals need to demonstrate both their ability to access research-based knowledge as well as their ability to apply that knowledge in real world situations. Consequently, during the last decade, special attention has been paid to exposing undergraduate students to research experiences and research courses (Lopatto, 2007; Seymore, Huner, Laursen, & Deantoni, 2004). In the field of education, drawing teachers into the research process appears to provide a vital foundation for the development of teaching as an evidence-based profession (Karagiorgi & Papanastasiou, 2012). Teacher research has been viewed as a tool enabling the transformation of educational practice, while making important contributions to the knowledge base in education. Practitioner research in particular, appears to hold the potential to contribute to school improvement (Briggs & Coleman, 2007).

However, combining the role of the teacher as well as the researcher is not an easy endeavor (Ruthven, 2005). According to West (2011), the divide between research and practice has emerged since the 1930s when University professors began distinguishing themselves as teacher educators or as researchers. Even today, teachers are criticized as being research averse (Fusarelli, 2008) while the role of the teacher as a research-based professional still resembles an ideal (Westbury, Hansen, Kansanen & Bjorkvist, 2005).

In an attempt to strengthen the link between teachers and research, many Universities, especially in Europe, require from undergraduate students in the field of education to enroll in research methods courses. However, despite the great importance of such courses, research methods always tend to be one of the least favorite courses for most students who often perceive them as an obstacle in their studies (Onwuegbuzie, Leech, Murtonen & Tähtinen, 2005). Others dislike research because they do not see themselves as researchers, while

others do not feel empowered to understand and use research (Lodico, Spaulding & Voegtle, 2004). Students also frequently complain that research methods are very demanding, overwhelming and difficult courses (Lodico, Spaulding & Voegtle, 2004; Onwuegbuzie, Slate, Patterson, Watson & Schwartz, 1998). What makes matters worse is that many students tend to confuse research with statistics, which leads many of them to conclude that poor quantitative skills will prevent them from doing well in the course, although quantitative skills are relevant to only part of a research course. Therefore, students in research methods courses carry with them many of the fears and anxieties that are associated with statistics. In turn, these attitudes that are related to statistics may interfere with the student's learning in research and may prevent them from being able to understand, or become involved in research in their daily lives or in their future professional careers.

Although numerous studies have examined issues related to statistics attitudes, anxiety and achievement (Nasser, 2004; Onwuegbuzie, 2003; Onwuegbuzie & Wilson, 2003; Pan & Tang, 2004), very little research has specifically examined where students stand in relation to research methods courses. Some of the few studies that have grappled with research attitudes have dealt with quantitative methods courses (Murtonen, 2005; Murtonen & Lehtinen, 2003). In these cases however, it is hard to disassociate the quantitative component of the course with the attitudes of students toward research per se.

A relatively new trend in the research literature has focused on the effects of research experiences on undergraduate students (Korkmaz, Cole & Buckley, 2010; Russell, Hancock, McCulloch, 2007; Seymour, Hunter, Laursen & Deantoni, 2004). However, the results of such studies are difficult to generalize to the wider undergraduate student population due to the fact that such students a) are enrolled in STEM majors (Technology, Engineering and Mathematics) instead of education, and b) in most cases voluntarily agree to participate in such programs. Therefore, the experiences of such students vary significantly from students who are obliged to enroll in research methods classes as part of their undergraduate degree program in teacher education. The current study will move beyond these limitations by examining the psychometric properties of an instrument measuring teacher-education undergraduate student's attitudes towards research.

One of the few psychometric measures that currently exist that measure undergraduate students' attitudes towards research is the Attitudes Toward Research scale (ATR) (Papanastasiou, 2005). Since the Attitudes Toward Research scale is a new measure, very little information is known about its psychometric properties. Therefore, the purpose of this study is to validate the scores of the ATR scale through confirmatory factor analysis. The factor structure of a scale is an essential aspect in establishing its construct validity. The validation of the scores of such a scale can prove helpful to researchers who might be interested in using this scale to examine issues related to research methods attitudes more carefully, as well as to professors of educational research in an effort to understand students' difficulties and find ways to overcome the multiplicity of reasons behind these difficulties. The importance of such studies lies in increasing the impact of research methods courses so as to get a step closer to the ultimate goal of training research-oriented teachers. This is especially significant nowadays where teachers are urged to use evidence-based practices.

Attitudes towards research scale (ATR)

Attitudes in general, according to the tripartite framework originally presented by McGuire (1969), may be defined as the cognitive, affective and behavioral predispositions toward a concept, a situation, an object, a course, etc, although these three components cannot always be separated. Based on this framework, the Attitudes Toward Research Scale is a self report measure of students' attitudes towards the field of research, regardless of their research orientation (quantitative, qualitative or mixed methods). This measure that exists in both Greek and English, consists of 32 Likert scale items whose scales range from 1 to 7. The value of 1 stands for strongly disagree, while 7 stands for strongly agree. An exploratory factor analysis of the data in a previous sample has identified the existence of five factors, those of "Research usefulness" ($\alpha=.919$), "Research anxiety" ($\alpha=.918$), "Positive research predisposition" ($\alpha=.929$), "Relevance to life" ($\alpha=.767$), and "Research difficulty" ($\alpha=.711$) (Papanastasiou, 2005). The factor of Research usefulness measures the student's perceptions in reference to how useful they perceived that research would be in their professional lives. The Research anxiety factor measures the negative feelings of stress and anxiety felt by the students in relation to research. The third factor of Positive research predispositions, measures the existence of positive feelings and interest towards research. The factor of Relevance to life measures the student's perceptions of whether research can be applied in the student's daily lives. Finally, the factor of Research difficulty identifies the problems that students face with various aspects of research.

A more recent study examining the psychometric properties of the ATR scale with the use of Rasch analysis has identified two items that do not have adequate fit compared to the rest of the items of the ATR scale (Papanastasiou & Schumacker, 2010). More specifically, Item 6 stating, "I feel insecure concerning the analysis of research data", and item 11 stating "I have trouble with arithmetic" did not have adequate fit. By taking a closer look at items 6 and 11 it is clear that both items are related to the statistical analysis of data rather than attitudes toward research. Consequently, a decision was made to drop these items from the current scale since the instrument pertains to research methods courses as a whole regardless of their focus (quantitative, qualitative or mixed) ¹. Since two items had to be dropped from the scale though, the construct validation as well as the reliability of the scores from the scale had to be re-examined. The results of a confirmatory factor analysis could strengthen the construct validity of the ATR scale and encourage more researchers, research instructors and practitioners to utilize this scale.

Methods

The sample of this study consisted of 317 undergraduate students who had been taking an educational research methods course at a European University in the Republic of Cyprus. The specific course that the students were enrolled in was a three credit course titled 'Methodology of Educational Research' and was a compulsory course for all students studying elementary education, or kindergarten education at this University. All students in

¹ Efforts are underway to create ATR subscales that will focus on the orientation of research methods courses.

the above majors were required to enroll in this research methodology course, which typically occurs during the sophomore year of their studies. This course was offered by the same instructor both, in the spring and fall semesters of every academic year. The sample of this study included the students who had enrolled in this course in a period of four semesters.

The questionnaire was administered on a volunteer basis to all students enrolled in the course. The data were collected towards the end of each semester, and all students that had attended the class on each day that the questionnaire was administered had participated in the study. Of the sample, 89.8% were female which is representative of the gender breakdown of the students in the college of education at this University. The main reason for the discrepancy in the gender breakdown is due to the large majority of female students who follow the majors of elementary and kindergarten education. The majority of the students were sophomores (69.84%), 20.66% were juniors, 6.98% were seniors, and another 1.97% were in their 5+ year of their studies. For the purpose of this study the data were analyzed with the use of the structural equation modeling software AMOS 18 (Arbuckle, 2009), as well as with the use of SPSS.

The hypothesized model that was originally analyzed in AMOS, included the 30 items from the ATR scale that were treated as observed variables, and are represented in the measurement model with rectangles. Five latent variables were also created to represent the five factors of the scale. All latent variables are represented with ovals. The arrows pointing to each rectangle/observed variable represent the errors in the measurement of each of those observed variables. These error terms are very important to be included in the model since no assumptions are made that the variables used in this study are perfectly reliable. Finally, the two-headed arrows in the model represent the correlations between the five factors.

The estimation method that was used for the analysis of the model was the maximum likelihood estimation procedure. The maximum likelihood estimation was preferred to that of the generalized least squares estimation since it leads to less biased parameter estimates and more accurate fit indices (Olsson, Foss, Troye, & Howell, 2000). Both absolute and incremental fit indices were used in this study, in addition to a parsimony adjusted index. The absolute fit indices that were used, that assess how well the model reproduces the sample matrix, were the chi-square (χ^2), and the chi square divided by the degrees of freedom ratio (χ^2/df). The incremental fit indices that were used, that assess model fit relative to a baseline model, were the Normed Fit Index (NFI), the Relative Fit Index (RFI), the Tucker-Lewis Index (TLI), the Comparative Fit Index (CFI), the Incremental Fit Index (IFI). Finally, a parsimony adjusted index, the Akaike Information Criterion (AIC), was used to be able to compare models with differing numbers of latent variables.

Results

Psychometrically, the score distributions statistics on all items should be checked to ensure that they are normally distributed, with no floor or ceiling effects. Table 1 presents the means and standard deviations of the 30 items included in the ATR scale. Some items were recoded however, so that a higher response on each question corresponded to more positive attitudes toward research. All of the items had an average score between 3.31 and 5.22 on a 7 point scale. The standard deviations of all items were reasonable and ranged from 1.33 to 1.86, indicating that no item had a strong floor or ceiling effect. Overall, all items were approximately normally distributed with their skewness ranging from 0.02 to -0.67, and their kurtosis ranging from 0.06 to -0.95.

Confirmatory factor analysis

The hypothesized 30-item, five-factor model was originally examined to test whether the model fit the data. The results of this analysis did not support the fit of the model since only the χ^2/df ratio was in the acceptable range ($\chi^2/\text{df}=2.98$) based on Hu and Bentler's cut-off criteria (1999). Therefore, the scale had to be re-examined in order to improve the quality of the factors. In an attempt to remove the items with large amounts of error variance, a decision was made to delete any items with standardized coefficients that fell below 0.70 due to their low levels of reliability. This allowed for the error variances for the remaining items to be below 0.50 for each observed variable. Based on this criterion, 17 items were deleted from the scale. A consequence from this process is that two factors were deleted, those of Relevance to life and Research difficulty. The resulting model included three latent variables; those of 'Research usefulness' which included 4 items, 'Research anxiety' which included 5 items, and 'Positive research predispositions' which included 4 items. The latent variables were also allowed to correlate with each other since no assumptions are made that these three factors are not related to each other. The revised version of the ATR scale is presented in Figure 1.

Once the revised model was analyzed, the fit indices had to be examined to determine whether the data fit this revised measurement model. The results that are presented in Table 2 were very encouraging since most of the fit indices supported the fit of the model. With the exception of the χ^2 (that is influenced by sample size), the other fit indices supported the fit of the model. The TLI (TLI=0.95), the IFI (IFI=0.97), the NFI (NFI=0.95) as well as the CFI (CFI=0.97) all had values equal or higher than 0.95 which strongly support the fit of the model. The RFI with a value of 0.92 was slightly below the 0.95 cutoff, but still supported the fit of the model since this value ranged between 0.90 and 0.95 (Hu & Bentler, 1999). In addition, the AIC had a lower value in the revised model, thus supporting the revised ATR scale (R-ATR) as the more parsimonious model. A chi-square difference test ($\Delta\chi^2$) was calculated between the original and revised factor models to determine whether the revised model was significantly better than the original one. Overall, the fit of the revised model was significantly better than the original model ($\Delta\chi^2=1015.60$, $\Delta\text{df}=333$, $p<0.0001$).

Once the fit of the model was established, it was possible to pay closer attention and interpret the path coefficients of the final model. As presented in Table 3, all unstandardized coefficients were statistically significant at the 0.001 level. Moreover, no standardized regression weights were lower than 0.70 which further strengthened the validity of the scale's results. In terms of the factor of Research usefulness, this factor had the strongest effect on items q20 "The skills I have acquired in research will be helpful to me in the future" since the factor explained 69% of its variance. The factor Research usefulness had the second largest effect on item q8 "Research is useful for my career" since it explained 62% of its variance. The factor Research anxiety had the strongest effects on item q16 "Research courses are stressful" explaining 79% of its variance and on item q18 "Research courses make me nervous" explaining 77% of its variance. Finally, the Positive research predisposition factor had the strongest effect on item q3 "I enjoy my research course(s)" (79%) and on item q12 "I love research courses" (75%).

Correlations between the ATR factors

Table 3 presents the correlations between the three factors of the revised model. The highest correlation was between the factors of “Research anxiety” and “Positive research predisposition” ($r=0.62$). The smallest correlation was between the factors of “Research usefulness” and “Research difficulty” ($r=0.18$). The correlation between “Positive research predispositions” and “Research usefulness” was equal to 0.54. The low to moderate correlations between the three factors provide discriminant validity evidence among the three factors.

Reliability Results

Once the factor structure of the revised version of the ATR scale was established, the estimates of internal consistency were also calculated by using Cronbach’s coefficient alpha. The results of these analyses show that the reliability of the three factors was slightly lower than the results reported for the original 32-item version of the scale. However, the latest reliability coefficients of the R-ATR were still in the very good to excellent range. More specifically, the reliability of the Research usefulness scale was in the excellent range ($\alpha=0.90$) even though it dropped from 0.92 to 0.90 (Table 5). The reliability of the Positive research predisposition factor was also in the excellent range ($\alpha=0.92$). The Research anxiety factor had the largest decrease in size ($\alpha=0.86$) although its reliability was still in the very good range.

Discussion and Implications

The Attitudes Toward Research scale, which currently exists in Greek and in English, is one of the few instruments created with a focus on measuring student attitudes towards the subject area of research methods. Since the creation of the scale however, its results have not been cross validated with samples of undergraduate students in the field of education. Therefore, the purpose of this study was to establish the psychometric properties of the ATR scale, including the validity of the scores of the scale through confirmatory factor analysis. The original version of the questionnaire included 32 items that were broken down into five factors. The confirmatory factor analysis that was performed on the original version of the questionnaire showed that the fit of the model was not adequate. After deleting 19 items in total due to their amounts of errors variance, and by narrowing down the factors to three distinct factors, the fit of the model was established. The revised version of the questionnaire includes 13 items, which measure Research usefulness, Research anxiety, and Positive research predisposition. These items were all normally distributed and did not show any strong floor or ceiling effects.

The reliability of the scores from the revised version of the ATR scale (R-ATR) was high, although it dropped slightly compared to the original full version of the ATR scale. This is a very small setback when taking into consideration that 19 items have been eliminated from the revised version of the scale, especially since this allowed for the parsimony of the model to improve.

At this point it is important to acknowledge some of the limitation of the study. The main limitation lies in the fact that a larger proportion of females than males have participated in

this study, mainly due to the fact that the teaching profession tends to be dominated by female teachers. Once more data are collected from male students in the field of education, future research could involve the examination of group differences (invariance tests) to determine whether attitudes toward research are related to variables such as gender or age.

Despite the limitation mentioned above however, the overall analyses performed on the R-ATR suggest that it has strong psychometric properties. Therefore, a conclusion can be reached that the R-ATR is a promising self-report measure that can be used to assess college student's attitudes towards the field of research, and more specifically in assessing positive predispositions towards the field of research, research anxiety and research usefulness within the context in which the data were obtained from. This scale can therefore be utilized within this context by researchers examining the concepts of research methods attitudes, or by professors of educational research who might want to look deeper into the attitudes of their students on this issue. Further analyses of the scale, to determine its degree of construct validity within the USA are also underway in an effort to broaden its use, for research and teaching purposes.

In conclusion, through a systematic research agenda, future studies could try to establish links between research attitudes and teacher involvement in research in the workplace in an attempt to strengthen the development of teaching as an evidence-based profession. Research attitudes could be examined as a predictor of further research activities in an attempt to make further progress in the establishment of the educational field as an evidence-based profession. This is especially important nowadays due to the push that exists towards accountability, school effectiveness and school improvement.

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Table 1.
Descriptive statistics of the ATR scale

Factor	Items	Mean	SD	Skewness	Kurtosis
Research usefulness					
	q8 Research is useful for my career.	5.13	1.39	-0.67	0.06
	q14 Research is connected to my field of study.	4.76	1.61	-0.51	-0.51
	q20 The skills I have acquired in research will be helpful to me in the future	5.22	1.33	-0.67	0.24
	q24 Research should be indispensable in my professional training	4.77	1.48	-0.30	-0.51
Anxiety					
	q1 Research courses make me anxious. *	3.31	1.79	0.36	-0.86
	q7 Research courses scare me. *	4.01	1.81	-0.10	-1.02
	q16 Research courses are stressful. *	3.64	1.86	0.15	-1.12
	q18 Research courses make me nervous. *	4.02	1.84	-0.09	-1.08
	q28 Research courses are difficult. *	3.65	1.67	0.02	-0.95
Positive research predispositions					
	q3 I enjoy my research course(s).	3.53	1.56	0.11	-0.73
	q12 I love research courses.	3.38	1.60	0.28	-0.63
	q13 I find research courses interesting.	4.23	1.46	-0.23	-0.48
	q30 Research courses are pleasant.	3.62	1.49	0.12	-0.52

* Recoded items

Table 2.
Fit indices of the structural models

	Hypothesized model	Revised model (R-ATR)	Model difference
χ^2	1175.83 (df=395, p<0.000)	160.23 (df=62, p<0.000)	$\Delta\chi^2 = 1015.60$
$\chi^2/\text{df ratio}$	2.98	2.58	$\Delta\text{df} = 333, p < 0.0001$
NFI	0.82	0.95	
RFI	0.79	0.92	
CFI	0.87	0.97	
IFI	0.88	0.97	
TLI	0.85	0.95	
AIC	1375.83	244.23	

Table 3.
Path coefficients of final Revised-ATR scale

Factor	Path	Items/Factors	Standardized Estimates	Unstandardized Estimates	S.E.
Research usefulness	↔	Pos. predisposition	0.54	0.76**	0.11
Research anxiety	↔	Pos. predisposition	0.62	0.99**	0.13
Research anxiety	↔	Research usefulness	0.18	0.24**	0.09
Research usefulness	→	q20	0.83	1.01**	0.07
Research usefulness	→	q8	0.79	1.00	
Research usefulness	→	q14	0.73	1.07**	0.08
Research usefulness	→	q24	0.74	0.99**	0.08
Research anxiety	→	q18	0.88	1.29**	0.08
Research anxiety	→	q16	0.89	1.32**	0.08
Research anxiety	→	q7	0.83	1.20**	0.08
Research anxiety	→	q1	0.86	1.23**	0.08
Research anxiety	→	q28	0.75	1.00	
Pos. predisposition	→	q12	0.87	1.09**	0.06
Pos. predisposition	→	q30	0.85	1.00	
Pos. predisposition	→	q13	0.82	0.94**	0.05
Pos. predisposition	→	q3	0.89	1.09**	0.05

** p<0.001

Table 4.
ATR item correlations

	q3	q12	q13	q30	q1	q7	q16	q18	q28	q8	q14	q20
q3												
q12	.77											
q13	.73	.72										
q30	.76	.72	.71									
q1	.48	.40	.39	.39								
q7	.46	.45	.44	.45	.69							
q16	.49	.40	.39	.39	.78	.70						
q18	.49	.41	.40	.40	.74	.71	.80					
q28	.41	.43	.42	.42	.66	.65	.66	.67				
q8	.38	.39	.39	.39	.12	.14	.12	.12	.13			
q14	.35	.37	.36	.36	.11	.13	.11	.11	.12	.56		
q20	.40	.43	.42	.42	.13	.15	.13	.13	.14	.66	.61	
q24	.36	.37	.36	.36	.11	.13	.11	.11	.12	.56	.52	.61

Table 5.
Reliability estimates of ATR scale

Factor	Reliability		Number of Items	
	Standardization sample	Current sample	Standardization sample	Current sample
Research usefulness	0.92	0.90	9	4
Research anxiety	0.92	0.86	8	5
Positive research predisposition	0.93	0.92	8	4
Research difficulty	0.71	--	3	--
Relevance to life	0.77	--	4	--

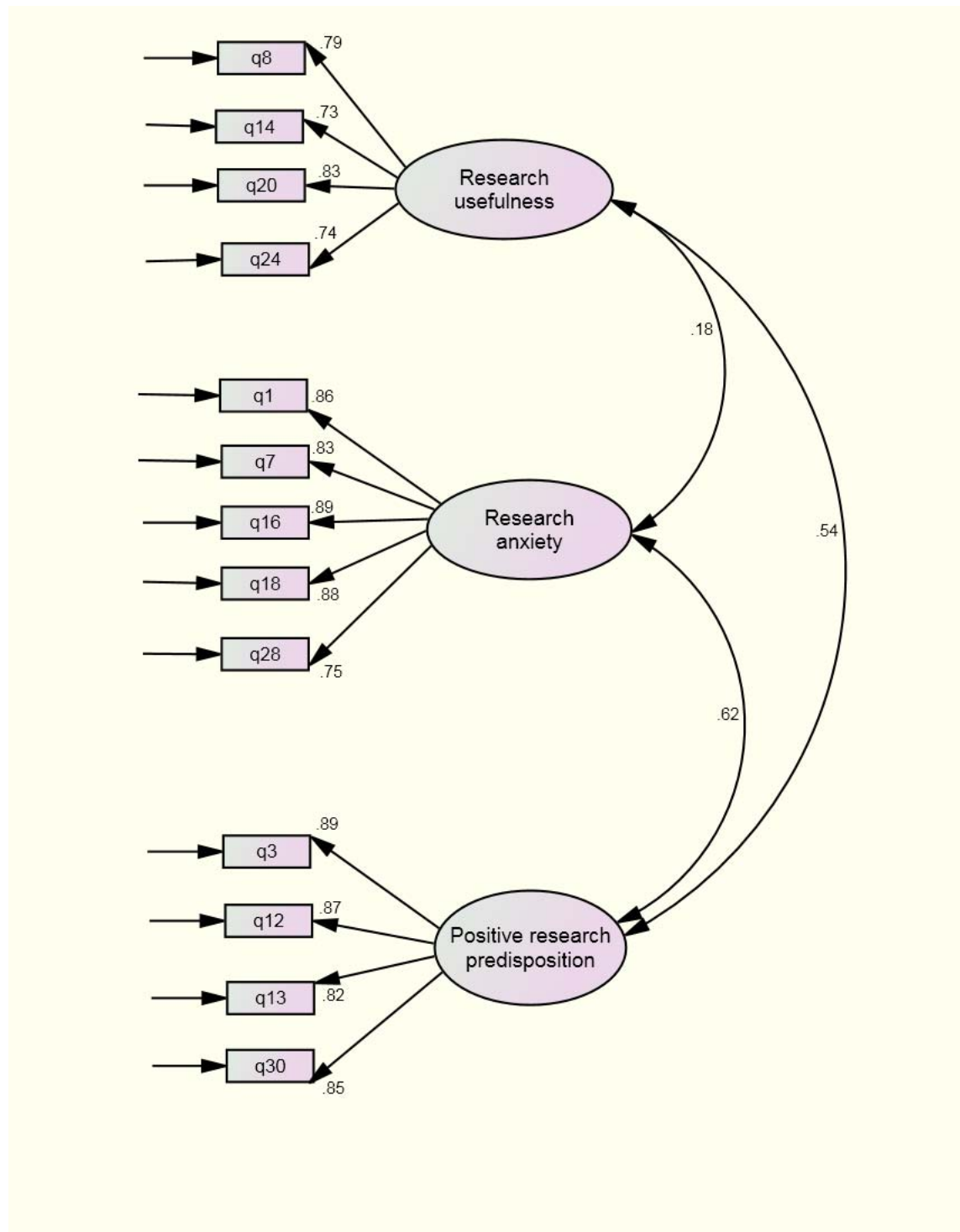


Figure 1.

Factor structure of the Revised- Attitudes Toward Research Scale (R-ATR)

**An Exploratory Study of Instructional Strategies, Academic Integration,
and Subsequent Institutional Commitment**

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Abstract

As student persistence efforts remain stagnant and the level of accountability grows for higher education, the classroom environment could offer some assistance toward improving academic integration and subsequent institutional commitment. The process of student persistence at four-year commuter colleges and universities differs from the process at large scale residential universities, and the nature of this institutional experience impacts student persistence. At commuter institutions, the classroom serves as a gateway for student integration into the academic and social communities within a college or university, which encourages subsequent institutional commitment and increases the likelihood of student persistence. A possible key for unlocking the gate is the Seven Principles for Good Practice in Undergraduate Education (Chickering & Gamson, 1987). This exploratory mixed methods study examined the relationship between the Seven Principles, academic integration, and subsequent institutional commitment with first-time freshman students enrolled at a commuter institution. The quantitative data analysis revealed the strongest relationship existed between Academic Integration and Subsequent Institutional Commitment; however, there was a moderate relationship between Academic Integration and Diverse Talents and Ways of Learning. The qualitative data analysis revealed academic and social integration were connected with the participants' perception of the institution. One possible implication includes more faculty training at the college-level regarding the use of effective instructional methods, which are component of the Seven Principles.

Despite decades of educational research in student persistence, the current rate of student persistence for freshman college students is 73.3% for four-year public institutions. Only 29% of undergraduate students graduate within 4 years, and 43% will graduate within 6 years. Unfortunately, these rates have remained relatively unchanged since 1983 (ACT, 2011). Higher education has seen a heightened awareness for increasing persistence, progression, and graduation rates, but higher education has not seen a substantial change in student persistence rates because the knowledge and theory gained from the decades of research has not translated into effective practice in higher education. A large body of empirical work outlines the student characteristics that will explain why students depart from a given institution, but the empirical work does not examine how implementing institutional practices will help students persist and succeed (Tinto, 2006).

The catalyst and source for understanding this departure puzzle has been Tinto's Interactionalist Theory of College Student Departure. College student persistence depends on the student's pre-college characteristics, which affects the initial level of commitment for the selected institution (Tinto, 1975, 1993). Once enrolled, this initial commitment affects the students' perception of their academic and social integration into the communities and subcultures of the post-secondary institution. Academic integration is the degree to which the student affiliates with the academic norms within those communities, and social integration is the degree of fit between the student and the social systems within those communities (Braxton, Bray, & Berger, 2000). These levels of academic and social integration influence the subsequent institutional commitment perceived by the student, which impacts the intention to leave and actual student's persistence at the given institution (Braxton, Hirschy, & McClendon, 2004).

Braxton and his colleagues (2004) offered a new theory for the persistence of students at commuter colleges and universities, which is based on the Tinto Theory (1975, 1993). Commuter institutions tend to differ substantially from residential institutions in the educational, cultural, and social experiences that are provided to the students (Pascarella, Duby, & Iverson, 1983). Commuter institutions tend to have lower than expected levels of student persistence compared to residential institutions (Astin, 1997). According to this new theory revision for commuter institutions (Braxton et al., 2004), student entry characteristics (e.g., high school grade point averages (GPAs), standardized admission test scores, and family background) affect the initial institutional commitment and persistence, which parallels Tinto's model; however, with commuter institutions, external environments (e.g., finances, work, and family) and internal campus environments (e.g., academic communities within the institution) mediate the initial and subsequent institutional commitment levels. Therefore, both external and internal campus environmental factors indirectly affect student persistence at the commuter institutions (Braxton et al., 2004).

The difference between residential and commuter institutions lies within the organizational structure, which affects subsequent institutional commitment and student persistence. Two characteristics of this organizational structure are the commitment of

the institution to the welfare of the students and the integrity of the institution, which Braxton et al. (2004) refers to as internal campus environments. Each of these characteristics is perceived by the students based on their interactions with the faculty, staff, and fellow students. Chickering and Kuper (1971) concluded that commuter students go to class then go home. Often, the college educational experience tends to be viewed as a job. Therefore, these students tend to enroll in a college near their homes whether or not they have commitment to the institution. As a consequence, these students at commuter institutions lack a sense of belonging to the given institution, and social integration has minimal impact on their subsequent institutional commitment. Thus, student performance and persistence become affected (Jacoby & Garland, 2004; Newbold, Mehta, & Forbus, 2011).

A Possible Solution

The classroom serves as a gateway for student integration into the academic and social communities within a college or university, which encourages subsequent institutional commitment and increases the likelihood of student persistence (Braxton, Bray et al., 2000; Braxton et al., 2004; Braxton, Milem, & Sullivan, 2000; Tinto, 1997, 2006). Researchers have not ignored the classroom as a setting for empirical work, but they have not connected the college classroom experience to student persistence. Even though more scholars recognize the significant role that the classroom plays in student persistence, more empirical work is needed to transform the theory of student persistence into practice, which could likely increase the rate of student persistence (Braxton, 2008).

A possible key for unlocking the gate is the Seven Principles for Good Practice in Undergraduate Education (Chickering & Gamson, 1987). The Seven Principles are: (1) Encourages contact between students and faculty; (2) Develops reciprocity and cooperation among students; (3) Encourages active learning; (4) Gives prompt feedback; (5) Emphasizes time on task; (6) Communicates high expectations; and (7) Respects diverse talents and ways of learning. These good practices are universal for all types of institutions who serve undergraduates and for all types of undergraduate students who attend those institutions. The implementation of these Seven Principles affects classroom pedagogy, or how the content is taught, and effective implementation depends on the students and their circumstances at a given institution (Chickering & Gamson, 1987).

Student-Faculty Contact. Students with instructors who encourage in-class and out-of-class contact tend to have increased student motivation and institutional commitment. Frequent student-faculty contact in the classroom tends to increase involvement outside of the classroom. This student-faculty contact can improve educational outcomes, such as student satisfaction, intellectual development, and academic achievement (Sorcinelli, 1991).

Cooperation among Students. Effective learning is a collaborative and social event. Cooperative learning, which has been implemented and researched extensively in the K-

12 setting, changes the faculty and student roles within the classroom. The instructor becomes a facilitator that guides the learning process, and students become the teachers that lead the learning process (Sorcinelli, 1991).

Active Learning. The previously discussed principle, cooperation among students, and this principle, active learning, have substantial overlap. Some scholars place cooperation among students as a subset of active learning (Sorcinelli, 1991). Sorcinelli (1991) explained the primary difference between the two principles is active learning can be experienced by a single student (e.g., independent studies and internships) where cooperative learning requires a grouping of more than one student. With active learning, the students can move beyond rote memorization of general knowledge and passive listening during class. Instead, the students talk about the content, write about it, relate it to prior knowledge, and apply it to their daily lives (Chickering & Gamson, 1987).

Prompt Feedback to Students. When given appropriate feedback in a timely manner, students can benefit from feedback and gain knowledge of the course content. Immediate, corrective, and supportive feedback is central to the learning process (Sorcinelli, 1991). This feedback provides formative assessments of student performance and offers suggestions for improvement (Chickering & Gamson, 1987).

Time on Task. Time allocation, management of the allocated time, and engaged time (i.e., amount of time spent on interacting and material or activities) affect student learning. When students are engaged, they tend to learn more of the course content (Sorcinelli, 1991). Time management includes realistic instructional time during class and appropriate amounts of time allocated for class preparation outside of the classroom (Chickering & Gamson, 1987).

High Expectations. High expectations and the subsequent effort can influence the poorly prepared students, the motivated students, the junior faculty members, and the overall institution. When the instructor sets high, yet achievable, performance goals, the academic achievement among the students tends to increase (Sorcinelli, 1991).

Diverse Learning. Sorcinelli (1991) explains this seventh and final principle serves as the clip that binds all Seven Principles together. For each student sitting in the classroom, there are equal numbers of diverse talents and learning styles. Some students excel with hands-on activities while other students prefer a history lecture. Faculty who recognize these diverse talents tend to facilitate student growth and development inside the classroom and outside of the classroom (Chickering & Gamson, 1987).

Conclusion

Multifaceted and complex problems, such as student persistence at commuter institutions, require more than one single solution. More attention should be focused on the events that occur inside the classroom, and the relationship between in-class and out-of-class

experiences as they relate to academic integration and student persistence (Braxton, Bray et al., 2000). The Seven Principles for Good Practice in Undergraduate Education is broad enough to be applicable across disciplines, teaching methods, learning styles, and institutional context yet they are grounded in research and practice (Sorcinelli, 1991). The purpose of this study was to examine the relationship between the Seven Principles for Good Practice in Undergraduate Education (Chickering & Gamson, 1987), academic integration, and subsequent institutional commitment.

Methods

Participants

The sample consisted of first-time freshman students who enrolled in the commuter institution during the fall of 2012, declared major within the College, and participated in one of the Summer 2012 Freshman Orientation Sessions. The College is part of a four-year institution in the southeastern United States that is considered a master's level school. Enrollment at the state university was more than 8,200 undergraduate and graduate students. Within the College, there are three departments which serve undergraduate students: School of Nursing, Teacher Education, and Health, Physical Education, and Exercise Science. Thirty-seven respondents completed the web-based survey. Of the 37 respondents, 32 (94.1%) were females, and 2 (5.9%) were males. Regarding racial classification, 16 (47.1%) were Whites, 15 (44.1%) were Blacks, and 3 (8.7%) classified themselves as belonging to Other. The majors included pre-nursing (47.1%), early childhood education (26.5%), exercise science (14.7%), health science (5.9%), health and physical education (2.9%), and secondary education: mathematics (2.9%).

Measures

A self-reported survey, which combined established scales from two sources, was constructed for this research project. A web-based combined version of the Student Inventory (Chickering et al., 1990) and College Persistence Questionnaire (Davidson, Beck, & Milligan, 2009) were constructed using Qualtrics, a web-based survey software application available through institution's technology department. The order of the items was randomized to prevent bias in the responses (Braxton, Olsen, & Simmons, 1998).

Student Inventory. The Student Inventory (Chickering et al., 1990) is a 49-item measure designed to assess the student's participation in the Seven Principles for Good Practice in Undergraduate Education (Chickering & Gamson, 1987). The 49 items were broken into seven scales. For each item, the response scale progressed from a rating of 1, which represents *Never*, to a rating of 5, which represents *Very Often*. The seven scales are (1) Student-Faculty Contact, (2) Cooperation Among Students, (3) Active Learning, (4) Prompt Feedback, (5) Time on Task, (6) High Expectations, and (7) Diverse Talents and Ways of Learning. Oberst (1995) conducted a validation study with 537 undergraduate students from a public college using this measure. He found that the measure had

construct validity and a predictive validity for level of achievement. The Time on Task Scale had the greatest contribution to the prediction model. Reliability analyses were conducted to test that the scales provided internally consistent measurements. A Cronbach's alpha of .60 or greater was established as the criterion for reliability (Hair, Black, Babin, Anderson, & Tatham, 2006). The alpha coefficients ranged from .556 to .817. Table 1 displays the alpha coefficients for each scale. The results suggest that this measure within the survey is an internally consistent measure with the exception of Cooperation among Students Scale.

Table 1.

Reliability Analysis for Survey Inventory

Scale	Alpha Coefficient
Student-Faculty Contact	.781
Cooperation Among Students	.556
Active Learning	.817
Prompt Feedback	.705
Time on Task	.728
High Expectations	.700
Diverse Talents and Ways of Learning	.742

College Persistence Questionnaire. The College Persistence Questionnaire (Davidson et al., 2009) was developed using a list of variables found in the empirical literature. The Questionnaire had six scales: Academic Integration, Social Integration, Supportive Services Satisfaction, Degree Commitment, Institutional Commitment, and Academic Conscientiousness. For the purposes of this study, only the Academic Integration and Institutional Commitment Scales were utilized. The 12 items among the two scales had 5-point Likert type response scale. This measure was validated using 2,022 undergraduate students from three 4-year institutions and one community college using a principal components analysis. The results indicated the scales contained homogenous items. Furthermore, the scales were internally consistent and were distinctly different constructs. In addition to the convergent and discriminant validity, the measure was found to have predictive validity for freshman year persistence above and beyond pre-college academic characteristics (Davidson et al., 2009). Reliability analyses were conducted to test that the scales provided internally consistent measurements. The alpha coefficient for academic integration was .747, and the alpha coefficient for subsequent

institutional commitment was .889. The results suggest that this measure within the survey is an internally consistent measure.

Data Collection

Using an exploratory mixed-methods approach, the researchers conducted phase one with a quantitative web-based survey. For phase two, after data analysis was completed, the researchers conducted three interview sessions as a follow-up. The researchers sent an invitation to participate in the web-based survey to all first-time freshman students who participated in the Summer Freshman Orientation Sessions during the spring via institutional email. A second email was sent one week after the initial email as a reminder. A third and final email was sent one week after the second email. As an incentive to participate, student respondents were given the option to enter their name in a random drawing for a \$100 cash prize upon survey completion.

At the end of the web-based survey, there was a question that asked the students would be interested in participating in an interview to gather additional information about the experiences of first-year students. If the respondent indicated *Yes*, then the researchers contacted the participants via email to schedule the interviews. The interview sessions were conducted in a meeting room within the College and lasted approximately 45 minutes. Handwritten notes were taken by both researchers during the interviews and were reviewed after interview sessions.

Results

Phase One: Web-based Survey

A series of descriptive and correlational analyses were conducted. The means for the seven scales from the Student Inventory ranged from 3.01 (Student-Faculty Contact) to 3.96 (Time on Task). Based on the measure's scaling, higher numbers indicated more frequency. The correlation coefficients ranged from .30 to .76 for the Student Inventory scales, which means the scales had a moderate to strong relationship with each other. The strongest relationship was between Academic Integration and Subsequent Institutional Commitment ($r = .51$); however, there was a moderate relationship between Academic Integration and Diverse Talents and Ways of Learning ($r = .38$). These findings suggest an indirect relationship between at least one of the Seven Principles and Subsequent Institutional Commitment through Academic Integrations. Table 2 presents the means and standard deviations for each scale within the survey, and Table 3 displays the correlation coefficients among the scales within the survey.

Table 2.

Means and Standard Deviations for the Scales within the Web-based Survey

Scale	<i>M</i>	<i>SD</i>
1. Student-Faculty Contact	3.01	0.77
2. Cooperation among Students	3.23	0.62
3. Active Learning	3.42	0.66
4. Prompt Feedback	3.22	0.66
5. Time on Task	3.96	0.61
6. High Expectations	3.85	0.57
7. Diverse Talents and Ways of Learning	3.68	0.70
8. Academic Integration	3.53	0.64
9. Subsequent Institutional Commitment	3.96	0.92

Table 3.

Correlations for the Web-based Survey

Scale	1	2	3	4	5	6	7	8	9
1	--	--	--	--	--	--	--	--	--
2	.50**	--	--	--	--	--	--	--	--
3	.76**	.44**	--	--	--	--	--	--	--
4	.75**	.66**	.65**	--	--	--	--	--	--
5	.56**	.43**	.65**	.57**	--	--	--	--	--
6	.62**	.44**	.72**	.59**	.72**	--	--	--	--
7	.48**	.54**	.57**	.61**	.30	.54**	--	--	--
8	.27	.26	.28	.31	.26	.26	.38*	--	--
9	.18	.04	.12	.10	.10	.17	.12	.51**	--

Note: * indicates $p < .05$; ** $p < .001$.

Phase Two: Interviews

The research team analyzed the data that were collected and built a consensus on emerging primary themes and subthemes. Grounded theory (Glaser & Strauss, 1967) was

utilized to guide the methodology. Pseudonyms were assigned to participants to enhance anonymity. Participants included one traditional-aged White female (Michelle), one traditional-aged African American female (Vanessa), and one non-traditional aged White female (Sarah), who was married with three children. One participant, Michelle, lived on campus and the other two participants lived at home in surrounding areas.

Academic integration. Academic integration consisted of the how students perceived the academic programs at the institution as well as their experiences with specific instructional methods that either enhanced or were deterrents to learning. As participants were asked to describe the culture or climate of the University, what they liked most and least about the University, and about the courses that they were enrolled in during the Fall and Spring semesters, they shared their perception of the academic programs at the University and their level of satisfaction with instructional methods. Academic integration appeared to be linked to the primary themes of student perceptions of academic programs and student satisfaction was connected to instructional methods.

Student perceptions of academic programs. There was evidence to suggest that students' perceptions of the academic programs were linked to 1) class size; 2) campus resources as support; 3) academic factors related to the specific college environment; and 4) satisfaction that was connected to instructional methods.

Students' perceptions of the academic programs were linked to class size. Vanessa reported that what she liked most about the University was that the classes were small. She described this as, "the best part of the University." She reported that she enjoyed classes that ideally included 30 students.

Campus resources also emerged as a subject of students' perceptions of the academic programs. The campus resources appeared to be linked to services provided to assist students who need additional academic support. Sarah reported that the campus writing center provided her with academic support. Michelle identified math tutoring as a campus resource that she found helpful.

Another subject that emerged from students' perceptions of the academic programs was academic factors related to the specific college environment. These factors included the program of study and support provided through the Freshman Learning Communities (FLCs). Vanessa reported that she became aware of the teaching program at the institution from her eighth grade teacher. One of the reasons that Vanessa plans to continue at the University and within the College was based on the program's reputation. Sarah suggested that the FLCs assisted students in learning study strategies to be academically successful. In addition, Sarah felt the FLCs provided consistency for the students.

Participants described their satisfaction with the academic programs as being connected to instructional methods. Participants described satisfaction in courses in which

instructors were “energized and animated,” encouraged interaction, utilized active group discussions versus lectures, stopped to make sure that everyone understood the information before continuing, provided feedback, set clear expectations, were available for questions, asked open-ended questions, and explained concepts in different ways. Participants tended to be less satisfied with courses in which instructors were not focused on the topic of the course, there was limited interaction, instructors did not explain concepts, and lecture material was not included on the tests.

Student-Faculty Contact. Student interactions with faculty and staff was one Principle that emerged from the interview data. Participants described support from faculty and staff and willingness to seek support as factors that contributed to their interaction with faculty and staff. All three participants reported that overall they felt as if they received support from faculty and staff at the University. Comments made by participants suggested that perceived support may have been associated with faculty and staff making efforts to reach out to students, showing genuine concern for students, and being able to assist students when needed. One participant, Sarah, stated, “People are always thinking about you even though you have no idea they are there sometimes...I feel like I am being looked after and I feel like they are doing that. I have enjoyed the learning I am getting.” Another participant, Vanessa stated, “I feel like my professors really reached out...my professors have been a big support for me.” Sarah and Vanessa suggested that willingness to seek support is tied to academic success. Sarah stated that it is important that students are not afraid to ask for help. Vanessa stated, “They [instructors] are good at engaging and encourage us to ask questions, but if you are scared it can be a barrier...So many people don’t want to ask questions...” Participants also suggested that it is important that students get to know the professors.

Collaboration among Students. Collaboration among Students was another Principle that emerged from the interview data. Participants suggested that the FLCs provided an opportunity for students to interact. Sarah reported that, as a non-traditional student, she believed that the FLCs were helpful for her, as well as for students who were just coming from high school. She stated that the FLCs helped to create an environment in which, “you don’t feel like you’re on your own...FLCs help with social interactions without even working at it...you don’t realize they will be your support... it helps.” Vanessa reported that she was able to meet two new friends as a result of the FLCs.

Discussion

Although there have been numerous studies which provide significant information on persistence of undergraduate students, this study provided information specific to students enrolled in a commuter university and identified some possible factors that may be attributed to student persistence. Both quantitative and qualitative data collected in this study support previous research on undergraduate persistence in particular, the previous research findings on commuter institutions. Qualitative data provided further insight into the quantitative research findings in this study.

The findings of this study support the past research findings of Braxton et al. (2004) and Tinto (1975, 1993). Although qualitative data in this study was not generalizable because of the small sample size, quantitative and qualitative data suggested that there was a strong correlation between academic integration and subsequent institutional commitment. Qualitative data suggested that academic integration included factors such as students' perceptions of academic programs, class size, campus resources, academic factors related to the specific college environment, along with instructional methods. Additionally, there was a moderate relationship between academic integration, and diverse talents and ways of learning. These findings support the claim of Sorcinelli (1991) that diverse talents and ways of learning is the binding principle for the Seven Principles.

This study provides implications to educators and commuter institutions. The study suggests that factors that are connected to academic integration can possibly serve as a buffer to students who are enrolled in commuter institutions and thus impact student persistence. It also suggested that FLCs can serve as a source of academic and social support for students. Students described experiences in which they learned specific strategies and were able to be connected with their peers as a result of being enrolled in FLCs. There was also evidence to suggest that the Seven Principles of Good Practice in Undergraduate Education was connected with students' perceptions of their programs. Institutions could provide professional development to faculty regarding the implementation of the Seven Principles within the classroom. Their use requires little or no expenditure of money by an institution, and the faculty can learn and incorporate the Seven Principles into the classroom easily, especially if they participate in faculty development programs.

Although this study can provide educators and commuter institutions with useful information, it is important to address limitations to the study. One limitation of the study is that there were a limited number of participants who were interviewed about their experiences when qualitative data were collected. Another limitation was the lack of male participants within the sample; however, for the targeted population with this College, the percentage of male was approximately 20%. Additionally, students who were interviewed were experiencing academic success and had not considered leaving the institution. As such, the findings of this study are not generalizable. Additional participants are needed to validate the preliminary quantitative and qualitative findings. Future studies could continue to explore the Seven Principles and determine specific characteristics that are most strongly associated with student persistence by conducting qualitative interviews of students who plan to continue to attend a particular institution, as well as by interviewing students who plan to leave.

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Partisan Differences on Higher Education Accountability Policy: A Multi-State Study of Elected State Legislators

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Abstract

Public institutions in the United States face a policy challenge to adapt to accountability expectations among a variety of stakeholders (Bogue & Hall, 2012; Thelin, 2004; Richardson & Martinez, 2009). Among the major stakeholders are state legislators who hold fiscal and policy influence over public institutions, but these leaders have not yet been studied to understand the extent to which political leaders differ on higher education purpose and accountability definition, instruments, and indicators. The present study examined Republican and Democrat state legislator differences on higher education purpose and accountability. The results indicated partisan differences of perspective on higher education.

A nationwide call upon state political leaders made in 2006 by the National Conference of State Legislatures articulated that reform in higher education was not only a necessity, but also a state responsibility (Bell, 2006). The call for state action has occurred during a time of rich discussion and debate on higher education accountability (Bogue & Aper, 2000; Richardson & Martinez, 2009). This dialogue has made clear that public institutions of higher learning in the United States are faced with significant leadership challenges to adapt to and meet the performance expectations of a variety of stakeholder groups (Richardson & Martinez, 2007; Bell, 2006). State legislators have been actively pursuing efforts to reform higher education to make better use of state resources and improve quality in its performance outcomes (American Association of State Colleges & University, 2006; Richardson & Martinez, 2009). In 2010, for instance, the Tennessee legislature passed significant higher education reform that called for increased effort to enhance graduation rates; to eliminate duplicity in program offerings; and to enhance the quality of student learning (Complete College Tennessee Act, 2010). The pressure to meet reform efforts such as these has intensified as legislative stakeholder criticism on higher education performance is coupled with steadily declining public support to cover operational expenses (State Higher Education Executive Officers, 2007; Rafool, 2010).

Despite the visible calls for accountability and reform, research suggests that the accountability movement in public higher education is affected by insufficient stakeholder dialogue and consensus (Bogue & Hall, 2012; Zemsky, 2009; Kirwan, 2007; Mundhenk, 2006). Stakeholders agree that higher education is in need of reform, but within these efforts to understand stakeholder criticism there is insufficient knowledge about the extent to which major stakeholders align or differ on various characteristics of accountability (Bogue & Hall, 2012). How will college and university leaders design credible accountability policy if the stakeholder groups disagree among one another on its goals and instruments? Despite the lingering questions and uncertainties, the push for accountability marches along at ever-increasing speed.

Varying Perspectives on Higher Education Accountability

Stakeholder perspectives on higher education have indicated a significant leadership challenge with regard to the capability of institutions to understand and address expectations from a wide and influential audience (Bogue & Hall, 2012; Mundhenk, 2006; Morse, 2011). Several research studies on higher education's major business, political, and academic stakeholder groups have illustrated that the perspectives that these individuals hold over accountability are significant, but these viewpoints are also diverse. For instance, Morse (2011) and Bogue and Hall (2012) addressed the complexity that higher education leaders face to adapt to the policy perspectives of the major stakeholder groups. Morse interviewed a sample of 19 institutional, legislative, and business leaders to understand what forms of outcome evidence these individuals report would help build confidence in accountability and performance. Stakeholders reported that forms of evidence that indicate student-learning outcomes were needed. Legislative and business leaders, in particular, were dissatisfied with the quality of graduates that institutions were producing and wanted to see initiatives undertaken that focused on the improvement of student learning (Morse, 2011). Despite these concerns, all of the major stakeholder groups expressed dissatisfaction with insufficient dialogue on the steps that institutions could take to construct accountability policy.

Bogue and Hall (2012) further illustrated the challenge of adapting accountability efforts to meet stakeholder expectations through their multi-state study among corporate, academic, and political leaders on the purpose, design, and objectives of accountability. The authors demonstrated that while accountability is a significant policy goal among the stakeholder groups, leaders had differences of opinion on the value and validity of the forms of evidence, definitions, and goals of accountability. For instance, the stakeholder groups differed on the value of reports that indicate fiscal and educational performance as a definition of accountability and the appropriateness of ratings and rankings as a form of evidence (Bogue & Hall, 2012). Further, these groups differed on their understanding of higher education purpose; academic leaders differed from both legislative and business leaders, for instance, on higher education as a place for discovery of student talents, skills, and interests (Bogue & Hall, 2012). These studies revealed important perspective about the challenges institutional leaders face to meet accountability expectations due to the variety of conflicting viewpoints among stakeholders. The research did not explore the presence of differences of opinion within these stakeholder groups, however.

Higher Education Accountability as a Political Issue

A report released by the National Conference of State Legislatures (2006) suggested heavy concern with the performance of higher education by asserting the following: "There is a crisis in American higher education. It has crept up on us quickly. It has become clear that the states and the federal government have neglected their responsibilities to ensure a high quality college education for all citizens. Too many students are falling through the cracks. As a result, U.S. citizens are not achieving their full potential, state economies are suffering, and the United States is less competitive in the global economy." But as higher education institutions and political leaders move forward to improve performance and ensure quality, what steps should be taken to address criticisms and concerns of higher education? What leadership issues will affect higher education's ability to demonstrate accountability through increased efforts on the part of political

leaders to demand evidence of performance from institutions?

As one example, legislators have voiced concern that universities insufficiently demonstrate responsible fiscal stewardship. However, legislative perspectives on accountability policies and priorities up to this point have been inadequately addressed in the literature. Mundhenk (2006) articulated that legislators expect demonstrated stewardship of resources, but on what forms of evidence, specifically, would these individuals share consensus as an indicator of fiscal performance? As Zemsky (2009) pointed out in his critique of higher education reform efforts, those who express concern with higher education performance often fail to articulate an alternative.

In addition to a lack of clarity over what political leaders envision as the solution to higher education accountability policy, research has indicated that political leaders have differing priorities on higher education performance. Scholarship has investigated the higher education policy preferences of political leaders, but the literature has not focused, specifically, on accountability (Doyle, 2007; Mundhenk, 2006). Doyle (2007) examined the policy positions of congressional Democrats and Republicans as they related to their constituents. The study provided some evidence for partisan ideological differences between congressional representatives on higher education policy priorities with Republicans tending to focus priorities on institutional accountability and Democrats citing opportunity and affordability as preferred priorities (Doyle, 2007).

The difficulty of efforts to address policy priorities and concerns among legislators is compounded by the presence of distrust among these stakeholders on the credibility of evidence to report performance (Roberson-Scott, 2005; Morse, 2011). For instance, Roberson-Scott (2005) interviewed 15 legislative leaders within Tennessee and found that these stakeholders perceived that colleges and universities insufficiently demonstrated accountability. Legislators reported that institutional efforts to produce and report evidence were not credible and trustworthy, and stated that an independent body should be responsible for gathering evidence to heighten trustworthiness and credibility (Roberson-Scott, 2005). Morse's (2011) study indicated that legislators preferred an independent body of state government such as the State Comptroller's Office to be responsible for gathering accountability data, but academic leaders distrusted the ability of this office to adequately assess institutional performance.

Despite the growing significance of stakeholder interest in higher education accountability, it is evident that colleges and universities struggle with the task of responding to a variety of major stakeholders who hold influence on the policy priorities of institutions (Doyle, 2007; Morse, 2011; Roberson-Scott, 2005; Bogue & Hall, 2012). Institutional leaders struggle with unclear and differing policy priorities offered among critical stakeholders (Doyle, 2007; Mundhenk, 2006). Further, legislators and institutional leaders lack consensus on a credible source to compile and report accountability data (Morse, 2011; Roberson-Scott, 2005).

Therefore, the problem is that while the calls to improve performance through accountability have been made clear by political leaders, there is insufficient knowledge about the political and ideological challenges that impede the ability for higher education institutions to respond to legislator expectations and concerns. As a result, the purpose of the research is to identify the

significance and types of similarities and differences that exist among political leaders across six states and according to political party affiliation on higher education accountability policy. Specifically, the study will add to research by Bogue and Hall (2012) on major stakeholder perspectives of accountability. However, their multi-state study did not examine political leader differences along party lines on accountability policy. Based on prior research, the present study predicts that Republicans and Democrats will differ in terms of the purpose, instruments, and indicators of higher education accountability policy (Bogue & Hall, 2012; Doyle, 2007). Therefore, the present study will examine the data from their research to address the following questions:

- What differences exist among political leaders by party affiliation on the purpose and instruments of accountability policy?
- What differences exist among the political leaders by party affiliation on their attitudes toward the present status of higher education accountability?

Research Design and Methods

This study utilized a survey design. The questionnaire items were single-response ordinal likert-scale prompts for comparison across the political leaders. These responses indicated the extent to which legislators agree or disagree based on party affiliation to various aspects of accountability definition and purpose as well as methods and expectations for producing evidence of quality.

Participants

The study investigated the perspectives of political leaders across six states to gain a broad perspective from different geographic regions of the United States on higher education accountability policy. Every elected legislator in the states of Tennessee, Connecticut, Georgia, Michigan, Colorado, and Oregon was contacted to participate in the survey. The study included a total of 122 state political leaders (70 democrat, 52 republican). The legislative respondents varied by degree level with 54 percent holding an advanced (Master's, Doctoral, or Professional) degree; 37.3 percent had earned Associate's or Bachelor's degrees; and 8.7 percent held a High School Diploma. Tennessee (40%) and Oregon (25%) had the greatest percentage of total responses of the six states. Colorado (17.6%) and Georgia (12%) followed in total participation, and Connecticut (9.6%) and Michigan (8.8%) provided the smallest response rates out of the political leader participants.

Instrumentation

A quantitative survey design was utilized for this study because this approach allowed for the researcher to obtain data from which to make observations about participant attitudes and perceptions (Creswell, 2009). Creswell (2009) stated that a survey design illustrates attitudes and perspectives of a population through a numeric description. The survey helped the researcher to collect data that allowed for comparisons to be made among the participant groups.

Content validity was established through submitting the survey instrument to an expert review process by faculty, administrators, and policy scholars across the United States. The survey inquired about various components associated with higher education accountability policy. Specifically, the survey sought to inform about the preferred definitions that stakeholders hold on accountability; the perceived effectiveness of existing accountability measures; expected priorities over institutional mission and purpose; the observed importance of stakeholders; the intended outcomes of accountability policy; and the overall importance of accountability evidence. Reliability for the survey was established by employing the Cronbach Alpha Coefficient test (.89).

Procedure and Data Analysis

The names and contact information of each elected state legislative representative across the six states were gathered for participation in the study. This study did not utilize a randomized sample of participants to guarantee that the respondents accurately represented the total population in each group. Instead, the survey was administered to each elected state legislator within the six states identified for the study.

Upon completion of data collection, the researcher first ran descriptive statistics to understand the frequencies of participants and general characteristics of the sample before running inferential statistical analyses. These descriptive analyses included frequencies of political party affiliation, state-by-state participation, and academic degree attainment among the political leader participants. To examine differences between political leaders on party affiliation, the researcher conducted chi-square tests for independence. The chi-square test for independence accounted for item-by-item analysis of the data.

Findings

A total of 122 state legislators (70 Democrat, 52 Republican) participated in the survey. The legislative respondents varied by degree level with 54 percent holding an advanced (Master's, Doctoral, or Professional) degree, 37.3 percent had earned Associate's or Bachelor's degrees, and 8.7 percent held a High School Diploma. Tennessee (40%) and Oregon (25%) had the greatest percentage of total responses of the six states. Colorado (17.6%) and Georgia (12%) followed, and Connecticut (9.6%) and Michigan (8.8%) provided the smallest response rates out of the political leader participants.

Political leaders were first asked to indicate how appropriate a variety of goals of accountability (Table 4) are. No significant differences between Republicans and Democrats were observed on the goals of higher education accountability, but their responses tended to indicate that legislators expect that accountability goals should help to prove adequate performance to stakeholders. For instance, Republicans ($M = 3.50$, $SD = .828$) and Democrats ($M = 3.43$, $SD = .714$) viewed accountability as a demonstration of achievement of established goals as a moderate to highly appropriate policy goal. Further, no significant differences were observed between the political leaders on their perspectives of what the effective instruments of accountability are to demonstrate accountability (Table 5).

Several significant differences were found between Republicans and Democrats on the purpose each ascribes to higher education (Table 6). For instance, Democrats placed more importance on the purpose of higher education as allowing for unimpeded truth, $\chi^2(3, N = 122) = 13.86, p < .01$, with Democrats placing greater importance on this indicator, on average, than Republicans. Further, a significant differences were observed on higher education purpose as a place for students to discover talents and skills, $\chi^2(3, N = 122) = 8.49, p < .05$, with Democrats placing greater importance than Republicans, on average, on this purpose of higher education was noted. Republicans and Democrats differed on the level of importance each ascribed to the purpose of higher education as to serve as a forum for the study and debate of public policy, $\chi^2(3, N = 122) = 13.62, p < .01$, with Democrats placing greater importance on this purpose than Republicans. Lastly, a significant effect for higher education purpose to serve as a depository for cultural history and heritage was noted, $\chi^2(3, N = 122) = 19.81, p < .001$, with Democrats again placing higher importance on this purpose than Republicans. Republicans ($M = 3.56, SD = .639$) and Democrats ($M = 3.66, SD = .535$) both tended to find higher education's purpose as a contributor to economic and workforce development to be moderately to highly important.

Differences between Republicans and Democrats were observed with regard to the responsibility that institutions hold to a variety of stakeholder groups (Table 7). For instance, a significant difference on the priority institutions held to the federal government, $\chi^2(3, N = 122) = 14.38, p < .01$, with Democrats indicating higher responsibility should be given than Republicans. Significant differences also existed between the major parties with regard to the responsibility institutions should hold to the local government, $\chi^2(3, N = 122) = 7.83, p = .05$, with Republicans reporting less responsibility toward this group than Democrats. Democrats ($M = 3.34, SD = .634$) and Republicans ($M = 3.27, SD = .795$) both viewed that higher education institutions held a moderate to high level of responsibility to state government.

A variety of significant differences were noted between the political leaders on their attitudes toward the present status of accountability efforts (Table 8). For instance, the political leaders differed on the extent to which they viewed that institutions will use cosmetic and adaptive responses to avoid disclosing unflattering information, $\chi^2(3, N = 122) = 23.96, p < .001$, with Republicans tending to place greater agreement on this statement than Democrats. Despite the presence of differences among the political leaders on attitudes toward accountability, both Democrats and Republicans expressed concern over the efforts currently underway for institutions to demonstrate performance through accountability.

The survey inquired with legislators on their desirability of a variety of accountability indicators. First, legislators were asked about their preferred enrollment indicators (Table 9), and despite the strong level of desirability of Republicans ($M = 3.69, SD = .506$) and Democrats ($M = 3.80, SD = .469$) alike on retention and graduation rates, differences were observed among the political leaders on enrollment trends and entering ability. For instance, a significant partisan difference was noted on the desirability of enrollment trends by race/ethnicity and gender, $\chi^2(3, N = 122) = 10.91, p < .05$, with Democrats desiring this indicator more, on average, than Republicans. Additionally, a significant effect existed between the political leaders with regard to entering academic ability as indicated by ACT or SAT score, $\chi^2(3, N = 122) = 17.19, p < .01$, with Republicans desiring this indicator more than Democrats.

State legislators were asked about their desirability of student learning outcomes as an indicator of accountability (Table 10). Republicans and Democrats placed a high level of desirability on indicators that report student field or major knowledge, analytical and critical thinking skills, and oral and written communication skills. However, partisan differences were observed with regard to the desirability of learning outcomes that assess and report liberal arts education as an indicator of performance. For example, a partisan effect, $\chi^2(3, N = 122) = 45.81, p < .001$, on knowledge and appreciation of other cultures as an indicator of student learning was observed between political leaders, with Democrats placing greater desirability than Republicans on this indicator.

Significant differences were found between Republicans and Democrats on the desirability of satisfaction among higher education constituency groups as an indicator of accountability (Table 11). Partisan effects were found for faculty and staff satisfaction as a desirable indicator, $\chi^2(3, N = 122) = 16.70, p = .001$, with Democrats indicating higher desirability than Republican, on average. Further, effects were observed for desirability of community and civic leader satisfaction, $\chi^2(3, N = 122) = 13.95, p < .01$, with Democrats placing higher value on this constituency group's satisfaction than Republicans.

Despite Republican ($M = 3.67, SD = .617$) and Democrat ($M = 3.87, SD = .487$) bipartisan desirability of faculty teaching performance records as an indicator of accountability (Table 12), numerous points of difference were also observed on the extent to which faculty indicators were a desired form of accountability evidence. In general, Democrats tended to place greater emphasis on the desirability of faculty indicators of performance compared to Republicans. For example, differences were observed between parties on the desirability of faculty salaries compared to peer institutions, $\chi^2(3, N = 122) = 17.41, p = .001$, with Democrats placing higher desirability than Republicans on this indicator.

Lastly, political leader respondents were asked about the desirability of fiscal indicators of performance to demonstrate accountability (Table 13). Republicans and Democrats differed on the desirability of state funding for institutions compared to designated peers, $\chi^2(3, N = 122) = 11.51, p < .01$, with Democrats placing greater desirability on this indicator than Republicans, on average. Despite this difference of perspective, the political leaders tended to find moderate to high value of many of the fiscal indicators of higher education performance.

Discussion

This study examined the differences of perspective that state political leaders held toward higher education accountability policy in the form of its purpose, instruments, and effect on institutional performance. The present research adds to the literature on the complexity of the accountability task – that colleges and universities face scrutiny from a wide stakeholder audience, but criticism has not been met with clarity and consensus on the steps institutions should take to be held accountable. The present study predicted that Republicans and Democrats differ in terms of the purpose, instruments, and indicators of higher education accountability policy.

As a major stakeholder group, state political leaders have demonstrated an interest in the improvement of higher education accountability. However, consistent with prior literature on

accountability that suggests a lack of stakeholder agreement on the purpose, instruments, and effect of accountability these leaders expressed a variety of differences based on their party affiliation (Bogue & Hall, 2012). Unless paths of consensus can be identified, the complexity and challenge of responding to a wide and differing stakeholder audience will persist for higher education leaders.

For instance, a major finding of this study was that Republicans and Democrats expressed differences on the purpose of higher education. Republicans were less inclined than Democrats to view higher education as a place for students to discover their talents and skills; as a depository for cultural history and heritage; and as a forum for the study and debate of public policy. Instead, political leaders tended to consent to the purpose of higher education as a contributor to economic and workforce development. The view that higher education is a venue for the production of the future workforce has been affirmed through prior research on stakeholder accountability preferences (Bogue & Hall, 2012; Morse, 2011; Roberson-Scott, 2005; Tipton-Rogers, 2004).

The “What’s a college for?” question is central to discussion on higher education accountability policy construction because each institutions’ indicators of performance will emanate from the ways in which each serves the public through mission. However, a lack of consensus among stakeholders in general, and legislators, in particular, poses a significant policy challenge to demonstrate performance if these individuals express differences on the purpose of higher education.

Despite several differences of opinion on preferences for a variety of performance indicators to demonstrate accountability, Republicans and Democrats tended to prefer outcome-oriented accountability evidence. Legislators tended to share consensus on the value of persistence and graduation rates as an indicator of performance, which prior research has also affirmed as an attractive indicator of performance for legislators (American Association of State Colleges and Universities, 2002; Bogue & Hall, 2012; Richardson & Martinez, 2009). The emphasis in outcomes can serve as a point of dialogue among stakeholders and institutional leaders with regard to the form that accountability evidence can take, but the results of this study suggest that discussion is needed on the appropriate instruments and indicators of performance.

If political leaders express differences on higher education purpose, then what might that suggest about the indicators of institutional performance that will be accepted as legitimate and credible among these stakeholders? Political leaders tended to agree on the value of fiscal audit reports to demonstrate acts of responsible stewardship, but differed on the value of state contributions to higher education compared to other states. The evidence gathered from this study has illustrated that while the possibility for consensus exists, a variety of differences complicate the ability for institutions to represent the complex set of responsibilities held to students, citizens, and the fields in which scholars are engaged all while acting as responsible stewards of resources. For instance, the results of the study indicated that Republicans tend to be less inclined than Democrats to find learning outcomes that traditionally align with a liberal arts education (i.e. learning about diverse cultures) to be a desirable form of accountability evidence.

As the world continues to flatten as Thomas Friedman (2005) put it with regard to the rapid

shrinking of our borders due to globalization, higher education will be tasked with preparing undergraduates with the education to be proficient within a constantly changing, increasingly diverse environment, and faculty will act not only as the developers and discoverers of new knowledge, but also as stewards along students' educational journeys. But at the same time, the pressure for institutions to demonstrate performance in a credible and compelling manner to a diverse stakeholder audience is critical to achieve the accountability task. What if the task of being accountable to one audience ignites criticism with performance to another?

Institutional leaders are also faced with the challenge of negative attitudes on the part of legislators toward the present steps to demonstrate accountability. Although there were significant attitudinal differences between Republicans and Democrats on a variety of accountability themes, these stakeholders tended to agree that institutionally-developed reports cannot be trusted and that independently-developed reports of accountability would be viewed as more credible. Who, then, should be responsible for compiling accountability evidence? Morse (2011) addressed this question through interviews with academic, political, and business leaders in Tennessee. Legislators shared consensus on the credibility of evidence gathered by the State Comptroller's Office given its perception among these leaders as an independent auditor. However, academic leaders responded by sharing their perspective that this source would inadequately capture the performance of colleges and universities and instead consented to the idea that the office could be one voice involved in accountability efforts (Morse, 2011). Further study could address the value of independent review such as major and field accreditation at demonstrating accountability given that these processes are well established and also viewed as credible among academic leaders (Morse, 2011, Bogue & Hall, 2012).

Despite a rich compilation of legislator perspectives in the study, there are limitations worth acknowledging. While this study investigated the relationship between Republicans and Democrats on higher education accountability perspectives, its focus did not address what priorities these leaders find most prudent to build confidence in higher education performance. Further research might address what these steps might be among the political leaders to focus the efforts among institutional leaders to address concerns with performance among legislators.

Overall, the study's findings are significant because they suggest that the development of accountability policy that responds effectively to stakeholder calls for performance evidence will not be achieved without consensus. The dissent on higher education purpose, the instruments and indicators to measure and report performance, and the attitudes legislators report on present accountability expressions highlight the difficulty placed upon institutional leaders to provide evidence of performance that is viewed as valuable across party lines. Without consensus, legislative stakeholders and the institutional leaders that rely upon public support to operate colleges and universities will continue to struggle to meet one another's expectations.

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Table 1.

Frequency of Political Leader Respondents by Party Affiliation

Party Affiliation	Frequency (%)
Democrat	70 (57.4)
Republican	52 (42.6)
Total	122

Table 2.

Frequency of Political Leader Respondents by Education Level

Degree Level	Frequency (%)
High School Diploma	11 (8.7)
Associate's Degree (AA, AS, etc.)	4 (3.2)
Bachelor's Degree (BS, BA, etc.)	43 (34.1)
Master's Degree (MA, MS, etc.)	35 (27.8)
Doctoral Degree (Ph.D., Ed.D., etc.)	5 (4.0)
Professional Degree (JD, MD, etc.)	28 (22.2)

Table 3.

Frequency of Political Leader Respondents by State and Party Affiliation

State	Democrat	Republican	Total (%)
Connecticut	10	2	12 (9.6)
Colorado	16	6	22 (17.6)
Georgia	4	9	15 (12)
Michigan	9	2	11 (8.8)
Oregon	15	9	25 (20)
Tennessee	16	24	40 (32)

Table 4.

Descriptive Statistics of Political Leader Participants by Party Affiliation on Goals of Accountability Policy

	Democrat (n = 70)		Republican (n = 52)		χ^2	Significance Level
	M	SD	M	SD		
Institution Achieves Established Goals	3.43	.714	3.50	.828	5.32	.150
Institution Demonstrates Fiscal and Management Integrity	3.47	.696	3.48	.828	3.90	.272
Institution is Responsive in Achieving State Goals	3.10	.705	3.10	.934	7.57	.056
Institution Offers Public Evidence on Educational and Fiscal Performance	3.46	.755	3.47	.864	.89	.828

Note: Responses were averaged on a 4-point likert scale from 1 = Not Appropriate, 2 = Somewhat Appropriate, 3 = Moderately Appropriate, and 4 = Highly Appropriate.

Table 5.

Descriptive Statistics of Political Leader Participants by Party Affiliation on the Preferred Instruments of Accountability

	Democrat (n = 70)		Republican (n = 52)		χ^2	Significance Level
	M	SD	M	SD		
Institution Accreditation	3.14	.804	2.92	1.02	6.12	.106
Major Field Accreditation	3.24	.711	3.10	.955	4.78	.189
Financial Audit Reports	3.20	.754	2.88	.878	4.64	.200
Ratings & Rankings such as U.S. News & World Report	2.57	.910	2.42	.936	2.36	.501

Note: Responses were averaged on a 4-point likert scale from 1 = Not Effective, 2 = Somewhat Effective, 3 = Moderately Effective, and 4 = Highly Effective.

Table 6.

Descriptive Statistics of Political Leader Participants by Party Affiliation on the Perception of Higher Education Purpose

	Democrat (n = 70)		Republican (n = 52)		χ^2	Significance Level
	M	SD	M	SD		
To Contribute to Economic/Workforce Development	3.66	.535	3.56	.639	1.54	.464
To Encourage Student Discovery of Talents, Interests, & Values	3.64	.566	3.33	.810	8.49	.014
To Engage in Unimpeded Search for Truth	3.56	.673	3.15	.777	13.86	.003
To Serve as Forum for Study and Debate of Public Policy	3.31	.772	2.83	.857	13.62	.003
To Serve as Depository of Cultural History and Heritage	3.24	.751	2.58	.801	19.81	.000
To Build and Sustain Democracy	3.26	.879	3.00	.970	2.38	.497

Note: Responses were averaged on a 4-point likert scale from 1 = Not Important, 2 = Somewhat Important, 3 = Moderately Important, and 4 = Highly Important.

Table 7.

Descriptive Statistics of Political Leader Participants by Party Affiliation on the Priority of Institutional Accountability to Selected Stakeholder Groups

	Democrat (n = 70)		Republican (n = 52)		χ^2	Significance Level
	M	SD	M	SD		
Alumni	2.93	.804	2.67	.810	2.98	.394
Business/Civic Leaders	3.04	.751	2.81	.817	3.05	.83
Citizens/Taxpayers	3.54	.630	3.42	.801	5.24	.073
Donors	2.93	.729	2.94	.938	6.84	.077
Federal Government	2.86	.787	2.38	1.013	14.38	.002
State Government	3.34	.634	3.27	.795	3.62	.305
Local Government	2.77	.871	2.37	.864	7.83	.050
Parents	3.47	.812	3.52	.671	1.93	.588
Students	3.84	.439	3.87	.397	.12	.944

Note: Responses were averaged on a 4-point likert scale from 1 = Not Responsible, 2 = Somewhat Responsible, 3 = Moderately Responsible, and 4 = Highly Responsible.

Table 8.

Descriptive Statistics of Political Leader Participants by Party Affiliation on Attitudes toward the Present Status of Accountability Efforts

	Democrat (n = 70)		Republican (n = 52)		χ^2	Significance Level
	M	SD	M	SD		
Accountability Data Submitted by Institutions Can Be Trusted	2.77	.487	2.52	.671	9.10	.028
Independent Financial & Audit Reports are More Valuable than Accreditation Reports	3.03	.659	3.27	.689	6.59	.086
Institutions Will Use Cosmetic and Adaptive Responses to Avoid Disclosing Unflattering Information	2.76	.576	3.27	.689	23.99	.000
Accountability Information is More Valuable When Developed by an Independent Evaluation than by a Board/Institution	3.03	.659	3.27	.630	4.33	.228
A Periodic Public Poll Should be Administered to Gauge Public Confidence in Higher Education	2.46	.716	2.40	.799	1.46	.692
Isolated Instances of Integrity Violations Overshadow Good Reports of Academic and Fiscal Stewardship	3.30	.574	3.06	.608	.12	.994

Note: Responses were averaged on a 4-point likert scale from 1 = Strongly Disagree, 2 = Disagree, 3 = Agree, and 4 = Strongly Agree.

Table 9.

Descriptive Statistics of Political Leader Participants by Party Affiliation on the Desirability of Accountability Indicators – Enrollment Indicators

	Democrat (n = 70)		Republican (n = 52)		χ^2	Significance Level
	M	SD	M	SD		
Student Enrollment Trends by Gender, Ethnicity, etc.	2.84	.862	2.31	.940	10.91	.012
Student Entering Academic Ability (SAT/ACT score, etc.)	2.99	.648	3.29	.848	17.19	.001
Student Retention/ Graduation Rates	3.80	.469	3.69	.506	3.05	.217

Note: Responses were averaged on a 4-point likert scale from 1 = Not Desirable, 2 = Somewhat Desirable, 3 = Moderately Desirable, and 4 = Highly Desirable.

Table 10.

Descriptive Statistics of Political Leader Participants by Party Affiliation on the Desirability of Accountability Indicators – Student Learning Outcome Indicators

	Democrat (n = 70)		Republican (n = 52)		χ^2	Significance Level
	M	SD	M	SD		
Knowledge and Appreciation of Other Cultures	3.39	.728	2.27	.819	45.81	.000
Knowledge in a Specific or Major Field	3.66	.535	3.73	.490	.62	.733
Knowledge of Democratic Culture & Heritage	3.20	.791	3.00	.950	3.54	.316
Knowledge of Modes of Thought Associated with Pursuit of Truth	3.27	.741	2.75	.813	12.55	.006
Knowledge of Religious and Ethical Thought	2.83	.816	2.52	.918	4.73	.193
Proficiency in Artistic and Aesthetic Expression	2.77	.745	2.33	.810	11.72	.008
Proficiency in Analytical and Critical Thinking	3.77	.516	3.77	.469	.98	.613
Performance on Exit and/or Professional Licensure Exams	3.20	.773	3.37	.658	2.18	.535
Proficiency in Interpersonal Skills and Social Interactions	3.33	.675	3.10	.748	3.49	.175
Proficiency in Oral and Written Communication	3.73	.509	3.75	.437	1.65	.437
Proficiency in Foreign Language	2.91	.717	2.79	.800	4.41	.221

Note: Responses were averaged on a 4-point likert scale from 1 = Not Desirable, 2 = Somewhat Desirable, 3 = Moderately Desirable, and 4 = Highly Desirable.

Table 11.

Descriptive Statistics of Political Leader Participants by Party Affiliation on the Desirability of Accountability Indicators – Constituent Satisfaction Indicators

	Democrat (n = 70)		Republican (n = 52)		χ^2	Significance Level
	M	SD	M	SD		
Enrolled Student Satisfaction	3.43	.734	3.27	.689	4.70	.195
Alumni Satisfaction	3.07	.767	2.87	.817	2.84	.417
Employer Satisfaction	3.49	.654	3.50	.672	2.41	.492
Faculty/Staff Satisfaction	3.30	.709	2.81	.715	16.70	.001
Community/Civic Leader Satisfaction	3.27	.658	2.81	.715	13.95	.003
Parent Satisfaction	3.36	.703	3.35	.738	.13	.988

Note: Responses were averaged on a 4-point likert scale from 1 = Not Desirable, 2 = Somewhat Desirable, 3 = Moderately Desirable, and 4 = Highly Desirable.

Table 12.

Descriptive Statistics of Political Leader Participants by Party Affiliation on the Desirability of Accountability Indicators – Faculty Indicators

	Democrat (n = 70)		Republican (n = 52)		χ^2	Significance Level
	M	SD	M	SD		
Faculty Degree Credentials	3.41	.577	3.10	.748	8.18	.042
Faculty Publication Record	2.74	.695	2.27	.630	14.25	.003
Faculty Teaching Performance Records	3.77	.487	3.67	.617	2.71	.538
Faculty Community/Professional Service Record	2.93	.709	2.54	.753	8.29	.040
Faculty Salary Compared to Peer Institutions	3.00	.742	2.38	.820	17.41	.001

Note: Responses were averaged on a 4-point likert scale from 1 = Not Desirable, 2 = Somewhat Desirable, 3 = Moderately Desirable, and 4 = Highly Desirable.

Table 13.

Descriptive Statistics of Political Leader Participants by Party Affiliation on the Desirability of Accountability Indicators – Fiscal Indicators

	Democrat (n = 70)		Republican (n = 52)		χ^2	Significance Level
	M	SD	M	SD		
Fiscal Audit Results and Compliance with State Fiscal Policy/Regulations	3.53	.653	3.62	.631	3.82	.282
Trends in and Market Value of Endowments	2.97	.701	2.85	.277	1.34	.710
Trends in Private and Voluntary Contributions	3.10	.705	3.08	.710	1.34	.720
State Funding Compared to Designated Peer Institutions	3.21	.740	2.83	.857	11.51	.009
Trends in External Research Funding	3.30	.688	3.17	.734	1.09	.780

Note: Responses were averaged on a 4-point likert scale from 1 = Not Desirable, 2 = Somewhat Desirable, 3 = Moderately Desirable, and 4 = Highly Desirable.

**Assessing the Watson-Barker Listening Test (WBLT)-Form C
in Measuring Listening Comprehension of Post-Secondary
Hispanic-American Students**

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Abstract

The Watson-Barker Listening Test (WBLT) is one of the most popular measures of listening comprehension. However, participants in studies utilizing this scale have been almost exclusively Anglo-American. At the same time, previous research questions the psychometric properties of the test. This study addressed both of these issues by testing the psychometric properties of the scale with Hispanic-American postsecondary students. Results suggest that the measure does not meet the proposed five-factor structure and that the items hold little relationship to one another. Thus we recommend researchers and educators choose alternative means of measuring listening comprehension.

Almost from its inception as a distinct field, listening researchers focused on identifying components of “good” listening (Bostrom, 2011). One of the primary components believed to constitute good listening is comprehension. In response to this belief, numerous measures of listening comprehension have been proposed (e.g., Brown-Carlsen Listening Comprehension Test, Communication Competency Assessment Instrument, Kentucky Comprehensive Listening Test; Watson-Barker Listening Test) (Bostrom & Waldhart, 1983; Brown & Carlsen, 1955; Rubin, 1982a, 1982b, Watson & Barker, 1988). The Watson-Barker Listening Test (WBLT) has emerged as the most utilized measure of listening comprehension by listening scholars, consultants, and teachers.

Given the close connection between ethnicity and communication (Gudykunst, 2002), and the rapidly changing ethnic composition of the United States, understanding the impact of cultural and ethnic differences on communication has become increasingly important. Nonetheless, our understanding of how ethnic differences may affect listening skills and attitudes is woefully underdeveloped. Studies utilizing the WBLT (as well as other listening measures) have relied

almost exclusively on Anglo-American participants. As Little (1997) and Keaton and Bodie (2013) note, scales properties may change across different populations. Thus, it behooves listening scholars to continuously evaluate the validity and reliability of listening measures, including what populations and contexts are appropriate for them.

In addition to the general lack of research with other populations, several studies have questioned the psychometric properties of the current version of the WBLT, especially given that significant changes have been made across the various versions since the test was developed (see, for example, Worthington, Fitch-Hauser, Cook, & Powers, 2009; Bodie, Worthington, & Fitch-Hauser, 2011). Psychometrically sound instruments are a necessity if listening scholars are accurately to describe and explain listening processes (Keaton & Bodie, 2013).

We address both of the above issues in this study. First, our study provides an additional test of the psychometric properties of the WBLT. Second, because Hispanic-Americans are one of the fastest growing ethnic groups in the US, composing approximately 16.3% of the US population (Humes, Jones & Ramirez, 2011), we chose to use Hispanic-American postsecondary students as participants in our study.

Watson-Barker Listening Test

The Watson-Barker Listening Test was developed in 1982 as a means to measure adult listening behavior (Watson & Barker, 1984, 1988; Watson, Barker, Roberts & Roberts, 2001). Presented via video, the WBLT tests for five different listening abilities – interpretation of meaning, interpretation of emotion, understanding, recall, and the ability to follow instructions. In addition, each section is designed to test a listener's ability in both short-term and long-term listening contexts (e.g., conversations, lectures, etc.). Watson et al. (2001) contend that the test focuses on the types of listening adults may face in professional settings.

The scale has been used in a variety of contexts (e.g., education and business) and studies (Applegate & Campbell, 1985; Bommelje, Houston, & Smither, 2003; Clark, 1989; Fitch-Hauser, Powers, O'Brien, & Hanson, 2007; Roach & Fitch-Hauser, 1984; Vierthaler & Barker, 1985; Villaume & Brown, 1999; Watson & Rhodes, 1988; see also, Watson et al., 2001, for a review). It is one of the most utilized classroom and workshop measurements, with students taking it before and after exposure to listening instruction. This type of usage often occurs in classes and workshops dedicated to improving listening competency.

The developers of the WBLT, recognizing the complexity of the listening process, acknowledge that the test accounts for only a relatively small amount of variance. However, this complexity also likely explains why a number of studies have found the WBLT lacking in overall convergent and discriminate validity (cf. Applegate & Campbell, 1985; Bodie, Worthington, & Fitch-Hauser, 2011; Fitch-Hauser & Hughes, 1986, 1992; Roberts, 1985; Rubin & Roberts, 1987; Villaume & Weaver, 1996). However, the measure continues to be used in research, classroom, and professional settings despite these problems.

The most serious questions of the psychometric properties of the scale were raised by Bodie et al. (2011). Reporting the results of a confirmatory test of Form C of the WBLT, they found that their test of those data did not match the model originally proposed by Watson and Barker. They also tested a second-order model and an unidimensional model. They concluded that the models tested were essentially no better than the independence model. Thus, with their student population, they found little association across the 40 items of the WBLT-C. The Bodie et al. study consisted of 208 participants: 181 Caucasian students, 23 African-American students, and the remaining participants self-identified as a variety of other ethnic groups (e.g., Asian, Hispanic, multiethnic, etc.).

However, as noted earlier, researchers suggest that scale properties may change with different populations (Keaton & Bodie, 2013; Little, 1997). Therefore, the goal of this study is to further test the psychometric properties of the WBLT-C with Hispanic-American postsecondary student participants.

Method

Participants

Participants attended a Southwestern US university. Only participants who self-identified as Hispanic were included in this analysis ($n = 214$). Hispanic participants self-identified by a question that asked the person's origin or descent. More specifically, Hispanic respondents, no matter their race, “were defined as persons of Hispanic origin, in particular, those who indicated that their origin was Mexican, Puerto Rican, Cuban, Central or South American, or some other Hispanic origin,” reflecting the definition provided by the US Census Bureau (“Hispanic Population,” 2011).

Of the 214 participants, 147 were male (64%) and 82% were full time students. Participants ranged in age from 19 to 43 years, with an average age of 22.11 ($SD = 3.6$); 62% were first-year students and 30% sophomores. Approximately 67% of participants indicated they were bilingual (English/Spanish).

Procedures

Data was collected as part of larger study investigating listening comprehension and additional listening and communication variables in a single hour-long session. At this session, the participants first reviewed an informed consent statement. Next, they viewed a video recording of the Watson-Barker Listening Test (Form C).¹ After viewing the video, they completed the WBLT scoring sheet as well as a short survey consisting of additional attitudinal, listening, and demographic items.

Instruments

The Watson Barker Listening Test (Form C) (Watson et al., 2001) consists of 40 items and is designed to measure five aspects of listening comprehension: Interpreting message content, understanding meaning in conversations, remembering lecture information, interpreting

emotional meaning, and following directions and instructions. The test is administered in English via a video recording. Following the presentation of the stimulus materials, participants complete a 40-item questionnaire (eight questions for each of the five areas). Participants are instructed to mark the correct answer on a written scoring sheet. Participant answers are scored as either correct or incorrect. An overall score is also computed. Table 1 reports general descriptive statistics as well as the number of correct and incorrect items for each subscale and for the comprehensive score.

Internal consistency was estimated using Cronbach's α for the original five-factor structure (Part I, Evaluating Interpreting Message Content, $\alpha = .39$; Part II, Understanding Meaning in Conversation, $\alpha = .29$; Part III, Understanding and Remembering Lecture Information, $\alpha = .44$; Part IV, Evaluating Interpreting Emotional Meaning in Messages, $\alpha = .44$; Part V, Following Instructions and Directions, $\alpha = .39$) and a unidimensional structure ($\alpha = .70$) as previously tested by Bodie, et al., 2011). Additional analysis revealed that the items within the original proposed factors are not highly correlated (see Table 2). Therefore, results concerning the five-factor structure should be interpreted conservatively.

Results

Preliminary Analyses

Prior to running the primary analyses, data were inspected for adherence to statistical assumptions (Tabachnick & Fidell, 2007). With $N = 214$ and alpha set to .05, statistical power was .43 to detect small correlational effects ($r = .10$) and exceeded .99 for medium ($r = .30$) and large ($r = .50$) effects. Furthermore, the data set was sufficiently powered to assess model fit and parameter estimates (based upon recommendations from Hu, Bentler, & Kano, 1992).

Confirmatory factor analytic procedures (using maximum likelihood estimation) were employed to estimate the WBLT-Form C's ability to represent these data for both its proposed five-factor structure and a unidimensional structure (as outlined in Bodie, et al., 2011). Commonly used fit indexes and comparison thresholds were utilized: The comparative fit index (CFI) above .90, the standardized root mean square residual (SRMR) below .10, and the root mean square error of approximation (RMSEA) below .08 (Byrne, 2010; Kline, 2005).

Tests of Model Dimensionality

Five-factor structure. Inspection of fit statistics for the five-factor structure across participants indicated poor representation of these data, $\chi^2(734) = 870.94$, $p < .001$, CFI = .68, SRMR = .07, RMSEA = .03.

Unidimensional structure. Inspection of fit statistics for the unidimensional structure across all participants indicated poor representation of these data, $\chi^2(740) = 915.75$, $p < .001$, CFI = .59, SRMR = .07, RMSEA = .03.

The results of the tests of model dimensionality for the WBLT precluded further analysis of listening comprehension.

Discussion

Prior studies utilizing the WBLT (Form C or D) as a measure of listening comprehension primarily used Anglo-American participants. As previously noted, scale properties may change with different populations (Little, 1997; Keaton & Bodie, 2013). Thus, this study had two goals: To test the psychometric properties of the WBLT- Form C, and to do so with a Hispanic-American student population.

As seen above, results of the tests of model dimensionality provide further empirical evidence that the WBLT-C should not be used as an assessment instrument for listening comprehension. While internal consistency estimates for our Hispanic-American participants improved over those reported by Bodie et al. (2011), the five factor structure originally proposed by Watson and Barker was not supported with these participants. Confirming the findings of Bodie et al. (2011), the 40 items of the WBLT-C are, at best, a loosely associated group of measurement items. DeVellis (2003) argues that in scale construction, items should be at minimum moderately correlated with one another. Such is not the case with this measure.

Educators and trainers often use listening comprehension tests such as the WBLT-C as a means of pretesting and post-testing student listening in classes and in communication training workshops. Despite our findings, some instructors may still wish to utilize the WBLT-C as a means of stimulating classroom discussion. However, it is very likely that students will see their scores as an objective measure of their listening skills. Unfortunately, their scores may give them the false impression that their listening is better or worse than it is in actuality, even when educators stress to them that the test is only being used to illustrate potential problems in common listening contexts. Given this, it is our strong suggestion that educators avoid using the Watson-Barker Listening Test. Unfortunately, we cannot suggest a good alternative.

Bodie et al. (2011) offer several considerations for developing future listening measures. For example, they suggest the use of dichotomous measures (i.e., correct/incorrect) is problematic. Meaning is often derived from the context and individuals who are interacting. Thus, the “one-size-fits-all” approach taken by the WBLT may not accurately reflect the interactive nature of a listening context, particularly when deriving meaning from a message.

This argument may be particularly true for individuals who are bilingual. A rich literature focuses on the effects of being bilingual (see Marian & Shook, 2012 for an overview). For example, previous research indicates that bilingual persons do not use one language at a time. Both languages are active simultaneously. When individuals listen, word activation cues up corresponding words regardless of the language to which the word may belong (Marian & Spivey, 2003). As a result, bilingual listeners have the potential to map words into either language. The cognitive load that results from linguistic competition such as this is known to

result in some language difficulties (Marian & Shook, 2012). For example, speakers of two or more languages may name pictures more slowly (Gollan, Montoya, Fennema-Notestine, & Morris, 2005). They are also more likely to experience moments where they have difficulty recalling a term, but may be able to remember attributes associated with it (Gollan & Acenas, 2004).

When responding to questions of the WBLT-C, participants use information beyond that in the verbal message. Two subscales of the WBLT are designed to measure meaning—understanding conversational meaning and understanding emotional meaning. However, meaning cannot be separated from the larger context of an interaction, so it may not be viable to attempt to measure it as a separate component/subscale as done by the WBLT. As Wagner's (2008) research on listening comprehension suggests, second language speakers vary in how they use and process nonverbal elements of spoken text. Consequently, second-language learners may have greater difficulties decoding nonverbal communication. These findings provide further support for claims that attempts to measure listening comprehension should revisit the question of what constitutes the basic elements of comprehension (see for example, Bodie, Worthington, Imhof, and Cooper, 2008; Bostrom, 2011).

Listening scholars only recently began testing the psychometric properties of many early, established listening measures, such as the WBLT-C. Not only is it important for scholars to test the psychometric properties of listening measures to ensure the soundness of the research they conduct: it is also important to test their viability with other ethnic and cultural groups.

Because the WBLT-C has, so far, been shown to be psychometrically problematic, we were unable to fully realize the second goal of our study. However, some listening researchers have begun addressing the role of culture (primarily defined by national origin) on differences in listening conceptualizations and behaviors. For example, Imhof & Janusik (2006) developed the Listening Concepts Inventory (LCI) as a means of identifying cognitive constructs that drive listening behavior. Their factor analysis identified four major dimensions associated with participants' subjective perceptions of listening: listening as organizing information, listening as relationship building, listening as learning and integrating information, and critical listening. Their follow-up study of these dimensions suggests that individual conceptualizations of the listening process varies. For example, they found that US participants conceptualized listening as a sustained activity, while German participants viewed listening more as an interactive situation that focuses on the individual and requires greater monitoring of the conversation. Imhof and Janusik note that individual concepts of listening can be described as a composition of multiple and independent elements that form a belief system. They go on to conclude that these differing belief systems are likely the source of the differences in how German and US young adults conceptualize listening.

More recently, Zohoori (2013) compared US and Iranian students' perceptions of personal listening competence using the Brownell HURIER Listening Profile. At its most basic level, listening competency addresses an individual's proficiency in literal comprehension (e.g., identification of main ideas, support material, etc.) and critical comprehension (e.g., recognition of personal biases, intended meanings, etc.) ("Speaking & Listening," 1998). While both groups

perceive their personal listening competence quite similarly, US students rated themselves as somewhat better listeners than did their Iranian counterparts in the areas of hearing, remembering, and responding.

Importantly, however, none of these studies addressed “cultures within cultures.” That is, they assume that these nations are culturally homogenous. A review of listening literature found only one study addressing differences between groups within a nation. Dillon and McKenzie (1998) examined four US groups: African-, Anglo-, Asian-, and Hispanic-American students. Their study explored the influence of ethnicity on listening as well as communication competence, approach, and avoidance. They found that “approaching” behaviors, but not avoidance behaviors, appear to differ by ethnicity. In general, significant differences were identified across the four groups. For example, Anglo-American students averaged higher scores on willingness to communicate than did African-Americans, and this finding held true for willingness to communicate with either friends or strangers. In contrast, Hispanic-American students reported a greater willingness to communicate with strangers than did their Asian-American counterparts. Unfortunately, one of the weaknesses of the study, its relatively few minority participants, was a factor acknowledged by the authors, and was one which led them to inflate their significance test probability level to $p < .10$. While Dillon and McKenzie identify important communicative differences, they focus more on the impact of these differences on individual interactions and less on the possible origins of these differences.

These studies suggest that Hispanic listeners may have unique belief systems that inform their conceptualization of listening, and subsequently affect their listening behaviors.

Conclusion

To conclude, results of this and the previous Bodie et al. (2011) study have supported the notion that the WBLT is not psychometrically sound and strongly suggest that the scale should not be used as a measure of listening comprehension. The reality is that cultural differences impact how we listen (Beall, 2010). However, despite evidence to the contrary, many listening scholars continue to treat nations as if they are composed of a single, homogeneous group. While Hispanic-Americans as a group are diverse (Sonderup, 2004), they do share a number of cultural commonalities that may inform their listening belief system: A dominant Roman Catholic tradition, a strong family structure, and a significant community commitment (Jandt, 2013). Hispanic cultures tend to be collectivistic and thus emphasize group activities and shared responsibility (Gudykunst, 1998). Hispanic social norms generally stress good manners, cooperation, courtesy, harmony, and positive interactions, while discouraging offensive behaviors and direct criticisms of others (Guarnero, 2005; Gudykunst, 1998; Klopff & McCroskey, 2007; Salimbene, 2000; Smith, 2000). We encourage researchers to focus greater attention on the effect of ethnic and cultural factors on listening behavior with Hispanic-Americans and other ethnic groups and to address the limitations of this study (e.g., differences in English speaking ability, impact of country of origin, individual level of acculturation).

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Table 1
Descriptive Statistics for the WBLT subscales and WBLT Total Score (n = 214)

Subscale	Mode	Mean (SD)	Range	Minimum Correct	Maximum Correct
Evaluating Message Content	4	4.26 (1.59)	6	1	7
Understanding Meaning in Conversations	5	5.33 (1.38)	7	1	8
Understanding/ Remembering Lectures	4	3.64 (1.77)	8	0	8
Evaluating Emotional Meaning	4	3.95 (1.63)	7	0	7
Following Instructions & Directions	5	4.61 (1.62)	8	0	8
Total Score	22	21.8 (4.99)	25	8	33

Table 2

Average Inter-Item Correlations for the Watson-Barker Listening Test—Form C Factors

Factors	Average r	α
Evaluating message content	.07	.39
Understanding meaning in conversations	.04	.29
Understanding and remembering lectures	.09	.44
Evaluating emotional meaning in messages	.06	.44
Following instructions and directions	.07	.39

Endnotes

- ¹ Since data collection for this study was conducted, a newly revised version of the Watson-Barker Listening Test (Forms E & F) has been released by Innolect. Clothing and technological references have been updated. However, the delivery and testing format, and many of the questions are virtually the same.

Understanding Undergraduate Statistical Anxiety

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Abstract

The purpose of this study was to understand undergraduate students' views of statistics. Results reveal that students with less anxiety have a higher interest in statistics and also believe in their ability to perform well in the course. Also students who have a more positive attitude about the class tend to have a higher belief in their abilities. These findings can help statistics instructors plan course lessons helping ease student anxiety. Results also help researchers understand the impact of students' attitudes on learning outcomes.

With many fields requiring students to complete some form of statistics prior to graduation the number of students enrolled in these courses is increasing (Loftsgaarden & Watkins, 1998; Onwuegbuzie & Wilson, 2003). With this increase in enrollment comes the need to better understand student learning and how attitudes and anxiety impact learning outcomes (Schau, Stevens, Dauphinee, & Del Vecchio, 1995). Researchers have found that students' attitudes toward statistics affect enrollment, achievement, and class climate (Gal, Ginsburg, & Schau, 1997).

Statistics courses produce the highest anxiety for students (Schacht & Stewart, 1991; Zeidner, 1991). Onwuegbuzie and Wilson (2003) estimated that among all the students who take statistics more than 65% experience anxiety that is uncontrollable. Statistical anxiety is defined by a worry or fear that occurs when a student is exposed to various statistical concepts (Onwuegbuzie, Da Ros, & Ryan, 1997). High levels of anxiety have also been linked to poor performance (Onwuegbuzie, Da Ros, & Ryan, 1997). Ahmed and colleagues (2012) found a negative relationship between anxiety and achievement. As students' anxiety level increases their academic achievement decreased. Betz (1978) found a similar trend decades earlier in the field of math. The study examined the relationship between math anxiety and success and found a negative relationship. These finding shows the importance of considering anxiety when teaching a course.

Anxiety can also impact the ability to gain statistical skills and knowledge (Hsu, Wang, & Chiu, 2009). More importantly high anxiety impacts students' ability to plan, design, and execute research studies (Onwuegbuzie, Da Ros, & Ryan, 1997). The causes of anxiety typically revolve around the student's disposition, the situation, and the environment (Baloglu, 2004). The present study focuses student dispositions, including attitude about statistics (Harvey, Plake, & Wise, 1985; Zanakos & Valenzi, 1997) and perceptions of the personal usefulness of statistics (Zeidner, 1991).

Students often enroll in a statistics course with a preconceived idea that the course will be difficult, boring, and not relevant to their daily life (Awan & Ullah, 2011). These perceptions, attitudes, and beliefs counteract the supportive environment the instructor is trying to foster (Onwuegbuzie, 2000). There is also a connection between students' attitude and their achievement. Attitudes toward statistics also have a long-term effect. Zanakis and Valenzi (1997) stated that "attitudes and perceptions about statistics influence...the extent to which students use statistics in their careers" (p. 10).

The need for the current study lies in the notion that few studies exist to support the belief that attitudes towards statistics impact student-learning outcomes (Hilton, Schau, & Olsen, 2004). Few studies have examined these constructs with undergraduates (Onwuegbuzie & Wilson, 2003). The purpose of this study was to better understand undergraduate students' views of statistics including factors contributing to anxiety level.

Methods

This study used a concurrent mixed methods design model where the researchers collected and analyzed the quantitative data separately from the qualitative on the same phenomenon. The quantitative and qualitative data collection happened at the same time but data analysis was conducted separately. Data collection included a quantitative and qualitative component.

Quantitative Component

Survey instrument development. One of the instruments administered to students enrolled in an undergraduate statistics course was the *Statistics Anxiety Measure* (SAM) developed by Earp (2007). This instrument was used to measure students' attitudes toward the class and attitudes toward mathematics as they relate to statistics anxiety. The *Statistics Anxiety Measure* (SAM) is composed of 23 items with four subscales: anxiety, class, math, and performance.

Another instrument, *Survey of Attitudes Toward Statistics* (SATS) developed by Schau and colleagues (1995), was also used to measure students' feelings toward statistics, their attitudes toward the usefulness, relevance, and worth of statistics, their attitudes about the difficulty of statistics in the college classroom, their attitudes about their knowledge, their interest, and their effort. The SATS assessed six components of students' attitudes: (a) affect, (b) cognitive competence, (c) value, (d) difficulty, (e) interest, and (f) effort and is comprised of 36 items on a 7-point Likert-type response scale.

Reliability. Subscale reliabilities were determined for the six subscales of the Survey of Attitudes Toward Statistics (SATS) scale. Reliabilities ranged from 0.554 for the Effort subscale to 0.871 for the Interest subscale. These reliabilities are comparable to reliabilities reported by Schau and colleagues (1995) except the effort subscale, which is lower than previously reported reliabilities. Scale reliabilities for the four subscales of the Statistics Anxiety Measure (SAM) instrument ranged from 0.733 for the Class subscale to 0.939 for the Math subscale. These reliabilities are comparable to the reliabilities reported by Earp (2007).

Participants. The instrument was administered to undergraduates at a large Midwestern university. Participants included 173 undergraduate students enrolled in an introductory statistics course in the College of Education. Students in seven sections of an undergraduate introductory statistics classes volunteered to participate. The instrument was administered during class time and required approximately 15 minutes to complete. Participants were also asked to provide demographic information such as gender, age, grade level, major, ethnicity, and grade-point average (GPA).

Qualitative Component

Qualitative methods. This study was framed within an exploratory design to understand participants experience with statistics. The qualitative design involved semi-structured interviews that explored the experiences and perceptions of undergraduates experience in an introductory statistics course.

Interview protocol development. The open-ended questions were developed based on the two instruments used in the quantitative component (the SATS by Schau, Stevens, Dauphinee, & Del Vecchio and the SAM by Earp). The interview protocol mirrored the subscales of the quantitative instrument. The interview questions were phrased as open-ended questions to elicit more information from participants, while measuring the same concepts. Participants were asked ten questions on eight main topics. The questions dealt with students' perceptions of statistics, how they felt in regard to the usefulness of statistics, and their anxiety with the course.

Participant identification and access. Participants were enrolled in an introductory statistics course at a large Midwestern university. The researcher interviewed 13 students. The researcher reached saturation after roughly seven participants, but conducted a few more interviews to ensure saturation and because more than seven participants volunteered. The interviews were administered outside of class time and each interview required approximately 20 minutes. Participants had a mean age of 19.56 ($SD = 1.12$). The majority of participants were white (88%), females (61%), and studying nutrition (22%).

Mixed Methods Component

Analysis. The quantitative and qualitative data were compared using the method described by Creswell and Plano Clark (2007) to determine whether or not the two data collection methods revealed similar results. Quantitative and qualitative analysis was done separately and then together using a matrix. The analysis focused on the inferences made in the quantitative and qualitative components of the study with regard to students' levels of statistics anxiety, cognitive competence, statistics difficulty, value of course, interest, effort, and performance.

Results

Quantitative Results

Descriptive statistics. The majority of the participants were white (90%), female (70%), and majoring in nursing (16%). A majority of the participants were sophomore (56%) with an average age of 20.32 ($SD = 2.07$).

Pearson correlations. There was a significant relationship between anxiety and performance, $r(171) = -0.43, p < 0.05$. There was a significant relationship between students' view of the class and their performance, $r(172) = 0.47, p < 0.05$. There was also a relationship between students' interest in statistics and their anxiety, $r(172) = -0.28, p < 0.05$. There was a significant relationship between cognitive competence and perceived difficulty, $r(173) = 0.55, p < 0.05$.

Qualitative Findings

Difficulty. When talking about the difficulty of the course participants mentioned how hard certain homework and exam problems were. They also discussed struggling with the math component of the course and mentioned having hard times in past math courses. Participants who thought statistics was difficult reported less confidence in their abilities. One participant stated "I think that my skills are definitely lacking ... my knowledge about statistics is limited."

Anxiety. When students were talking about statistics they mentioned having higher levels of anxiety compared to other courses. Many students mentioned that their anxiety comes from the use of numbers and calculations throughout the course. One student stated, "sometimes I get anxious, because I know I'm not doing well and I really don't want to have to retake this course." Some students stated their anxiety impacted their ability to do as well as they would like to in the course.

Value. While students struggled with various components of the course, students did see the usefulness of the course. Students stated that while they were taking the course because it was required they could see how it could be used in their future career. One student mentioned they believed "every student should take a statistics course because it is not difficult and it is very relevant to everyday life." Another student said, "I think I will use statistics in almost any profession I might employ because statistics is very relevant to the work life."

Effort. In addition to seeing the value of the course some students reported putting a great deal of work into the course. When asked to compare the amount of time they spent on their statistics class to other courses most students reported spending more time on statistics. One student said, "I would say that my skills are good/above average because I went to the class often and worked hard to achieve good grades." However, students who reported spending more time also reported doing better in the course compared to students who reported spending less time. One student said, "as I worked harder throughout the semester I began to understand the concepts and I received better grades."

Mixed Methods Results

The survey and interview results were merged together to further understand how other statistics students described relationship among certain variables found in the qualitative component of the study.

There was a negative relationship between anxiety and performance. Participants who reported lower levels of anxiety reported higher performance. One participant who reported little anxiety

stated, "I have learned a lot in this statistics class ... I definitely have more knowledge about statistics because of this course." There was a positive relationship between students' views of the class and their performance. Also participants who had a more positive attitude about the course tended to do better in the course. One student said, "I would say that my skills are good/above average because I went to the class often and worked hard to achieve good grades." There was also a significant negative relationship between students' interest in statistics and their anxiety. Participants with less anxiety reported more interest in the course. There was also a negative relationship between cognitive competence and perceived difficulty. One participant stated "I think that my skills are definitely lacking ... my knowledge about statistics is limited."

Discussion

Overall, results reveal students with lower anxiety and a better attitude believed in their ability to perform in the class. Also students with lower levels of anxiety tended to be more interested in the course. These findings confirm what others have found while expanding on the various components that also contribute to anxiety and attitude. Students also reported above average effort when asked about the energy they put into their statistics course. Effort was a new component of the study and seemed to have no relationship to anxiety; however, students who believed they put in more effort seemed to show higher levels of interest. Difficulty was another concept that was measured in this study. Overall, students reported the difficulty of statistics was about average. Students who perceived the class as more difficult perceived the class as more valuable. This was a finding that was not revealed in the literature review. This could be attributed to the fact that students who value the class want to make sure they understand everything and therefore struggle and perceived the class as challenging.

Over the years the number of studies that have studied teaching statistics have increased and the findings from those studies have found a strong link between anxiety and performance in statistics courses (Benson, 1989; Gal & Ginsburg, 1994; Perney & Ravid, 1990; Zeidner, 1991). This study found similar results; anxiety was negatively correlated with all other factors except effort, which was not significant. One study found students who experience statistical anxiety perceived statistics as useless and hard (Hsu, Wang, & Chiu, 2009). However, in this study, while students with high anxiety did perceive the class as useless, they did not perceive the class as difficult.

Future research is needed to further clarify the relationship between statistical anxiety and perceived usefulness. Researchers should also examine what math preparation could be done in high school to prepare students for college level statistics and lower anxiety. The results of this study should be of great value for statistics instructors. Statistics instructors should be aware that students who have limited previous mathematics experiences might experience more difficulties in statistics courses. These difficulties might be present in the form of perceiving statistics as less important, more stressful, and requiring more effort. As a statistics instructor, it is important to realize some students might need more individual attention and support.

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