

Journal of Research in Education
Volume 21, Number 1
Spring 2011

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ASSESSMENT OF THE IMPACT OF SMART BOARD TECHNOLOGY SYSTEM USE ON STUDENT LEARNING, SATISFACTION, AND PERFORMANCE

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Abstract

Literature on educational technology touts its potential for enhancing student outcomes such as learning, satisfaction, and performance. But are these benefits universal and do they apply to all applications and/or forms of educational technology? This study focuses on one such system, the Smart Board Technology System (SBTS) and the impact its use has on students. Responses from 111 students in a College of Agriculture and Human Sciences at a public university in the Southwest United States yields mixed but encouraging evidence. SBTS use is shown to be positively related to student learning and satisfaction, but not necessarily student performance.

The typical college student of today is a frequent user of information technology. The vast majority (i.e., slightly more than 85%) of incoming Fall 2009 college freshman report proficiency in basic computer use (Heimler, Denaro, Cartisano, Brachio & Morote, 2009). Other recent survey data indicate that the dominant use of information technology by incoming college freshmen is for informal social purposes. Almost 9 of 10 students (89%) report a recent visit to a social networking site and fully three in four maintains a page or profile on one of these sites (College Board and Art & Science Group, 2009). Given the importance of information technology in students' lives, educators have the responsibility to examine how their use of educational technology, or lack thereof, affects student outcomes (e.g., student learning, satisfaction and ultimately performance).

The use of educational technology is now commonplace across almost all educational environments. Technologies used in the university classroom such as wireless internet access, PowerPoint presentation software, interactive multimedia "smart boards," real-time response systems, etc. provide a "media rich" learning environment that the technologically sophisticated college student of today finds appealing. The typical college student has a minimum expectation that technology will be integrated in their classroom environment much as it is already pervasive in their daily lives. In fact, students have come to expect that their professors will use some level of educational technology in the classroom, and if their professors do not, they will negatively evaluate both the course and the instructor (Schrodt & Turman, 2005). These expectations undergird a paradigm shift wherein more traditional lecture-based approaches to teaching and

learning are giving way to online and interactive television (ITV) alternatives as well as the use of multi-media digital presentations in the classroom (Collins, 2003; Daugherty & Funke, 1998).

Engaging students as active learners is a necessity in order to create an exciting and stimulating learning environment. Students are receptive to educational technology in the classroom if they perceive that it assists them in their studies and the learning process (Wang, 2002). They expect technology to be an integral part of the entire educational process and they desire open access to information (Seeman & O'Hara, 2006). As a consequence, many college classrooms have been transformed into digital, wired environments and there is an ongoing need for professors to use these technological tools to disseminate information and actively engage their students in both active learning and critical thinking and analysis (Fox, 1999; Green, 1999).

Recently, serious concerns about the proper role, effectiveness, and future of educational technology in the classroom have been raised (Mann & Robinson; Young, 2009). In many instances, educational technology has not been adopted in a rationalized or systemic way. Upcraft & Terenzini (1998) caution that educational technology use and its impact on student learning both need to be carefully monitored and evaluated on an ongoing basis. The evidence, or lack thereof, concerning the degree to which formal assessment of educational technology use is actually being done is disconcerting.

In the past, some institutions implemented educational technology systems based on little more than optimistic assumptions and good intentions (Taylor & Schmidtlein, 2000). Unfortunately, some of these systems have proven to be very costly from a maintenance and upgrade perspective. There is troubling evidence that a growing number of institutions are not keeping up in the battle to keep these systems functional and relevant due to budgetary shortfalls. Sadly, smart classrooms are "turning dumb" due to neglect (DeBolt, 2008).

Gone are the days when educational technology investment decisions can be founded on little more than assumptions about the benefits of technology in the classroom. Given the current realities faced by most institutions, it is necessary to be able to demonstrate the efficacy of these systems in influencing important outcomes such as learning, satisfaction, and student performance in order to justify the resources consumed by these systems.

Related Literature

Higher education is a service industry and as such it is imperative that universities meet the needs, expectations, and desires of their most immediate customers -- students (Cheng & Tam, 1997). One perspective suggests that students are the ultimate consumers and their satisfaction with the educational experience is one consequence of the relationship between professors and students (Wang, 2003). Educational technology has the potential for positively impacting both faculty and students and their relationships. Massy and Zemsky (1995) assert that educational technology provides the potential to mass customize the educational experience to accommodate individual student differences concurrent with providing improved convenience for both student and faculty member alike.

Educational Technology: The Smart Board Technology System

The Smart Board Technology System (SBTS) is an incredibly rich, interactive multimedia learning interface. The SBTS is comprised of an interactive smart board screen at the front of the room, a data projector, and a faculty operated multimedia desk. Using the SBTS, faculty users can incorporate and mark up still or moving images from DVD, VCR, document cameras and computer files. Using their finger or a pen, the faculty user can interact directly with material such as reorganizing nodes in a model, graphically illustrating relationships between concepts, or marking up documents in real-time in applications such as Excel, PowerPoint, NetMeeting, etc.

The SBTS possesses other unique capabilities relative to traditional classroom instructional methods. Using the SBTS, all writing, drawings, and notations made on the touch sensitive smart board may be saved, printed and distributed, or e-mailed to the students (Levy 2002; Smith, Higgins, Wall, & Miller, 2005). Try doing that with the content of a traditional blackboard, white board, or flip chart!

Multi-tasking is also easily accommodated by the SBTS. Multiple documents can be displayed simultaneously and multimedia presentations can be integrated, potentially appealing to students with varying learning styles and abilities (Starkman, 2006). The use of the SBTS may enhance the interest and learning of students who find lecture challenging when used as the only means of communication (Somekh, et al., 2007). Through the SBTS, the professor is empowered to transform the classroom setting into a stimulating, dynamic, and collaborative learning environment (Somyurek, Atasoy, & Ozdemir, 2009).

Consequences of Educational Technology Use

What can be said with certainty is that educational technology is expensive. Beyond the obvious costs of hardware and technical support, some other less obvious costs include:

- *Institutional infrastructure* – installing communications networks that link classrooms, buildings, dormitories, and students at off-campus locations together;
- *Faculty training and "opportunity" costs* - most faculty require considerable training;
- *Course design/development costs* - some institutions employ course designers who train faculty while others outsource -- at substantial cost in either case;
- *Administrative/legal costs* - copyright hurdles and privacy and security issues all create costs, sometimes considerable (Taylor & Schmidtlein, 2000).

As universities invest more of their limited funds on educational technologies, they will need more detailed information to guide their investment decisions. Schmidtlein and Taylor (2000) advocate for better planning and analysis by university administrators, but argue that seldom are both the full costs and benefits of educational technology use adequately investigated or addressed. Establishing the benefits of educational technology will increasingly become a necessity in order to garner the substantial resources needed to install and particularly maintain and upgrade educational technology systems. These benefits should not only include an emphasis on cost efficiencies but also the impact that educational technology use has on student outcomes such as satisfaction, learning, and performance.

Previous research suggests that the use of educational technology can result in a variety of beneficial student outcomes such as student satisfaction (Schrodt & Turman, 2005), enhanced learning (Althaus 1997) and higher performance (Alavi 1994; Rutz, Eckart, Wade, & Maltbie, 2003). It is important, therefore, that all these outcomes be examined when determining the appropriate use and impact of educational technology in the classroom environment (Fritz, 2007; Flanigan, 1999; Witmer, 1998; Lane & Shelton, 2001).

Student Satisfaction

Universities have a myriad of stakeholders to please, but the most influential and important is the student. Universities compete for students and the importance of keeping students satisfied is increasingly critical to both the success of the university in aggregate as well as to the students individually. According to Elliot & Shin (2002, p. 198), “student satisfaction refers to the favorability of a student’s subjective evaluation of the various outcomes and experience associated with education.” Research indicates that a satisfied student will be more motivated to learn and, therefore, will achieve more success in his or her college career. It has also been concluded that if the environment of the classroom fits with the preferences of the students, then satisfaction with the educational experience will occur (Fraser, 1994).

There has long been a debate as to whether increased student satisfaction results in greater academic success or if greater academic success results in increased satisfaction (Pascarella, Whit, Edison, Hagedorn, & Terezini, 1996). Regardless, it has been concluded that student satisfaction will increase if the professor utilizes a variety of communication techniques in the classroom (Irons, Keel, & Bielema, 2002). The student’s attitude toward the class may change when the classroom environment encompasses the use of technology to disseminate course information. Students feel that they possess a greater sense of control over their own education if technology is integrated into the course design (Apple Computer, 2002). Although a myriad of factors relate to student satisfaction, it has been concluded that the development and design of the course is the most influential factor affecting student satisfaction (Stein, 2004).

Student Learning

Affective learning is reflected by the student’s emotional response to factors such as the professor, the course content and the learning environment; all three of these variables will influence the quality and the amount of information that the student learns in the class (Rodriguez, Plax, & Kearney 1996). And if there is a positive affect for both the professor and the course, then the student will be more highly motivated to learn (Christensen & Menzel, 1998; Frymier & Hauser, 2000)

Arbaugh (2000) examined the effects of technology, pedagogy and student characteristics on student learning in online MBA courses. The degree of interactivity of the learning environment was found to be significantly positively related to student learning outcomes. In order for learning to take place most effectively, the student needs to be an active rather than a passive receiver of information; required to structure, manipulate and analyze information. Educators as well as students believe that the utilization of various forms of educational technology in the

classroom environment both facilitate learning and the ability to apply knowledge in an analytical manner (Alavi, 1994).

Affective learning is one student outcome that is specifically related to the professor's mode of communication and instruction (Arbaugh, 2000; Kearney, 1994). Learning can be enhanced if both audio and video are introduced into the classroom through the use of educational technology. Cognitive flexibility theory (Jacobsen & Spiro 1995) posits that students will learn more effectively if complicated information is presented to them in a variety of formats (Hall, Watkins, & Eller, 2003). Mayer (1997) contends that introducing both video and audio into the classroom environs enhances the learning process because students can process audio and video images independently. In fact, students can absorb and learn complicated information more readily if it is presented to them in varying mediums (Hall et al., 2003; Perry & Perry 1998; Reinhardt 1999).

For example, Switzer and Csapo (2005) concluded that iPod use in the classroom environment provided a more engaging atmosphere and motivated students to learn. The device appeared to be a tool that encouraged and facilitated information sharing and team-building skills among students. This is supported by media richness theory which contends that the use of multimedia technologies do provide a more stimulating and enriching classroom than lecturing alone.

Student Performance

In the literature related to the use of educational technology and performance, final course grades typically are used as a measure of the performance outcome. Final course grades are considered a valid measure because they are quantifiable and are directly related to the student's experience with the course (Rutz et al., 2003). In one study, Alavi (1994) used two comparison groups to determine the impact of computer mediated courses on final course grades. Students in multiple sections of the same course who were exposed to computer mediated learning, relative to those students who were not exposed, received significantly higher final grades in said course.

Rutz et al. (2003) also evaluated the utilization of various forms of educational technology in order to determine if they improved the student learning process. The ultimate goal of the study was to improve student performance through the use of technologies in the classroom. Final course grades where educational technology was used in the classroom were compared to grades for the same course where traditional teaching methods (e.g., lecture) were used. It was concluded that time on task and interest in content were improved when educational technology was used in the classroom, and that this could result in higher student performance.

Instead of the final course grade, Noppe, Achterberg, Duquaine, Huebbe and Williams (2007) used individual exam scores as the measure of course performance. The study evaluated the impact of distributing PowerPoint handouts prior to lecture coverage in class. The researchers found that distributing the PowerPoint handouts had no significant effect on student performance in spite of their evidence that the student respondents believed that the handouts had a large influence on their performance. The authors noted concerns that handout distribution may ironically diminish the efficacy of the note-taking process.

Purpose of the Study

Prior to adopting or updating technology in the classroom, there is a need for critical research to be conducted in order to determine the educational efficacy of specific educational technologies (Flanagin, 1999; Witmer, 1998; Lane & Shelton 2001). Given the bleak budgetary outlook that many institutions of higher education currently face, assessing the efficacy of educational technology may prove key in being able to justify the sizable investment of resources it requires to implement and maintain these systems.

While cost is an important consideration, the most important benefit of using educational technology is not necessarily cost efficiencies that may be created, but improved student learning (Laurillard, 2007). According to Hetrick: "... we must find our way out of the tar pit of justifying technology applications because they demonstrate tangible cost savings and into the integration of technology because it significantly improves the learning process" (1991, p. 12).

The purpose of this study is to investigate whether a relationship exists between college faculty's extent of use of the Smart Board Technology System (SBTS) and student outcomes. Specifically, this study will explore and measure the impact of SBTS use on the satisfaction, perceptions of learning and performance outcomes of university students. The specific research question addressed by this study is: Does a professor's use of the SBTS affect student outcomes? The following three research questions will be addressed.

Q1: Is extent of SBTS use associated with student perceptions of learning in the course?

Q2: Is extent of SBTS use associated with student satisfaction with the course?

Q3: Is extent of SBTS use associated with ultimate course performance?

Methodology

The sample used in this study consisted of students, both graduate and undergraduate, enrolled in courses in a College of Agriculture and Human Sciences at a moderately-sized public university in the Southwest United States. This setting was chosen because one of the authors served as a graduate assistant/technical support liaison in this college and had extensive knowledge regarding actual faculty use of the SBTS in the college.

The Survey

An original twenty-one item survey instrument was designed for purposes of data collection. Three multiple-item scales were used to measure the three constructs of: (1) *extent of SBTS use* – three original items, (2) *student perceptions of learning* – six items modeled after Alavi (1994), and (3) *student satisfaction with the course* – five items modified from Arbaugh (2000). Two items were used to measure *student performance* and the remaining items were comprised of demographic items.

The survey items consisted of a mixture of five-point Likert scales, category scales and simple dichotomy scales. To mitigate mono-method bias, some of the items on the multiple item scales were reverse scaled and the ordering of the multiple measurement items was randomized throughout the survey.

Sampling and Data Collection

Based on previous survey results concerning faculty experiences with the SBTS, fifteen faculty representing a continuum of SBTS use were selected as the primary “clusters” for this study. To be more precise, the courses offered by these faculty served as the primary clusters. Data were collected during the last three weeks of the Spring 2007 semester so that student respondents would be able to reliably estimate their final course performance (i.e., anticipated course grade).

The participation of the selected faculty members was solicited both in person by one of the authors and through a memorandum from the dean of the college. Each faculty member was asked to distribute a memo to the students in his or her class. The student memo explained the purpose of the study and invited the student respondents to visit a website where they could complete an online survey. The online survey began with an operational definition of the SBTS and students were informed that the survey had been approved by an institutional review board and that their anonymity was assured.

Data Analysis

Respondents were profiled on all demographic variables through the use of frequency distributions. The multiple item measurement scales were purified via item-scale correlation and reliability analyses to provide evidence as to their construct validity.

The first two hypotheses were tested via multiple stepwise regression models, one each for the dependent variables of student perceptions of learning and student satisfaction with the course. The demographic variables of gender, age, and student type (i.e., self-described A student, B student, etc.) served as control variables in these regression models. Collinearity diagnostics were analyzed in order to protect against the undesirable effects of multicollinearity.

Due to concerns about grade inflation and its effect on the distribution of responses on the student performance surrogate (i.e., anticipated course grade), the third hypothesis was tested using both Spearman’s rank-order correlation and the Mann-Whitney U-test; nonparametric tests that do not require restrictive assumptions about the distribution of the variable(s) under analysis.

Results

Sample Demographics

It is difficult to estimate a response rate for the survey. Were one to use as a base the total enrollment in all of the courses taught by the fifteen selected faculty, there is the possibility for significant over-counting of potential respondents due to the fact that students majoring in this college would likely be taking multiple courses offered by the college simultaneously. Because responses were anonymous, it was not possible to match students across multiple sections to eliminate the double-counting. The only thing that can be said with any certainty is that 111 usable surveys were completed. Table 1 profiles the respondents on the demographic characteristics.

Table 1.
Sample Demographics

<i>Characteristic</i>	<i>Levels</i>	<i>Number</i>	<i>Percentage</i>
Gender	Male	47	42.3
	Female	64	57.7
Class	Freshman	10	9.0
	Sophomore	7	6.3
	Junior	44	39.6
	Senior	45	40.5
	Graduate	5	4.5
	26 or over	12	10.8
Age	19 or under	12	10.8
	20-21	38	34.2
	22-23	36	32.4
	24-25	13	11.7
	26 or over	12	10.8
Student Type – self described	F student	0	0
	D Student	0	0
	C Student	7	7.2
	B Student	72	64.9
	A student	31	27.9
Anticipated Course Grade	F	0	0
	D	1	0.9
	C	17	15.3
	B	42	37.8
	A	51	45.9

Two things stand out about the respondents. First, the sample consisted largely of upper division undergraduates as more than 8 in 10 respondents were either a junior or senior. Secondly, grade inflation is evident. Note that only 16.2% of the students expect to earn a grade less than B in the course that they are rating. In addition, note that 92.8% of the students consider themselves to be either an A or B student overall.

Scale Purification

Three summated scales (i.e., 1] student satisfaction or “SATIS”, 2] student perceptions of learning or “LEARN”, and 3] extent of SBTS use or “SBTSUSE”) were created by averaging the multiple items assigned to each measurement scale. Next the summated scales were subjected to reliability analysis in order to determine the internal consistency of the multiple measurement items assigned to each scale. It has been suggested that original scales (i.e., the SBTSUSE scale) exhibit a minimum reliability coefficient alpha of 0.60 or greater (i.e., $\alpha \geq 0.60$) and that replicated scales (i.e., the SATIS & LEARN scales) exhibit a minimum coefficient alpha of $\alpha \geq 0.70$ (Nunnally, 1978). Referring to Table 2, note that all scales meet these requirements. In the case of the LEARN scale, one scale item was deleted in order to improve scale reliability.

Table 2.
Reliability Analysis Results

<i>Scale</i>	<i>Label</i>	<i>Final Number Of Items</i>	<i>Reliability Coefficient (Cronbach's α)</i>
Student satisfaction	SATIS	4	0.762
Student perceptions of learning	LEARN	5	0.920
Extent of SBTS use	SBTSUSE	3	0.734

The final step in the scale purification process involved the computation of item-scale correlation coefficients in order to examine the data for the desired pattern of individual survey items correlating with their intended scale to a greater degree than any alternative scale. This pattern provides evidence of construct validity in that it establishes that survey items consistently represent one, and only one, distinct concept/construct.

One item on the satisfaction scale was deleted because it exhibited very high correlations with multiple summated scales. After this deletion, all remaining measurement items exhibited the desired pattern of correlating with their intended scale to a greater degree than any alternative scale, all by a wide margin.

Profile of Key Variables

The analysis turned next to the focal construct of the study - extent of SBTS use. As noted before, responses were averaged on the three items comprising this scale to create a summated scale (SBTSUSE). Table 3 profiles the participating faculty concerning their extent of SBTS use as reported by the student respondents.

Table 3.
Student Ratings of the Extent of SBTS Use by Faculty

<i>Average Scale Value</i>	<i>Descriptor</i>	<i>Number</i>	<i>Percentage</i>
1 - 1.99	Very Infrequently	4	4.0
2 - 2.99	Infrequently	9	8.9
3 - 3.99	Neither Frequently nor Infrequently	34	33.7
4 - 4.99	Frequently	38	37.6
5	Very Frequently	16	15.8

Based on responses to a former survey of these same faculty concerning their use of and experiences with the SBTS, the faculty were classified a-priori into groups of “high SBTS use” and “low SBTS use” by the author that had served as a technical support specialist in this college. A t-test was performed to test for a significant difference in the average SBTSUSE scores between the two a-priori groups and it was found that the average SBTSUSE score was indeed significantly ($p = 0.01$) greater for the “high SBTS use” versus the “low SBTS use” group, providing affirmative evidence of criterion validity.

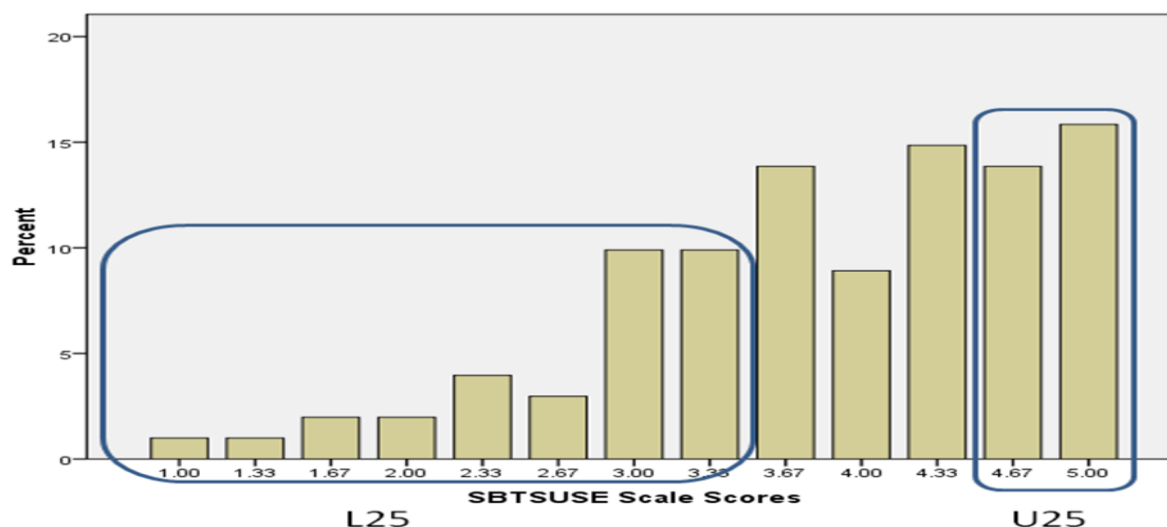
Figure 1 provides further insight into the distribution of SBTSUSE scores. Not surprisingly, the distribution of scores is negatively (left) skewed indicating that most faculty have achieved higher levels of reported SBTS use. The distribution reflects the reality of a faculty that had, in the main, gotten on board in using the SBTS system.

To facilitate further data analyses, a dichotomous variable was created reflecting low extent and high extent of SBTS use. To create the two groups, first quartile (i.e., “L25”) and fourth quartile (i.e., “U25”) scores were identified for the scores on the SBTSUSE scale, as summarized in Table 4 and these two groupings are also illustrated in Figure 1.

Table 4.
High (U25) vs. Low (L25) Extent of SBTS Use Groups

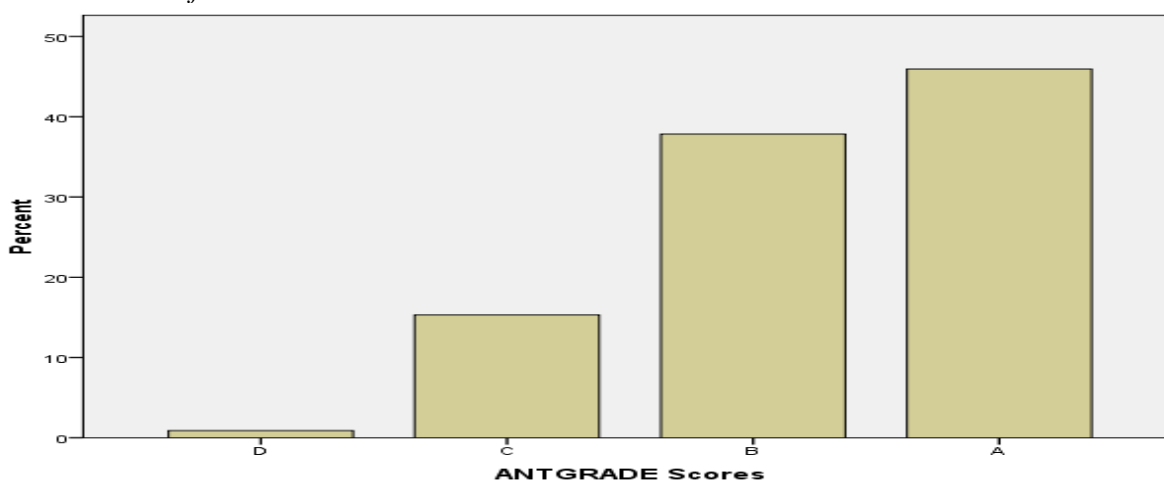
<i>Group</i>	<i>Quartile</i>	<i>Label</i>	<i>Number</i>	<i>Average SBTS Scale Score</i>
Low SBTS use	1 st	L25	33	3.33 & below
High SBTS use	4 th	U25	30	4.67 & above
				63

Figure 1.
The Distribution of SBTSUSE Scale Scores



Turning to the outcome variables, responses on both the student satisfaction (SATIS) and student perceptions of learning (LEARN) scales are approximately normally distributed and present no concerns as relates to the application of parametric statistical tests. The same cannot be said for the student performance surrogate of anticipated course grade (ANTGRADE). As is clearly evident in Figure 2, the grade inflation phenomena resulted in a highly skewed distribution. A Kolmogorov-Smirnov Z-test was conducted and verified that indeed the distribution of ANTGRADE scores is highly non-normal ($KS=3.02$, $p=0.000$). It may even be a considerable stretch to consider the ANTGRADE variable to be continuous in nature. In order to avoid making troublesome assumptions about the ANTGRADE variable, nonparametric tests were selected to test the third research question regarding the extent of SBTS use and student performance.

Figure 2.
The Distribution of ANTGRADE Scores



Q1: Is extent of SBTS use associated with student perceptions of learning in the course?

A stepwise multiple regression model was constructed to model the variation in student perceptions of learning (LEARN) as a function of the extent of SBTS use (SBTSUSE) using the demographics of age, gender, and student type (i.e., STUTYPE = A student, B student, etc.) as control variables. The final model retained only one independent variable (SBTSUSE), is highly significant ($F=56.2$, $p=0.00$), and explains a sizable thirty-seven percent of the variance ($r^2=0.37$) in student perceptions of learning. Collinearity diagnostics indicate no particular concerns as each variance inflation factor (VIF) for the retained variables is well below the threshold value of ten (Hair et al., 2006). Table 5 summarizes the model output.

Note that extent of SBTS use (SBTSUSE) is highly related to student perceptions of learning (LEARN) but that none of the demographic variables have any predictive value. The simple correlation coefficient between SBTSUSE and LEARN is a sizeable $r=0.61$ and is highly significant ($p = 0.00$).

Table 5.

Student Perceptions of Learning (LEARN) Regression Model

<i>Variable</i>	<i>Beta Coefficient</i>	<i>t-statistic</i>	<i>p-value</i>	<i>VIF</i>
INTERCEPT	0.953	5.187	0.000	N/A
SBTSUSE	0.614	7.496	0.000**	1.000
AGE	0.100	1.234	0.220	1.000
GENDER	-0.106	-1.310	0.194	1.014
STUTYPE	-0.042	-0.516	0.607	1.004

** Significant at the 0.01 level

Q2: Is extent of SBTS use associated with student satisfaction with the course?

A second regression model was constructed to model the variation in student satisfaction with the course (SATIS) as a function of the extent of SBTS use (SBTSUSE) and student perceptions of learning (LEARN), using the demographics of age, gender, and anticipated course grade (ANTGRADE) as control variables. The final model retained two independent variables (LEARN and SBTSUSE), is highly significant ($F=49.5$, $p=0.00$), and explains a substantial fifty-one percent of the variance ($r^2=0.51$) in student satisfaction with the course. Collinearity diagnostics indicate no area of concern as each variance inflation factor (VIF) for the retained variables is well below the threshold value of ten. Table 6 summarizes the model output.

Table 6.

Student Satisfaction (SATIS) Regression Model

<i>Variable</i>	<i>Beta Coefficient</i>	<i>t-statistic</i>	<i>p-value</i>	<i>VIF</i>
INTERCEPT	0.737	4.788	0.000	N/A
LEARN	0.480	6.519	0.000*	1.548
FREQUSE	0.164	2.157	0.034**	1.548
AGE	-0.035	-0.479	0.633	1.015
GENDER	-0.002	-0.024	0.981	1.040
ANTGRADE	-0.023	-0.299	0.765	1.151

* Significant at the 0.05 level

** Significant at the 0.01 level

Note that both perceptions of learning (LEARN) and extent of SBTS use (SBTSUSE) are significantly related to student satisfaction with the course (SATIS). From a practical perspective, perceptions of learning (LEARN) is a much more substantial contributor to satisfaction as its Beta coefficient is about three times that for the extent of SBTS use (SBTSUSE). It is heartening to see that students appear to value learning as it is so strongly related with their satisfaction.

Q3: Is extent of SBTS use associated with ultimate course performance?

Former studies report evidence of a positive link between the use of educational technology and student performance in the form of course grades (e.g., Alavi, 1994, Rutz et al., 2003). In this study, anticipated course grade (ANTGRADE) is a weak surrogate for student performance compromised by the obvious restriction of range and distributional anomalies owing to the grade inflation tendency previously noted. Accordingly, nonparametric tests were used to sort out the final research question.

Spearman's rank order correlation (i.e., Spearman's rho or ρ) is a nonparametric measure of association that does not require restrictive assumptions about the distributions of the variables under analysis. Extent of SBTS use (SBTSUSE) and anticipated course grade (ANTGRADE) scores were correlated resulting in a Spearman's $\rho=0.127$ which proved non-significant ($p=0.206$).

In order to further test the relationship between SBTSUSE and ANTGRADE, the two groupings of "low SBTS use" (i.e., L25) and "high SBTS use" (i.e., U25) were used. The Mann-Whitney U-test was used to test for a significant difference in the ranked ANTGRADE scores for the L25 versus U25 groups. The Mann-Whitney U-test can be thought of as a nonparametric equivalent of the simple t -test as it is used to test for a significant difference in the medians of two groups; the t -test uses mean scores instead. While the high SBTS use (U25) group did exhibit a higher average rank score than the low SBTS use (L25) group (i.e., 33.87 vs. 30.30 respectively) this difference proved

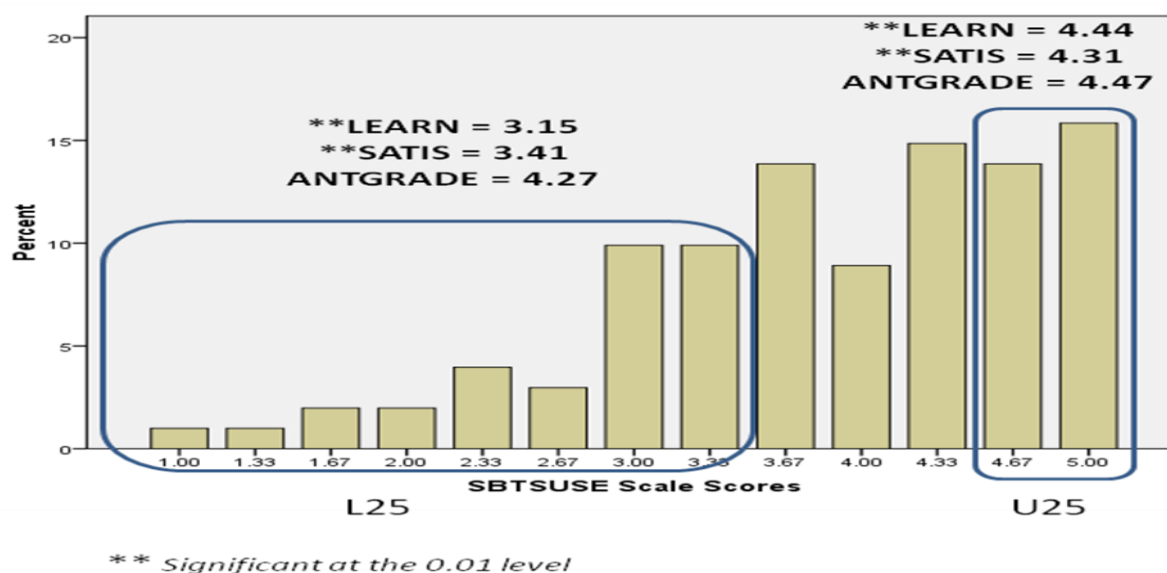
non-significant ($U=439.00$, $p=0.396$). The data simply do not support a conclusion of a positive impact of SBTS use on student performance.

Discussion and Caveats

To better illustrate the impact of SBTS use on the outcome variables of student perceptions of learning (LEARN), student satisfaction with the course (SATIS), and student performance (ANTGRADE), the L25 and U25 groupings were used one final time. Figure 3 presents the average scores on these three outcome variables between the L25 vs. U25 groups.

Figure 3.

Mean Outcome Variable Scores: L25 vs. U25



Extensive use of the SBTS clearly results in better outcomes in the case of student perceptions of learning (LEARN) and student satisfaction with the course (SATIS). The observed difference in the means between L25 and U25 groups is pronounced for both of these outcome variables and the differences proved highly significant (i.e., $p=0.000$) in both cases when subjected to a t -test. This study provides confirmatory evidence that the use of educational technology (i.e., the SBTS in this context) is positively associated with improved outcomes in terms of student learning and student satisfaction.

In the case of student performance (ANTGRADE), the U25 mean anticipated grade is indeed greater than that for the L25 group (4.47 vs. 4.27 respectively), at least in nominal terms. Note that the difference in the means is small from a practical perspective. And not surprisingly from a statistical perspective, that difference proved non-significant ($p=0.293$) when subjected to a t -test. The results of this study cannot confirm prior literature finding a positive association between the use of educational technology and improved student performance. This finding merits additional discussion.

In previous studies, student performance has been operationalized using either a final course grade or exam scores. In these studies, a faculty member has implemented contrasting instructional methods (i.e., traditional vs. enabled with educational technology) then looked at the impact on student performance in either the form of exam scores or final course grades. In these studies, the faculty member had perfectly reliable knowledge concerning these outcomes, but this came at the expense of limiting the sample to a nonprobability sampling of a group of students taking courses from a singular faculty member at one institution.

Due to resource constraints and privacy concerns, the approach described above is simply infeasible if the objective is to sample a variety of students at randomly selected institutions. Thus, this study provided a first step in a different direction. This study relied on a student self-report of the anticipated course grade and this approach may perhaps have compromised the reliability of the student performance outcome variable. The finding of a non-significant association between the use of educational technology (i.e., the SBTS) and student performance in this study may largely be an artifact of what has just been described.

Certainly a larger sample would have proved beneficial and it is likely that the grade inflation observed in the sample of this study contributed to the non-significant finding. A larger sample of students from randomly selected institutions would almost certainly attenuate the grade inflation problem. This study provides a first step in that direction and represents a contribution in terms of validating the instrumentation and refining the methodology.

Conclusions

A number of forces have converged that jeopardize the future of educational technology use in the classroom and educational technology certainly has its detractors among administrator and faculty ranks (Young, 2009). Increasingly, decision makers will want evidence that educational technology does indeed enhance important student outcomes like learning, satisfaction, and performance. And using educational technology may prove to be a differentiating factor as institutions attempt to attract and retain their customer base of students. In fact, Schmidtlein and Taylor (2000) have predicted that universities not using educational technologies will face declining enrollments as their customers go elsewhere seeking more stimulating learning environments.

Educational technology use may also be impeded by skeptical faculty who resist its use even though, ironically, it is likely to improve instruction and learning. This resistance may be due to nothing more than the weighing of the time it takes to integrate educational technology in the classroom against all other obligations (e.g., research, service, class preparation, etc.). It is the professor, however, who is the linchpin for using educational technology in order to facilitate student engagement and learning (Armstrong et al., 2005). A strong case needs to be made to faculty that using educational technology does make a positive difference for their students. Many faculty may be skeptical or unclear as to whether this is so and the case deserves making.

Institutional budgets are tight and will continue to be so for the foreseeable future. A generation of “smart” classrooms is reaching the stage where significant upgrade or replacement is a necessity. No longer can decisions to invest or re-invest in these systems be made solely on optimistic assumptions concerning educational technology use in the classroom. In this new age of formal

assessment and accountability, it is imperative that both the cost and benefits of these investments be studied and determined (Johnstone & Poulin, 2002). In this environment, formal assessment of educational technology systems and their impact on students may provide the foundation for making the case for educational technology investments.

This study is illustrative of a formal educational technology assessment. The results of this study confirm the findings in the literature that the use of educational technology is positively related to student learning and satisfaction. In the context of this study, the educational technology took the form of the Smart Board Technology System (SBTS), and use of this system was positively associated with student perceptions of the learning that occurred in the course and with satisfaction with the course overall. Interestingly, the impact of student learning on student satisfaction was relatively large and it is encouraging to see that learning is such an instrumental determinant of students' overall satisfaction.

Student performance was not found to be associated with the extent of SBTS use in the classroom. This finding is perhaps an artifact of limitations of this study's measure of student performance, modest sample size, and the grade inflation noted in the sample. But this study provides a foundational first step to conducting broader studies involving a larger, randomly selected sample of student respondents.

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The Short- and Long-Term Effectiveness of Reading Recovery in a Rural School Setting

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Abstract

Five years of emergent literacy and literacy data from 2002 to 2007 were reviewed for first through third graders in a small, rural school in the Midwest. Forty first graders had received Reading Recovery services over that time span. Their scores on DIBELS were compared to 41 low average to average students. Subsequent placement in special education and Title I Reading was also tracked. Results indicate that the Reading Recovery students were just as proficient in emergent literacy skills such as phonemic awareness, but they scored significantly lower on a reading fluency measure. Most of them (78%) required subsequent reading services in second and/or third grades. Implications of the findings are discussed.

The passage of the Individuals with Disabilities Education Improvement Act of 2004 (IDEA 2004) has led to an increased emphasis on the provision of scientific, research-based interventions prior to eligibility determination in special education. IDEA 2004 also allows local education agencies (LEAs) to use as much as 15% of special education monies for intervention services within the regular education curriculum. It is no surprise then that Reading Recovery, one of the widely implemented early intervention programs, is promoted by the Reading Recovery Council of America as “a compelling option for schools that are designing response to intervention (RTI) models to meet the needs of struggling readers and writers” (Lose et al., 2007, p. 1).

Reading Recovery is a broad-based early literacy program founded by Marie Clay in New Zealand in the 1970s (Clay, 1985) that attempts to target the lowest achieving 20% of students in first grade and utilizes one-on-one daily 30 minute tutoring sessions for 12-20 weeks. The goal is to increase students' reading skills to the class average, allowing them to become relatively independent readers (Baenen, Bernholc, Dulaney, & Banks, 1997; Clay 1991), which, in turn, reduces the number of referrals and placements for special education. To that end, Reading Recovery is considered to be a “cost-effective investment” in preventing reading failure among first graders and reducing long-term costs of special education services in later years (Askew et al., 2003; Lose et al., 2007).

Given the scarcity of resources, particularly in rural schools, the issue of cost effectiveness takes precedence in deciding which intervention program should be implemented. Contrary to the developers' claims, some scholars suggest that Reading Recovery may be costly due to the one-on-one nature of service delivery and the cost of teacher training and professional development (Hiebert, 1994; Reynolds & Wheldall, 2007). It is therefore important to ask if, in fact, Reading Recovery students do catch up to their average peers and if the gains made during early

intervention are sustainable, reducing the need for additional intensive and expensive reading instruction such as in special education and in Title I Reading services.

Brief Overview of the Findings of Efficacy Studies

Various researchers find that Reading Recovery is an effective short-term intervention for increasing reading skills of low performing students to the local school district's class average (Baenen et al., 1997; Center, Wheldall, Freeman, Outhred, & McNaught, 1995; Hurry & Sylva, 2007; Pinnell, Lyons, DeFord, Bryk, & Seltzer, 1994; Plewis, 2000; Reynolds & Wheldall, 2007). However, results from the same above cited studies indicate that long-term effects diminish and wash out over time. For instance, Baenen et al. found that Reading Recovery reduced retention and the need for Chapter 1 services in second grade, but that effect was not present in third grade. By that time, Reading Recovery students were just as likely to be identified for special education services, placed in Chapter 1 services, or retained as students in the control group. Also, on a high-stakes reading assessment, there was no difference between Reading Recovery students and control group students at third grade. On the other hand, other researchers find that Reading Recovery does have long-lasting effects on reading skills (Moore & Wade, 1998; Pinnell, 1989). Moore and Wade, for example, found in their study of 10-12 year olds that former Reading Recovery students scored significantly higher on a standardized test of reading (i.e., Neale Analysis of Reading) than a comparison group chosen from the same class that had higher ability.

The success rates of Reading recovery vary considerably. Up-to-date percentages of successful discontinuation rates of all students, depending on the individual school district in New Hampshire, ranged from 33% to 92% (Schotanus, Chase, Fontaine, Phillips, & Mattson, 2004). Other regional success rates in the Midwest range from 51% to 68% (Banks & Jackson, 2007; Gitz, 2006; Zalud, 2005). The Reading Recovery Council of North America (2002) cited that after 17 years of data collection, 60% of all children served read at a level comparable to the average of their peers. However, Reynolds and Wheldall (2007) contend that the percentages of successful students reported through "in-house" data collections such as those cited above tend to be generally higher than those through independent research. Reading Recovery affiliates also typically cite successful discontinuation rates for only the students who have completed the entire program and these rates are usually higher.

There are also disparities in the rate of recommended students for subsequent reading services. According to Reading Recovery site reports, the average rate was 20% in New Hampshire (Schotanus et al., 2004). The reports from the Midwest (Banks & Jackson, 2007; Gitz, 2006; Zalud, 2005) cite rates from 18% to 26%. Conducted in New South Wales in Australia, Center et al. (1995) found in their study that 35% had benefited from Reading Recovery while 35% were not "recovered" and would need to be recommended for subsequent reading services. They went on to say that 30% of Reading Recovery students would have improved without such services because 30% of the control group improved without any intervention.

Purpose of the Study

Reading Recovery is a widespread reading program that provides interventions for students who are just learning to read. However, the findings from studies examining Reading Recovery are mixed in their support of its benefits given the cost of implementation (For detailed review, see Reynolds, Wheldall & Madelaine, 2009; Schwartz, Hobsbaum, Briggs, & Scull, 2009). In particular, it is unclear as to the long-term effects of the program. If Reading Recovery were to be effective only in the short term, the potential for cost savings would be significantly compromised. Thus, in the present study, the short- and long-term outcomes of Reading Recovery on reading skills are examined, using historical data gathered over a five year period of time.

It should be also noted that the present study employed the Dynamic Indicators of Basic Early Literacy Skills (DIBELS) as reading measures. This responds to one of the major criticisms of Reading Recovery studies: Reading Recovery does not use independent measures of reading skills, as most of its evaluations are limited to the developers' own measures. Therefore, the results may be inflated (Reynolds & Wheldall, 2007; Tunmer & Chapman, 2003). The use of the DIBELS for the present study also reflects current practice: Most LEAs that have adopted an RTI model use curriculum-based measures such as DIBELS for universal screening and progress monitoring (Brown-Chidsey & Steege, 2005). Within an RTI approach, it is likely that outcome measures and/or measures for progress monitoring would be curriculum-based rather than those that are specific to Reading Recovery.

Within in this context were framed the following specific research questions: 1) Do Reading Recovery students catch up to their low average to average peers in reading skills by the end of first grade? 2) Are the gains, if they exist, maintained in second and third grades? 3) To what extent do Reading Recovery students require additional intensive reading instruction, such as special education or Title I Reading services in second or third grade?

Method

Participants

A total of eighty-one first graders from five different cohorts over five years in a small, Midwestern rural school district were included in this study. Data were gathered from each cohort over the course of first, second, and third grades, except from the last cohort, which contains data from only first and second grade. There were 40 students in the Reading Recovery (RR) group and 41 in the comparison group (for detailed descriptions of the groups, see *Procedures*). The RR group consisted of 73% (29/40) male and 27% (11/40) female. In terms of ethnicity, it was composed of 80% (32/40) white, 2% (1/40) African-American, and 18% (7/40) Hispanic students. Forty-five percent of the students (18/40) received free or reduced lunches. In the comparison group, there were 49 % (20/41) male and 51% (21/41) female, whose ethnic breakdown was 90% (37/41) white and 10% (4/41) Hispanic. Twenty-seven percent of students (11/41) received free or reduced lunches.

Measures

Letter Naming Fluency, Phoneme Segmentation Fluency, and Nonsense Word Fluency probes of the DIBELS were administered to first graders as part of universal screening for reading difficulties. For the purpose of this study, the Letter Naming Fluency scores were not used, as it was administered only once in the fall.

Phoneme Segmentation Fluency (PSF) is “a standardized, individually administered test of phonological awareness” (Good & Kaminski, 2002; p. 7). This provides a measure of phonemic awareness as well. It assesses the student’s ability to segment three- and four-phoneme words within a one minute time limit. As determined by the benchmark cutoffs, students may score in the “deficit”, “emerging”, or “established” categories. Students in the established category are at the lowest risk for developing reading difficulties while those in the deficit category are most at risk. Alternate-form reliability ranges between .60 - .70. Concurrent validity is demonstrated by correlations ranging between .19 - .51 with the Woodcock-Johnson Psycho-Educational Battery-Revised (WJ-R) Readiness cluster and by correlations with the Stanford-Binet Verbal Reasoning, ranging between .20 - .33. Predictive validity is displayed by a correlation with the second grade WJ-R Total Reading cluster, ranging from .20 - .59 and by a correlation with first grade Nonsense Word Fluency, ranging from .28 - .55 (Assessment Committee, 2002).

Nonsense Word Fluency (NWF) is “a standardized, individually administered test of the alphabetical principle – including letter-sound correspondence and of the ability to blend letters into words in which letters represent their most common sounds” (Good & Kaminski, 2002; p. 7). The student is presented with a sheet of randomly ordered vowel-consonant and consonant-vowel-consonant words and then asked to pronounce each letter or the entire nonsense word within a one-minute time limit. Students may score in the “at risk”, “some risk”, or “low risk” categories for developing reading problems. Its alternate-form reliability ranges between .67 - .88. Concurrent validity is denoted by a correlation with the WJ-R Readiness cluster, ranging between .36 - .59, and with the Stanford-Binet Verbal Reasoning, ranging between .17 - .40. Predictive validity is demonstrated by a correlation with the second grade WJ-R Total Reading cluster, ranging between .52 - .77 and by a correlation with second grade CBM-R (i.e., curriculum-based measurement – reading probe), ranging between .60 - .85 (median = .77) (Assessment Committee, 2002).

DIBELS Oral Reading Fluency probes were also utilized, beginning in the winter of first grade through the third grade. DIBELS Oral Reading Fluency (DORF) is “a standardized, individually administered test of accuracy and fluency with connected text” (Good & Kaminski, 2002, p. 8). Students are asked to read a short passage and are timed for one minute to determine how many words correct per minute they can read. They may score in the “at risk” category or in the “some risk” category. If a student scores in the “low risk” category, s/he is much less likely to develop reading difficulties. Alternate-form reliability of second grade passages ranges between .89 - .95 and concurrent validity is demonstrated by correlations ranging between .93 - .96 with the Test of Reading Fluency (Assessment Committee, 2002). DORF passages have also shown moderate

to high correlations (.65 - .80) with high stakes tests and other standardized measures of reading (e.g., Barger, 2003).

Procedures

Phoneme Segmentation Fluency (PSF) and Nonsense Word Fluency (NWF) probes were administered in the fall, winter, and spring to all students attending first grade as part of universal screening for reading difficulties. DIBELS Oral Reading Fluency (DORF) probes were administered starting in the winter of first grade and continued through the third grade. For the aforementioned measures, the standard procedure for administering the DIBELS probes was followed. The students received one, one-minute, probe of PSF and of NWF at each time period. For DORF, three passages were administered at each time period and the median score was used for data analysis. The records of spring administrations of DORF probes for second and third grades were accessed to track intermediate and long-term progress.

Reading Recovery group. First grade students were chosen using a team approach of kindergarten and first grade teachers, a special education teacher, the elementary principal, and a speech-language pathologist. This team of school personnel reviewed the results of the fall administration of DIBELS for first graders and then discussed which students were most in need and those who would benefit the most from Reading Recovery services. Excluding the use of DIBELS, this approach of using a team of teachers is similar to the one used by Schwartz (2005). The kindergarten and first grade teachers gave the primary input during the team meeting.

Of thirty-four first graders, ten (29%) received RR services during the 2002-2003 school year (first cohort). RR typically began shortly after the universal screening that took place in September and continued through February of the following year. For the 2003-2004 school year (second cohort) there were nine of 29 first graders (31%) who received RR. Eight of 27 first graders (30%) of the third cohort and seven of 27 (27%) of the fourth cohort received RR during the 2004-2005 and 2005-2006 school years, respectively. Of twenty-nine first grade students during the 2006-2007 school year (fifth cohort), six (21%) received RR. This resulted in an average of eight students served per year with a total of 40 students in the RR group. In other words, an average of 28% of all students passing through first grade received RR services over the course of 5 years (2002-2007). Attrition occurred in the RR group, one student each in the second and third grade year from the fourth cohort. All 40 first grade students included in the RR group either were successfully discontinued or completed 20 weeks of the RR program. Students are discontinued from the program when they can read texts that their average class peers can read (Clay, 1993).

One RR teacher instructed all of the students receiving such services over the course of the five year span. She had received an entire year of intensive training from a RR Teacher Leader employed by the regional area education agency and was participating in ongoing professional development. RR students were pulled out of the general education classroom during varying times throughout the school day and did not miss regular reading instruction.

Comparison group. The comparison group was selected after the RR students had been chosen. The present study asked whether students with RR caught up to their average peers and, therefore, the comparison group was established to serve as a reference point. Comparison group students were selected using the first grade fall DIBELS data from Letter Naming Fluency, Phoneme Segmentation Fluency, and Nonsense Word Fluency. Students who were not proficient on one or more of the above measures (i.e., students in the “some risk” or “at risk” categories, or for PSF “deficit” or “emerging” categories) were selected to be part of the comparison group. Forty-one students were included in the comparison group and were considered low average to average in emergent literacy skills. There were 9 students in the 2002-03 cohort (26%), 8 in the 2003-04 cohort (28%), 4 in the 2004-05 cohort (15%), 8 in the 2005-06 cohort (30%) and 12 in the 2006-07 cohort (41%). Of forty-one students selected for inclusion in the comparison group, one student each from the first and third cohorts left school in 2nd grade. In addition, three more students left in their 3rd grade year (i.e., 1 from the 3rd cohort and 2 from the 2nd cohort). No students from 2nd grade in either the RR group or the comparison group left prior to the 2nd grade spring DIBELS administration which took place in March.

In addition to the aforementioned attrition in both groups, it should be reiterated that the fifth cohort had data from only first and second grade. Taken together, there were 2nd grade data from 38 students and 39 students in the RR and comparison groups, respectively. In third grade, there were 32 students in the RR group and 24 in the comparison group.

Data Analysis

DIBELS benchmark scores for each administration of probes were used as national norms in recognition of the criticism of RR’s inequitable use of the local classroom average. For 2 X 2 chi-square analyses, the DIBELS “low risk” category was used as the proficient category while the “some risk” and “at risk” categories were combined together to form a non-proficient category. When one cell had fewer than five subjects, Fisher’s Exact Test was used to determine the level of significance (Cohen, 2008).

To determine whether the Reading Recovery group improved to the level of the comparison group containing low average to average students, repeated-measures analysis of variance (ANOVA) was used to compare the group performance means on all DIBELS subtests administered during first and second grade. The Newman-Kuels’ method of comparing means was used to determine whether the differences were statistically significant. For third grade analyses of DORF scores, t-tests were used to compare means because of smaller sample sizes.

Results

Chi-square tests revealed that at the start of the school year there were similar percentages of students who were identified as proficient on PSF in both the RR and comparison groups (58% & 56%, respectively). Similarly, the difference in the percentages of proficient students on NWF in the RR and comparison groups (10% & 22%, respectively) was not statically significant, $p < .23$. In addition, there were no statistically significant differences during the spring

administration of these DIBELS subtests, $p < .25$ and $p < .75$, respectively, which took place after the completion of RR services. One hundred percent of RR students and 95% of students in the comparison group were identified as proficient on PSF. On NWF, 75% and 78% of students in the RR and comparison groups, respectively, reached proficiency.

Likewise, when mean PSF scores were compared via repeated-measures ANOVA, there were no marked differences between the groups during the fall, winter, and spring (see Table 1). When NWF means were compared via repeated-measures ANOVA, there was no statistically significant difference between the groups during the fall. However, there were significant differences between the RR and comparison groups on the winter and spring administrations. In other words, the comparison group attained significantly higher mean scores on the winter and spring administrations (see Table 2).

Table 1.

Phoneme Segmentation Fluency First Grade: Means & Standard Deviations

	Reading Recovery ^a		Comparison Group ^b		Newman-Keuls
	Mean	SD	Mean	SD	
Fall	34.68	13.98	35.65	13.49	ns
Winter	58.55	11.48	56.15	11.96	ns
Spring	61.25	10.70	61.50	11.19	ns

Note: $n^a = 40$ students, $n^b = 41$ students

*Total number of first graders ($N = 129$): Fall ($M = 40.55$, $SD = 14.18$), Winter ($M = 60.39$, $SD = 11.67$), Spring ($M = 62.30$, $SD = 11.27$)

Table 2.

Nonsense Word Fluency First Grade: Means & Standard Deviations

	Reading Recovery ^a		Comparison Group ^b		Newman-Keuls
	Mean	SD	Mean	SD	
Fall	13.30	8.32	20.03	10.38	ns
Winter	48.13	14.85	56.40	21.04	.05
Spring	63.45	22.08	78.75	32.36	.05

Note: $n^a = 40$ students, $n^b = 41$ students

*Total number of first graders ($N = 129$): Fall ($M = 25.95$, $SD = 18.99$), Winter ($M = 62.60$, $SD = 25.39$), Spring ($M = 84.55$, $SD = 34.05$)

Reading Recovery students were significantly less proficient in oral reading fluency than the comparison group during all the times sampled (see Table 3). In terms of performance means,

the comparison group scored significantly higher than the RR group, $F(5, 185) = 90.58, p < .001$, on DORF passages sampled (see Table 4 for Newman-Keuls comparisons). The mean score of the comparison group ($M = 70.92$) was more than one standard deviation greater than that of the RR group ($M = 44.44$) during the spring administration of first grade which took place after the RR students had completed the program. The RR group never did catch up and remained 20 – 30 words correct per minute (wcpm) behind the comparison group throughout the first, second, and third grades.

Table 3.
Oral Reading Fluency –Percent Proficient

	Reading Recovery	Comparison Group	χ^2	p
1 st Grade Winter ^a	50%	80%	8.32	.004
1 st Grade Spring ^a	50%	88%	Fisher's Exact Test ^d	.001
2 nd Grade Spring ^b	39%	85%		.001
3 rd Grade Spring ^c	34%	67%	5.73	.017

Note: n^a : Reading Recovery = 40, Comparison Group = 41, n^b : Reading Recovery = 38, Comparison Group = 39, n^c : Reading Recovery = 32, Comparison Group = 24
d – two-tailed level of significance

Table 4.
Oral Reading Fluency: Mean Words Correct Per Minute & Standard Deviations

	Reading Recovery		Comparison Group		p
	Mean	SD	Mean	SD	
1 st Grade Winter ^a	21.89	12.13	42.58	24.99	.05 ^d
1 st Grade Spring ^a	44.44	21.58	70.92	24.48	.05 ^d
2 nd Grade Spring ^b	82.50	26.66	113.32	35.27	.05 ^d
3 rd Grade Spring ^c	97.09	22.31	124.76	29.61	.001 ^e

Note: n^a : Reading Recovery = 40, Comparison Group = 41, n^b : Reading Recovery = 38, Comparison Group = 39, n^c = Reading Recovery = 32, Comparison Group = 24

d: Newman-Keuls Comparisons

e: t -test ($t(54) = -4.00, p < .001$)

*Total number of first graders ($N = 129$): 1st Grade Winter ($M = 48.19, SD = 33.49$), 1st Grade Spring ($M = 73.05, SD = 35.92$), 2nd Grade Spring ($M = 111.24, SD = 35.07$), 3rd Grade Spring ($M = 120.24, SD = 31.12$)

A significantly higher number of RR students required reading assistance in second and/or third grade than students in the comparison group. When students who were identified for special education services or Title I Reading services in the second or third grade were collapsed

together and a 2 X 2 chi-square analysis calculated, comparing RR students to the comparison group, the result was statistically significant $\chi^2(1, N = 81) = 22.85, p < .001$. There were 78% (31/40) RR students and 24% (10/41) of the comparison group who required the above services in subsequent grades. Twelve students (30%) in the RR group needed special education services while three (7%) in the comparison group required special education services. All 15 of the students were identified for reading disabilities.

Discussion

This study sought to explore the effectiveness of a rural school district's Reading Recovery program in a Response to Intervention framework. At the start of first grade, there were similar percentages of students in both the RR and comparison groups who were proficient on Phoneme Segmentation Fluency (PSF) and Nonsense Word Fluency (NWF) of the DIBELS. Over the course of the school year, students receiving RR services made similar gains as students in the comparison group on emergent literacy skills in that the increase in the number of "proficient" students on PSF and NWF in the RR group kept pace with those of the comparison group. By the spring of the first grade, the percentages of students who scored in the proficient range on PSF and NWF were essentially the same between the RR and comparison groups. Hence, when the benchmarks set by DIBELS were used as national norms for proficiency purposes, the two groups were fairly equivalent in the progress they made on these emergent literacy skills.

With respect to mean scores of PSF, there were no marked differences between the RR group and the comparison group, and both groups made significant gains throughout the first grade year. By spring, both groups' mean rates on PSF were about the same as the class average (note bottom of Table 1 for class averages). To that end, the RR group met the goal of the Reading Recovery program, which is to bring early literacy skills up to the class average. On the other hand, the RR students did not make as much gain on the mean rate on NWF during the winter and spring administrations in the first grade as the comparison group. By spring, the RR group's performance on NWF was significantly below that of the comparison group as well as the class average (note bottom of Table 2 for class averages).

The performance difference on PSF and NWF may be attributable to the instructional focus of beginning reading skill development in the RR program. Some scholars contend that RR emphasizes the use of context or initial letter cues to predict unknown words and does not focus extensively on reading phonics (Tunmer & Chapman, 2003; Reynolds & Wheldall, 2007). Significantly lower performance of the RR group, when presented with nonsense words on NWF, may be reflective of its "top-down" reading instruction, common to Whole Language (Groff, 2004). Given the instructional focus, RR students would be at a disadvantage especially when presented with nonsense words rather than true words. It is also plausible that the use of the DIBELS may have resulted in dissimilar findings, compared to the studies that relied substantially on portions of Clay's Observation Survey of Early Literacy Achievement to assess beginning reading skills in the alphabetic domain. With Clay's Survey, there would better alignment between the measures and the constructs taught in RR.

On DIBELS Oral Reading Fluency (DORF), a measure of basic reading skills, the RR students began at a significantly lower rate, even after the completion of RR, and stayed approximately 20-30 wcpm below the comparison group and class average throughout the time periods monitored between the first, second, and third grades (note bottom of Table 4 for class averages). Proficiency dipped below 40% in the second and third grades. RR students lagged significantly behind the comparison group in the short-term (first grade), intermediate (second grade), and long-term (third grade). They never did catch up to the comparison group in mean rate or proficiency, despite additional services in subsequent grades provided to 78% of the RR students. On the other hand, the comparison group's mean rates paralleled with the class averages throughout the time periods and surpassed them in subsequent grades with 24 % of those receiving additional services. These results are inconsistent with What Works Clearinghouse's finding (WWC, 2008) that RR had a "potentially positive" effect on fluency. However, it should be noted that, of the five WWC studies that met the minimum requirement for analysis, only one study demonstrated significant effects on reading fluency for students who received RR by the end of the first grade.

For this particular rural school district, while students in the RR group were initially as proficient as peers in the comparison group in emergent literacy skills, their performance did not generalize to more complex reading tasks such as reading fluency. The RR students began at a significantly lower rate and never did catch up to the comparison group in mean rate or proficiency. This suggests that the effectiveness of RR may be limited in terms of increasing reading fluency skills and maintaining early reading gains into 2nd and 3rd grades.

Response to Intervention programs utilize curriculum based measures (CBM) because they are specific, reliable, and show strong treatment validity (Brown-Chidsey & Steege, 2005). CBM's such as DIBELS also show strong relationships to student performance in the general curriculum (Deno, 2003). Thus, this study utilized DIBELS to identify students needing RR and to monitor their progress. This decision by the authors might have had a potentially important impact on the study. That is, the group of students selected for this study may have had more severe reading problems than do students identified by RR's "in-house" instruments. Gómez-Bellengé, Rogers, & Schulz (2005) found that the students identified as at-risk through the use of DIBELS represented a different population than those students who were identified using Clay's Observation Survey. Of the first grade students identified as needing intervention by the Survey, only 49% were identified as needing intervention through the use of the DIBELS. Some have criticized RR screening measures for over-identifying students who may otherwise find success in the general curriculum (e.g. Center et al, 1995).

Not surprisingly, there were a markedly higher number of RR students who required subsequent assistance with reading skills than the comparison group. Well over three times as many RR students required special education or Title I Reading services in the second or third grade. As stated earlier, 78% of RR students received these services after the first grade, 30% of whom required special education services for reading difficulties. The present study's finding is more in line with Pollock's (1996) estimate of 81% compared to New Hampshire's finding of an average of 20% (Schotanus et al., 2004). Moreover, this finding stands in stark contrast to the 2005-2006 national data by the Reading Recovery Council of North America which showed only 1% of

students who completed Reading Recovery services being placed in special education for LD reading by the end of first grade (National Data Evaluation Center, 2006).

This lackluster performance on actual reading skills and required subsequent assistance with reading may be a representation of the “Matthew Effect” (Stanovich, 1986), which contends that students who are less skilled readers are likely to have more difficulties with reading throughout their school years. In other words, students with poorer reading skills will most likely continue to have poorer skills in the future. Hurry and Sylva (2007) state that early intervention programs (such as Reading Recovery) are commonly utilized to try to prevent the “Matthew Effect”. In the present study, RR students would have to increase their rate of progress in oral reading fluency by several times over to catch up with the comparison group or their average peers.

In summary, there are several unique features of this study. While other researchers have explored the effects of RR in a rural school district, this is the first to look at the longitudinal effects of RR for a rural school setting. Similarly, this study utilized CBM for benchmarking and progress monitoring in lieu of RR’s own observational survey. Despite these methodological changes, the findings were quite similar to those of other non-affiliated studies. Overall, the RR program may be effective in terms of short-term gains in the alphabetic domain such as phonemic awareness. The results of the present study demonstrated that RR fulfills its goal of bringing up the students’ phonemic awareness to the level of average classmates by the end of first grade. However, RR students’ performance in reading fluency continued to lag significantly behind into 2nd and 3rd grade despite additional reading services, attesting to the limited efficacy of RR in terms of long-term efficacy. Consumers of Reading Recovery should be made aware that the intervention does not appear to be sufficient to help struggling readers catch up with peers and stay caught up. Additional resources may need to be in place to help students generalize alphabetic skills into higher level reading abilities such as reading fluency.

Limitations and Future Research

The primary limitation of the present study is that it is not experimental in nature – it was retrospective. Thus, random assignment to either a Reading Recovery group or a comparison group was not feasible. As a result, the comparison group was drawn to serve as a reference point rather than as a control group for causal comparisons, precluding any cause and effect statements as to the effects of Reading Recovery. For instance, certain intervening variables such as the quality of the students’ exposure to print outside of RR including the general curriculum and the home environment may account for some of the discrepancy between the performance of those in the RR group and those in the comparison group. Secondly, this study only investigated the effects of the implementation of RR in one rural school district. Thus, the generalizability of the findings may be limited. Future research should include larger samples of individuals from multiple rural settings. Finally, exploring the connection between emergent literacy and literacy skills and what mechanism(s) operate to transfer one to the other may be of special interest. It is well-founded in the research that a firm grounding in emergent literacy skills is essential for the development of fluent reading, but how does the former generalize to the latter? The answer may be born out of future research.

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Finding the Connection: College Student Development and Dispositions Assessment in Teacher Education

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Abstract

This article integrates issues of college student development and dispositions assessment by encouraging teacher educators to be mindful of the developmental stages of college students as part of the assessment of professional dispositions. The study provides beginning evidence that teacher educators may have missed the mark with dispositions assessment by focusing only on those elements of professionalism and negating the necessary developmental facets of individuals. Dispositions assessments that are tailored to experiences within the teacher education curriculum and take into account the personal nature of dispositions development will be more successful in constructing longitudinal change and developing professional dispositions.

We must be honest. The initial proposal of assessing the dispositions of prospective teachers seemed, in some way, unethical. We have witnessed teacher educators jumping quickly to the conclusion that assessing dispositions was in some way aimed at creating a militia of ideologically similar teachers. We could imagine the troublesome focus on churning out teachers that upheld only predetermined dispositions and the expeditious decline of the capacity of teachers to be individuals and hold the same civil liberties of all other citizens. Our apprehensions resurfaced with Damon (2005), "NCATE (National Council for Accreditation of Teacher Education) has deemed that, for teachers, all that is personal must belong to the profession" (p. 4). Working from the knowledgebase of research that identifies the impact of personal history on teachers' practice and decision-making (Clark, 1992; Feiman-Nemser & Floden, 1986), we question the ability of those asked to assess dispositions to understand the full context of a prospective teacher's history and potential. Could this focus on dispositions assessment lead to more readily prepared teachers or could the personal developmental traits of individuals predetermine the fate of an aspiring educator?

We agree with NCATE's mission to bring some attention to the professional dispositions of prospective teachers. Historically, there has been a lacking code of ethics. The movement toward an agreed upon code of ethics may in fact be the long-term goal of NCATE's focus on dispositions assessment (Wise, 2006). To be candid, who wouldn't ask for some type of moral gauge or ethical code to determine the readiness of individuals to be teachers when the focus of the evening news is the most recent unethical relationship between a teacher and his or her students?

As teacher educators, we have been back and forth, agreeing and disagreeing on not only the idea of assessing dispositions, but also the process that teacher educators will use to assess

dispositions. The root of this debate is the professionalization of teaching (Sockett, 2006). However, within the movement to create a professional class of teachers, like doctors and lawyers, there appears to be little concern toward prospective teachers psychosocial development as college students. College students are in the process of developing as individuals as well as professionals. With an obligation to attend to dispositions assessment within local teacher education programs, our questions expand beyond practical elements of dispositions assessment. Our expansion of these elements brings a more focused examination of this disconnect between college student development and the assessment of dispositions during the pre-professional development of teachers. In this article we aim to reconnect these two issues that have been seemingly separated, the assessment of dispositions in teacher education and the typical development of traditional college-aged students.

Conceptual Framework

The theoretical framework for this study is actually embedded in the literature of two complementary and connected fields, preservice teacher learning and college age student development. Theories of teacher learning have emphasized what teachers need to know and be able to do within a community of practice (Cochran-Smith & Lytle, 1999; Feiman-Nemser, 2001; Shulman & Shulman, 2004; Hammerness et al., 2008; Zeichner, K., 2005). These models depict teacher learning is ongoing, multidimensional, and where particular dispositions – habits of thinking and actions - are developed that define teachers' personal orientation toward their role in the classroom, children, and the teaching profession. Among the college student developmental theorists Arthur Chickering's (1969) foundational work on education and identity set the stage for debate on how college students mature and develop. Chickering identified a seven stage psychosocial identity model during which students develop competence, manage emotions, move through autonomy toward interdependence, develop mature interpersonal relationships, establish identity, develop purpose, and develop integrity (Chickering & Reisser, 1993). College student development and dispositions assessment in teacher education serve as the joint conceptual frame for this article.

Dispositions in Teacher Education

In 2000, NCATE released a revised set of standards for evaluating teacher education candidate performance based on knowledge, skills, and dispositions. At that time, the definition of dispositions provided by NCATE was:

The values, commitments, and professional ethics that influence behaviors towards students, families, colleagues, and communities and affect student learning, motivation, and development as well as the educators own professional growth. Dispositions are guided by beliefs and attitudes related to values such as caring, fairness, honesty, responsibility, and social justice. For example, they might include a belief that all students can learn, a vision of high and challenging standards, or a commitment to a safe and supportive learning environment. (National Council for Accreditation of Teacher Education, 2000)

From late 1999 until 2006 literature swirled around the expectation of certain dispositions within a college of education, and further the expectation from NCATE that these dispositions be assessed (Johnson, Johnson, Farenga, & Ness, 2005; Leo, 2005; Raths, 1999; Taylor & Wasicsko, 2000; Wise, 2006). In June of 2006, a statement from NCATE noted:

NCATE expects institutions to ensure that candidates demonstrate dispositions that value fairness and learning by all students...In addition to these common sense expectations, institutions may develop additional dispositions that fit their mission. NCATE refers institutions to licensing standards for professional educators adopted or adapted by most of the states. Institutions often identify dispositions that encourage pre-service educators to be caring teachers, collaborative partners, life-long learners, and reflective practitioners. Institutions are encouraged to measure dispositions by translating them into observable behaviors in school settings. The caring teacher creates a classroom in which children respect each other. The collaborative practitioner works with parents and other teachers to help students learn. The life-long learner reads education literature and the reflective practitioner re-thinks how she teaches the unit on geometric shapes. (National Council for Accreditation of Teacher Education, 2006)

Adversaries of dispositions assessment in teacher education have articulated concerns that assessing ones dispositions provides the opportunity for teacher preparation to become social engineers, deter students with differing views to succeed in becoming a teacher, and support that meaningful assessment is key to making dispositions assessment meaningful to teacher development (American Council of Trustees and Alumni, 2006; Damon, 2005; Johnson, Johnson, Farenga, & Ness, 2005). Meanwhile proponents of dispositions assessment have supported the idea that dispositions assessment has a strong relation to teacher effectiveness, that the attainment or teaching of specific dispositions is possible in teacher education, and can benefit from inclusion of social justice issues (Harrison, Smithey, McAfee, & Weiner, 2006; Katz & Raths, 1986; Rick & Sharp, 2008, Thorton, 2006; Villegas, 2007).

Overview of College Student Development

Research continues to document the affects of college on cognitive growth, psychosocial change, attitudes and values, moral development, and the impact of college on one's career (Feldman & Newcomb, 1969; Pascarella & Terenzini, 1991, 2005). Because of college student development research, teacher educators have a strong foundation for understanding how development occurs, how the environment influences that development, and the intended outcomes of that developmental process (Knefelkamp, Widick, Parker, 1978).

College student developmental theories fit into clusters. For example, cognitive developmental theorists focused on universal patterns that individuals go through as modes of thinking are established (Perry, 1970). Vocational theorists (Holland, 1973) postulated that individuals have, and occupations require, a certain set of traits for success and that the closer the match between the personal characteristics and job requirements the greater likelihood for success. Psychosocial theorists often built upon the work of Erikson (1968) that described a life cycle and sequential stages for development.

Chickering and Reisser (1993) postulated, similar to Erickson, that during any developmental stage college students face a developmental issue that needs resolution before the next stage could begin. Chickering identified these stages as vectors that were:

Major highways for journeying toward individuation . . . while each person will drive differently . . . eventually all will move down these major routes. They may have different ways of thinking, learning, and deciding . . . [but] college students live out recurring themes: gaining competence and self-awareness, learning control and flexibility, balancing intimacy with freedom, finding one's voice or vocation, refining beliefs, and making commitments. (p. 35)

However, rejecting the simplicity of sequential models, Chickering described college student development as seven vectors that take form as personal building blocks. While Chickering's theory focused on ages 18 to 24, he did not see age as a determinate of the vector with which a student may be associated. Instead, he viewed his seven vectors, as a culminating experience of college and post-college years.

In vector one college students focus on developing intellectual, physical, and interpersonal competence so that they will have a strong sense of confidence. During vector two, the focus is on gaining control of one's emotions (e.g., anxiety, aggression, sexual attraction, depression). Chickering argued that this control would enable individuals to process experiences in a healthy way and integrate feelings with actions. The third vector describes how college students move through emotional and instrumental autonomy so that they recognize and accept the importance of interdependence. The development of mature interpersonal relationships (vector 4) enables tolerance and appreciation of differences and a capacity for intimacy. These initial vectors are prominent in the lives of traditional-age college freshmen. With this foundation established, the student is then ready, from a developmental perspective, to move on toward the establishment of an identity (vector 5) where an inner sense enables personal stability and comfort with body, gender, and self. During the sixth vector of Chickering's theory individuals develop purpose by clarifying interests and alternatives, and subsequently set a direction for life. In the seventh, final vector, developing integrity, an individual personalizes values by which to live and accepts social responsibility. As shown in Table 1 Chickering's vectors focus on specific conflicts or attainment of specific skills or experiences.

Working from the theoretical foundation of Lewin (1936), Chickering's psychosocial theory (Chickering & Reisser, 1993) supported the view that behavior is a function of a person in his/her environment. Psychosocial theories of college student development argue that development is cumulative (success at one stage determines success in the next), sequential (stages occur in a predetermined order), and regressive (behaviors and emotions are recycled during various stages, demonstrating patterns in feelings or choices). In addition, from a developmental perspective achieving those higher vectors (or stages) does not articulate a better outcome. Rather, the outcome can take shape in different forms depending largely on the individual.

Method

The purpose of this study was to identify the ways in which dispositions assessment is currently taking place within teacher education programs at accredited institutions of higher education, articulate the dispositions that are being assessed, and identify how those dispositions align with the developmental expectations of college students as identified by Chickering. Furthermore, this study proposed to clarify via qualitative research methods how current expectations for dispositions in teacher education students attended to these students' development as college students (not just future teachers). The research question driving the review of dispositions assessment documents was are Chickering's vectors relative to dispositions assessments of prospective teachers?

Design of Study

Disposition assessment has become an intricate part of programmatic assessment by teacher education programs seeking NCATE accreditation. With the large number of teacher education institutions seeking NCATE accreditation, we chose to do a qualitative analysis of disposition documents created under the NCATE accreditation framework to investigate current practice in disposition assessment in teacher education. Researchers compiled a comprehensive list of NCATE accredited teacher education institutions from the National Council for the Accreditation of Teacher Education (1997-2007) website. The population consisted of more than 600 institutions accredited by NCATE. Researchers used SPSS statistical software to create a simple random sample of 105 NCATE accredited institutions in the United States. The sample was not stratified by demographic, geographic, or other institutional characteristics.

Data Collection

Researchers took into account the conceptual frame through which they were investigating the literature. Data were collected by conducting Internet searches of the selected institutions public documents and assessment instruments for professional disposition assessment from each of the selected teacher education programs. Approximately 300 pages of documentation were collected from the selected institutions.

Data Analysis

Data analysis consisted of several actions. The qualitative data analysis approach as described in the work of Berkowitz (1997) was used by the researchers to guide data analysis. The researchers engaged in Berkowitz's three step process of 1) data reduction, where pertinent data were selected and condensed; 2) data display, where data were organized in a systematic and meaningful way, and 3) conclusion drawing and verification, where themes were detected and conclusions formed. The researchers made every effort to review each disposition document as a specific case. Content analysis of the collected disposition documents established five types of assessment being conducted. Teacher education programs assessed pre-service teacher dispositions by rubric, performance, test, or interview. A final category of "other" was established to identify assessments that did not fit into these other categories. Document types were further broken down by whether they focused on attitudes, beliefs, behavior, or values. This initial analysis allowed us to then code the documents according to Chickering's seven vectors:

1. Developmental competence.
2. Managing emotions.
3. Autonomy toward interdependence.
4. Developing mature interpersonal relationships.
5. Establishing identity.
6. Developing purpose.
7. Developing integrity.

The researchers then built a preliminary, coherent narrative about the overall data in relation to the research question. This type of data analysis is iterative in nature and the researchers used the constant comparative analysis method (Glaser & Strauss, 1967) to refine and improve the "working hypothesis" (Cronbach, 1975) about Chickering's vectors relative to dispositions assessments of prospective teachers.

In order to assure credibility and trustworthiness of the data, the data were reviewed by all three researchers. The first reviewer is an expert in disposition assessment and teacher education. The second reviewer researches teacher development, the instructional practice of new teachers, and works with pre-service teacher education students seeking teacher licensure. The third researcher is experienced in qualitative data collection and analysis. Ultimately, the evaluator data was analyzed for interrater reliability demonstrating that 86% of rater analysis was consistent among all three reviewers.

Results

The review of documents produced several points of similarity within the sample of disposition assessments. Documents revealed that the majority of the sample teacher education programs assessed factors such as attitudes, behaviors, beliefs, and values as the primary focus of dispositions. In the majority of cases, teacher education programs demonstrated that they were conducting the assessment using a Likert type scale or an abbreviated rubric. Less than 5% of the total sample provided descriptions of how evaluators would make their final assessment (e.g., criteria that would demonstrate a specific attitude or value held by the prospective teacher). If we assume that the inclusion of specific criteria would support the overall quality of dispositions assessment, the point raised by Diez (2006) that, "Criteria used in the assessment of dispositions should be made public and explicit" (p. 49) would be supported. Overall, from a purely procedural standpoint, the review of the dispositions documents demonstrated a lack of active attention to how different individuals may make their dispositions public. That is, the majority of the dispositions assessments were conducted as a part of class participation, with only a few programs noting any type of observational or practical application (e.g., case study, classroom observations, or reflective essay review).

Overall, the dispositions documents demonstrated little variance and/or creativity. The majority of programs identified values or principles from which their dispositions were based. These values or principles were broad in nature, and rarely tied to any broad structure such as the conceptual framework. For example, a program would identify "holding high expectations for all students" as a value or principle. However, the program did not further articulate any opportunity beyond class participation that prospective teachers could prove their adoption

and/or support of those values or principles. Using the example of „holding high expectations for all students“ the typical dispositions assessment would include a Likert scale assessment completed at the Freshman level by an instructor who never had the opportunity to observe the prospective teacher working with students and/or developing curriculum. The question then becomes one of meaningful dispositions assessment.

Review of documents continually demonstrated that there was no verbalized platform for demonstrating dispositions. A great minority of teacher education programs provided no means for students to demonstrate a type of performance as a means of assessment (e.g., reflective journal, case study review, or field-placement observations). Rather, the emphasis was placed on instructor interpretation of behavior. It is important to note that less than 15% of all documents reviewed provided any opportunity for students to question the accuracy of their dispositions assessment. In addition, there was a lacking explanation overall of how the teacher education curriculum was reshaping itself to promote the teaching and learning of professional dispositions.

Upon conclusion, the data demonstrated three predominant themes including (a) dispositions assessment as it relates to the individual, (b) attention to improving teacher education curriculum as a means to engage prospective teachers in dialogue on moral and ethical decision-making, and (c) awareness of developmental expectations of college-aged students.

Dispositions Assessment as it Relates to the Individual

The culminating lesson from the review specific to individuality was, simply, that there was little to no documented attention to the individual. There are two perspectives in which we can review the attention to the individual, specifically the individual's behaviors. The first is through the lens of Mullin (2003) or Rike and Sharp (2008) where dispositions are demonstrated through patterns of behavior. Through this lens, it may be important within dispositions assessment to explore the reasons behind one's behavior. Simply drawing conclusions negates the impact of individual experiences and presumes that all prospective teachers hold the same background. In this view, if you are enrolled in a teacher education program you should have shared experiences that shape your dispositions and resulting behaviors. Further, you should have processed those experiences at a level that allows your behavior to model those expected dispositions within a program.

If we move to a second lens and consider Lewin's (1936) view of behavior as a function of a person in his/her environment then dispositions assessments that focus on the prospective teachers and not the program are incomplete. That is, if prospective teachers are products of their environment and their environment of focus is the teacher education program then we must question if it is safe to assume that the lack of professional dispositions in prospective teachers speaks to a lack of opportunity to learn those professional dispositions within programs. Ultimately we do not attend to the background of individuals as influences on behavior nor do we take into account, on a large scale, that programs must create opportunities for expected dispositions to be modeled, learned, and reflected upon (Mullin, 2003). There was a lack of focus on developing dispositions through experiences strategically embedded into curricula. Instead, it

seemed in some cases that dispositions were almost expected to appear through some type of unconscious absorption. What we refer to as the “if you say it, it will become” approach.

Attention to Improving Teacher Education Curriculum as a means to Engage Prospective Teachers in Dialogue on Moral and Ethical Decision-Making

The document review demonstrated that dispositions assessment was tied to courses or stages within specific programs, but not tied to curriculum or experiences purposefully embedded into that course and/or program. Analysis demonstrated that within the dispositions documents, curriculum was not explicitly attending to the encouragement of dialogue with peers, professionals, or instructors on issues of moral or ethical reasoning. Rather, there was little to no mention of how dispositions are developed as part of learning to teach.

In addition, dispositions assessments were conducted within existing structures of the teacher education curriculum that may or may not have been designed to establish opportunities for developing professional dispositions. Document analysis revealed that the important task of assessing someone’s dispositions (e.g., values, behavior, attitude, etc.) was absent in a substantial majority of cases and lacked any communicated criteria or training on observing dispositions. Ultimately, review of documents left us to conclude that one instructor’s interpretation of an individual’s beliefs could either support or discourage (based on opinion alone) further participation in the profession.

Data from the document review revealed that no (n=0) documents detailed or even made mention of how dispositions data would be utilized to improve the teacher education program. Similarly, few (n=7) documents articulated remediation opportunities for failed dispositions assessments and no (n=0) documents articulated any experiences that would provide specific training or coaching for the attainment of desirable dispositions.

Awareness of Developmental Expectations of College-Aged Student

Sanford (1966) proposed three developmental conditions for college students including readiness, challenge, and support. Readiness was described as a function of maturity and beneficial conditions in the environment (i.e., challenge and support). Individuals are not ready to display certain behaviors until there is an optimal dissonance of challenge and support. College student psychosocial development theory, and conceptual change theory, supports the need to experience a certain degree of challenge to their preexisting conceptions before any change in their behaviors takes place (Posner, Strike, Hewson, & Gertzog, 1982). In addition, that challenge must be supported by experiences and access to new ideas.

Applying this knowledge to dispositions assessment, we would presume that teacher education programs in some way would communicate the goals, the longitudinal vision, or purpose of the assessment. Overall, the dispositions assessments documents provided little context or goals for the assessment. Rather there was, in most cases, a list of expectations with simplistic explanations absent any deeper meaning or purpose. In addition, the dispositions documents reviewed presumed in most cases that college students, specific to level in the program, could be expected to have similar attitudes, behaviors, and beliefs. There was little to no attention to how

dispositions might develop over the course of the program. Further, the basis for most assessments were observational in nature and did not communicate any attention to how the environment was creating the opportunity for behaviors to develop as a result of participation in the program. As shown in Table 2 document analysis showed that while the more common dispositions being assessed can be aligned with Chickering's vectors, the majority of programs focused on higher level vectors that may or may not be attainable during the undergraduate experience. In the left hand column is the vector, in the right hand column is a related focus of dispositions assessment.

Overall, the table demonstrates progression of the development of specific dispositional traits. In light of what our document analysis demonstrated, the majority of points of inquiry for dispositions assessment are not attainable until the end of or subsequent to the college experience.

Discussion

Upon further investigation, we support the assessment of dispositions, however there is much room for improvement. Our concerns continue to focus on the ability of programs to communicate expected dispositions and embed those dispositions into the local experience of becoming an educator (similar to those experiences articulated by Stoddard, Braun, Dukes, & Koorland, 2009). Three questions however, must be addressed as teacher education programs continue to develop disposition assessments.

Question 1: Are teacher education programs accounting for psychosocial development of the college age students completing teacher education programs and whose professional dispositions are being assessed?

Question 2: Is there value in teacher education programs providing clear models, frameworks, assignment types, and other professional development opportunities focused on disposition assessment for instructors who might be assessing pre-professional teachers dispositions?

Question 3: Do we have a clear understanding of how teacher education programs are creating opportunities to teach appropriate dispositions and model those dispositions in applied settings? Are these opportunities embedded into the curriculum and made clear to pre-professional teachers?

Teacher education must not exclude itself from a necessary attention to the developmental stages of its students. Dispositions assessment cannot be created absent our knowledge of the development of college students as individuals (Brownlee, Puride, & Boulton-Lewis, 2001). If we use Sanford's work (1969) as a conceptual framework for developing professional dispositions in prospective teachers, we would be better able to provide an environment of support, improve the opportunities for learning dispositions through challenge, and create a system for dispositions assessment where we focus on readiness of students to learn/acquire dispositions through experience and reflection.

The problem, as shown in Table 2, is that dispositions assessments focus heavily on those vectors that are on the higher end of Chickering's stages. This may mean that the dispositions being assessed actually go against the developmental readiness of college students. If that is the case, and we want dispositions assessment to be a meaningful practice that is geared at developing purposeful professional dispositions, teacher educators may be in a position to rethink their dispositions assessment practices.

Our review of documents consistently demonstrated that dispositions assessments did not account for psychosocial development. There was little to no readiness or curricular component present, specific to guidelines or expectations beyond simply stating the obvious (e.g., diversity should be embraced). Negating attention to teaching dispositions via exploring dispositions through experiences or reflections demonstrates that teacher education programs mostly expect dispositions to be created through an undefined process. With a lack of discussion on how we expect prospective teachers to obtain certain dispositions, there is no foundation for purpose. That is, we know what dispositions we want, but we aren't yet communicating how we expect prospective teachers to obtain those dispositions.

As shown in Figure A, we argue that teacher education programs can only promote the development of dispositions and the effective assessment of those dispositions if three critical elements are attended to and connected, (1) attention to college student development, (2) professional dispositions, and (3) embedded curricular experiences that engage students in developing dispositions. Programs that model this attention will have a better foundation for dispositions assessment than those that simply state goal dispositions without attention to how those fit into developmental stages and/or the curriculum of learning to teach.

Our investigation into dispositions assessment resulted in more questions than answers. However, we believe that if we take into account the multiple roles of students (i.e., they are college students as well as prospective teachers) we will see more longitudinal success in our efforts.

Limitations and Recommendations

The review of documents as a means to establish an understanding could have been strengthened by interviews with both prospective teachers and teacher educators. In addition, the observation of how dispositions assessment occurs within programs is a critical component to which our study did not attend. Overall, the study was meant to address how college student development is considered within teacher education.

While this study treated all NCATE teacher education institutions without contextual characteristics taken into account, the researchers acknowledge that the institutional contexts of these institutions are likely to impact disposition assessment. A subsequent study that categorizes NCATE institutions by Carnegie classification, or other demographic characteristics, may yield interesting findings.

The researchers did not consider the growing number of non-traditional teacher education students and how they fit within the developmental process. In a subsequent study a comparative

analysis between traditional and nontraditional preservice teachers may find differences in the development of these students. Additionally, other demographic characteristics (e.g., rural, suburban, and urban) may provide interesting comparisons.

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Table 1.

Conflicts within Chickering's Vectors

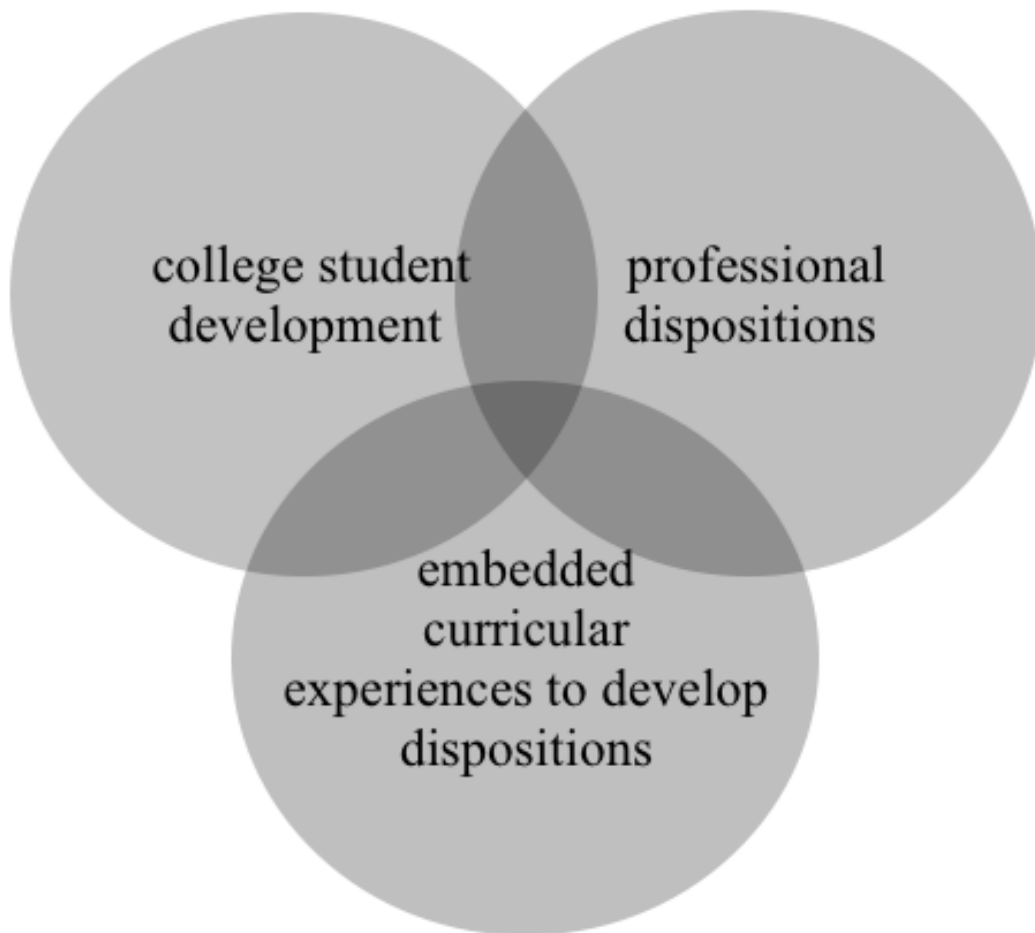
Vector	Conflicts
1: Developing intellectual, physical, and interpersonal competence. (Typically at Freshman level)	Questioning intellectual abilities, (Can I really do this? Can I go to college?). Developing physical competence, (Am I in shape?). Developing interpersonal confidence, (Will anyone like me? Will I find new friends?).
2: Focus on managing one's emotions. (Typically at Freshman level)	Learning to experience different kinds of emotions. Process experiences in a healthy way. Manage major impulses including learning when aggression and sexual activity is appropriate.
3: Recognize and accept the importance of moving through autonomy toward interdependence. (Typically at Freshman level)	Learning how to set limits. Reliance is transferred from parents/families to peers. Begin to think about personal goals, not parental pressure. Understand the interdependence of relationships with peers and families. Focus on learning to do things for ourselves, as opposed to having the security of someone else completing tasks for us.
4: Development of mature interpersonal relationships. (Typically developed throughout the undergraduate experience)	Exposure to different lifestyles. Developing a tolerance for others, and acceptance of individuals based on their own right rather than stereotypes. Creates a means to show empathy and understanding towards others.
5: Establishment of an identity. (Follows vector four, may happen during the undergraduate experience)	Development of an "inner sense" that frees us from anxiety and stress. Seeking out a meaningful achievement. Sense of identity frees some level of dependency on interpersonal relationships.
6: Develop purpose by clarifying interests and alternatives. (Follows vector five, may not happen during the undergraduate experience)	Clarifies interests and explores alternatives. Makes decisions and sets initial direction for life.
7: Developing integrity. (Follows vector six, may not happen during the undergraduate experience)	Values are defined and there have been enough individual experiences to allow for a sense of direction and purpose. During this vector individuals try to develop a sense of consistency between values and behavior.

Table 2.

Chickering's Vectors as Aligned with Current Dispositions Assessment Documents

Vector	<i>Attention within Current Dispositions Documents</i>
1: Developing intellectual, physical, and interpersonal competence.	Issues related to physical appearance. Works well with others. Attains appropriate grades.
2: Focus on managing one's emotions.	Expectation of being honest and solving conflict professionally. Able to reflect on practice and/or experiences related to becoming a teacher.
3: Recognize and accept the importance of moving through autonomy toward interdependence.	Takes responsibility for choices and behaviors. Understands the meaning of expectations set forth by program. Reflects on the importance of community and family in the role of the teacher.
4: Development of mature interpersonal relationships.	Understands how to work in teams. Can respond to the needs of others purposefully.
5: Establishment of an identity.	Acceptance of difference and demonstration of tolerance and appreciation for diversity. Value of all students (including those with disabilities). Reflection depicts attention to all learners.
6: Develop purpose by clarifying interests and alternatives.	Commitment to life-long learning. Creates a professional growth plan to continue development. Make professional decisions based on experience.
7: Developing integrity.	Enthusiastic about profession. Behaviors exemplify professional attitude and belief. Shows a value of learning. Demonstrates values that are tied to the profession.

Figure A.
Finding the Connection



Examination of the Fidelity of School-wide Positive Behavior Support Implementation and its Relationship to Academic and Behavioral Outcomes in Florida

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Abstract

The purpose of this research was to examine the level of School-wide Positive Behavior Support (SWPBS) implementation in the State of Florida. The relationship between implementation fidelity of SWPBS to academic and behavioral outcomes for elementary and middle schools was then analyzed. The results of this study found that SWPBS is being implemented with fidelity in the majority of schools in one year and that these schools maintain or increase fidelity over time. Findings also suggest that there may be a relationship between greater implementation fidelity and lower ODR and OSS rates and to a lesser extent, academic outcomes.

School leaders continue to face unprecedented challenges since the passage of the No Child Left Behind Act of 2001. Most notably, leaders are facing increased accountability for student achievement. One factor that has been identified as influencing the instruction that schools provide is student problem behavior (Lassen, 2006). Luiselli, Putnam, Handler, and Feinberg (2005) suggest that establishing effective discipline practices is critical to ensuring academic success. Recognizing this challenge, school leaders have instituted various programs to improve school culture and meet the needs of the students.

One framework that is currently being used in more than 8000 schools in over 47 states throughout the nation is School-wide Positive Behavior Support (SWPBS) (Spaulding, Horner, May, & Vincent, 2008). Some outcomes associated with SWPBS include decreased office discipline referrals (ODR), increased instructional time, decreased administrative time addressing discipline, increased teacher satisfaction, improved peer relationships, increased academic achievement, and an increase in perceived school safety (Glover, 2005; Lassen, 2006; Landers, 2006; Lassen, Steele, & Sailor, 2006; Rentz, 2007; & Luiselli, Putnam, Handler, & Feinberg, 2005). The purpose of this study was to examine the relationship between the fidelity of implementation of SWPBS to academic and behavioral outcomes. Examining possible relationships between the fidelity of implementation of SWPBS to academic achievement and student problem behaviors may be of use to policy makers, practitioners, and future researchers.

Research Procedures

Although researchers have studied the relationship between the implementation of SWPBS to academic and behavioral outcomes, few have included data in their studies regarding how closely the program is implemented as it is intended (Muscott, Mann & Lebrun, 2008). Dumas, Lynch, Laughlin, Smith, and Prinz (2001) suggested that the conclusions that can be drawn about a program are limited if fidelity is not established. The purpose of this study was to examine the extent which SWPBS was implemented in elementary and middle schools in Florida during the 2007-2008 school year. Furthermore, the number of years that SWPBS had been implemented in each school as a factor in proper implementation was analyzed. This study also examined

possible relationships between the fidelity of implementation of SWPBS as indicated by the total BoQ score and the Florida Comprehensive Achievement Test reading and mathematics subtests. The relationship between BoQ scores and students' behaviors within the school as measured by office disciplinary referrals and total days of out of school suspensions during the 2007 - 2008 school year in the state of Florida were also studied. Next, differences between schools that scored in the top quartile of total BoQ scores, the lowest quartile of total BoQ scores, and a control group were examined.

Research Questions

The study was guided by the following research questions:

1. To what extent is SWPBS implemented with fidelity as measured using the BoQ in selected elementary and middle schools in Florida during the 2007-2008 school year? Is there any difference in fidelity scores between schools that have implemented SWPBS for one year, two years, or three or more years?
2. What is the relationship, if any, between fidelity of implementation of SWPBS as measured using the BoQ during the 2007-2008 school year and student problem behaviors as measured by office discipline referrals and the number of days for out of school suspensions in selected elementary and middle schools in Florida?
3. What is the relationship, if any, between fidelity of implementation of SWPBS as measured using the BoQ during the 2007-2008 school year and academic achievement as measured by FCAT reading and mathematics subtest scores in selected elementary and middle schools in Florida?
4. Is there a statistically significant difference during the 2007-2008 school year in mathematics and reading FCAT scores among elementary and middle schools that scored in the top quartile of BoQ scores, those that were in the bottom quartile of BoQ scores, and those schools which did not implement SWPBS?

Methodology

Population and Sample

The population for this study was 2,889 public elementary and middle schools in the state of Florida during the 2007- 2008 school year (FLDOE, 2008). For research question one, the sample included 145 elementary and 60 middle schools that actively utilized SWPBS during the 2007-2008 school year and had completed the BoQ survey. The sample for research question two included 134 elementary and 59 middle schools that actively utilized SWPBS during the 2007-2008 school year, had completed the BoQ survey, and had reported ODR and OSS data. Research question three was answered using a sample which included 134 elementary and 59 middle schools that actively utilized SWPBS during the 2007-2008 school year, had completed the BoQ survey, had reported ODR and OSS data and had valid FCAT Reading and Mathematics subtest scores. For question four, three groups of elementary schools and three groups of middle schools were randomly selected. Group 1 included 30 elementary schools that scored in the lowest quartile of total BoQ scores. Group 2 consisted of 30 schools in the highest quartile of total BoQ scores. A comparison group, Group 3, included 30 schools that did not participated in SWPBS training. Group 4, Group 5, and Group 6 consisted of 14 middle schools each. Group 4

included middle schools that scored in bottom quartile of BoQ scores, Group 5 consisted of middle schools in the top quartile of BoQ scores, and Group 6 included non-SWPBS middle schools.

Instrumentation

The Benchmark of Quality (BoQ) survey was used to measure the fidelity of implementation of the program. Cronbach's alpha was used to test the reliability of this scale. Academic achievement was measured using grade level mean scale scores from the Reading and Mathematics subtests of the Florida Comprehensive Achievement Test (FCAT). Data about students' behavior was gathered using a School-wide Positive Behavior Support Outcome Data Summary form. Information about the number of Office Discipline Referrals (ODR) and the total number of days of out of school for suspensions was recorded on this form.

Data Collection Procedures

The results of the BoQ survey, the School-wide Positive Behavior Support Outcome Data Summary, and demographic information for the 2007-2008 school year were gathered by the Positive Behavior Support Project at the Mental Health Institute, University of South Florida and provided to the researcher. Discipline data were for the total school population for each elementary and middle school. Mean scale scores from the reading and mathematics portions of the 2008 FCAT for each grade level were obtained from the Florida Department of Education website. The average Mean Scale Score in grades three through five for each subject area were used to determine elementary school scores. For middle schools the average Mean Scale Score for grades six through eight were used for each subject area.

Analytic/Statistical Methods

BoQ total scores were examined for the 2007-2008 school year to evaluate the target schools' adherence to universal SWPBS procedures. A total score of 70 indicated that the program was being implemented with fidelity. Descriptive statistics including the mean, median, standard deviation, skewness, and kurtosis were analyzed to determine the level of implementation. A one-way between groups ANOVA with post-hoc tests was run to determine if there was a relationship between years of implementation and fidelity.

Two sets of analyses were conducted in order to examine the mean ODR and out of school suspensions days at the target schools. The first analysis was of detailed descriptive statistics generated for ODR's and suspensions. Second, a Pearson's Product-moment Correlation was conducted between the fidelity of implementation (BOQ total score) and the number of office discipline referrals per 100 students and the number of days of out of school suspensions, respectively.

Two sets of analyses were conducted to examine the relationship between the fidelity of implementation and Mathematics and Reading FCAT scores. The first analysis was a set of detailed descriptive statistics generated for mathematics and reading mean scale scores. Second, a Pearson's Product-moment Correlation was conducted between the fidelity of implementation

(BOQ total score) and the mean scale scores for the mathematics and reading subtests of the FCAT.

To examine the differences between elementary schools that have implemented SWPBS with fidelity and those who have not, two sets of analyses were conducted to address question four. The first analysis was a set of detailed descriptives. For the second analysis, Analysis of Variance (ANOVA) tests were conducted. The independent variable, fidelity of implementation, had three categories: lowest quartile of BoQ scores (Group 1), highest quartile of BoQ scores (Group 2), or did not participate in SWPBS training (Group 3). The dependent variable was the FCAT Reading and Mathematics mean scale scores. The ANOVA tests were conducted to compare Group 1, Group 2, and Group 3 for each year using reading and mathematics subtest mean scale scores of the FCAT. This procedure was repeated for middle schools with the three categories for fidelity of implementation identified as lowest quartile of BoQ scores (Group 4), highest quartile of BoQ scores (Group 5), or did not participate in SWPBS training (Group 6). In the following sections, each research question is addressed independently.

Research Question 1

To what extent was SWPBS implemented with fidelity as measured using the BoQ in selected elementary and middle schools in Florida during the 2007-2008 school year? Is there any difference in fidelity scores between schools that have implemented SWPBS for one year, two years, or three or more years?

BoQ scores were examined for 145 elementary schools and 60 middle schools from the 2007-2008 school year to evaluate the implementation of the critical components of SWPBS in the State of Florida. Collectively, 71.7% of the schools in the study implemented SWPBS with fidelity as indicated by a total BoQ score of 70 or greater. Closer examination revealed 75.2 % of the elementary schools and 63.3% of the middle schools scored above a 70.

A one-way between groups analysis of variance was conducted to explore the impact of years of implementation on implementation fidelity as measured by the BoQ. Schools were identified as having one year of implementation, two years of implementation, or three or more years of implementation.

There was a statistically significant difference at the $p < .05$ level in BoQ scores for the three groups [$F(2,201)=3.7, p=.03$]. Post-hoc comparisons using the Tukey HSD test indicated that the mean score for schools after one year of implementation ($M=72.96, SD=13.77$) was significantly different from schools that had implemented SWPBS for three or more years ($M=80.01, SD=18.19$). Schools that had implemented SWPBS for two years ($M=74.42, SD=18.45$) did not differ significantly from either of the two other groups.

Research Question 2

What is the relationship, if any, between fidelity of implementation of SWPBS as measured using the BoQ during the 2007-2008 school year and student problem behaviors as measured by

office discipline referrals and the number of days for out of school suspensions in selected elementary and middle schools in Florida?

To answer this question the researcher conducted Pearson's Product Moment Correlations between the fidelity measure, BoQ total score, and each of the behavioral measures, ODR per 100 students and OSS days per 100 students for each school.

The assumptions for Pearson's correlations include the level of measurement having the same number of cases, related pairs of data from the same subject, normality, linearity, and homoscedasticity. Issues generally associated with correlations include non-linear relationships, outliers, and a restriction of range. Preliminary analyses were performed to ensure no violation of these assumptions.

First, it was determined that the assumptions of the level of measurement and related pairs were met for each variable. To reduce the concern regarding a restriction of range, as wide a range of values as possible was used.

The initial investigation by the researcher also included inspection of a scatterplot for each of the variables to examine linearity, homoscedasticity, and outliers. This visual inspection suggested reasonable linearity and homoscedasticity for each variable and one significant outlier. The outlier was a middle school with a BoQ total score of 24, ODR per 100 students of 521, and OSS days per 100 students of 319. The values for ODRs and OSS days were 43% and 20% higher than the next highest value respectively. Reasons for this disparity were unavailable to the researcher since there was no contact between the researcher and individual schools. This outlier was removed from the study.

The researcher then analyzed histograms, Normal QQ plots, Komogrov-Smirnov, skewness and kurtosis statistics to assess normality for each variable. These analyses indicated scores for OSS days per 100 students and ODR per 100 students were positively skewed. Further analysis indicated BoQ scores were negatively skewed. One alternative when facing skewed distributions when conducting a parametric statistical test is to transform the variables so that the distribution better meets the assumptions of the parametric technique (Pallant, 2005). Since the assumption of normality was not met, the researcher transformed these variables. ODR and OSS scores were transformed using the square root to meet the assumption of normality for Pearson's correlations. BoQ scores were reflected and then the square root was used to meet the assumption of normality. To examine if these transformations had an impact on the Pearson's correlation coefficients, the subsequent analyses were conducted using both the transformed and non-transformed scores. This was not found to make any significant differences to the individual coefficients or the overall amount of variance. Thus, only the transformed scores are reported.

The relationship between implementation fidelity as measured by BoQ total score and the ODR per 100 students was investigated using Pearson's product-moment correlation coefficient.

There was a small, negative correlation between the two variables [$r = -.18$, $n = 193$, $p < .05$], with higher levels of fidelity associated with lower ODRs being reported per 100 students. This

finding was significant at the $p < .05$ level with three percent of the variance shared by the two variables.

The relationship between implementation fidelity as measured by BoQ total score and the OSS days per 100 students was investigated using Pearson's product-moment correlation coefficient. There was a moderate, negative correlation between the two variables [$r = -.33$, $n = 193$, $p < .01$], with higher levels of fidelity associated with lower numbers of OSS days being reported per 100 students. This finding was significant at the $p < .01$ level with 11 percent of the variance shared by the two variables.

The researcher then examined these relationships based on if the schools served students at the elementary level or middle school level. At the elementary level, no relationship between fidelity and ODR was noted.

Conversely, there was a small negative relationship between implementation fidelity and OSS [$r = -.23$, $n = 134$, $p < .01$] at the elementary level. This finding was significant at the $p < .01$ level with five percent of the variance shared by the two variables.

At the middle school level, there were moderate, negative relationships between fidelity and ODR [$r = -.33$, $n = 59$, $p < .05$] and fidelity and OSS [$r = -.49$, $n = 59$, $p < .01$]. The findings between the BoQ and ODR were significant at the $p < .05$ level with 11 percent of the variance shared by the two variables. The findings between the BoQ and OSS were significant at the $p < .01$ level with 24 percent of the variance shared by the two variables.

Research Question 3

What is the relationship, if any, between fidelity of implementation of SWPBS as measured using the BoQ during the 2007-2008 school year and academic achievement as measured by FCAT reading and mathematics subtest scores in selected elementary and middle schools in Florida?

The relationship between implementation fidelity as measured by the BoQ and academic outcomes as measured by FCAT reading and FCAT mathematics subtest scores were investigated using Pearson's product-moment correlations coefficient. Preliminary analyses were performed to ensure no violation of the assumptions of normality, linearity, and homoscedasticity. BoQ scores were negatively skewed. These scores were reflected and then the square root was used to meet the assumption of normality. FCAT reading and FCAT math scores were reasonably normal and were not transformed.

The initial examination of the Pearson's product-moment correlation indicated there was no statistically significant relationship between the fidelity of implementation and academic outcomes in this study.

The researcher then examined these relationships based on grade level. At the elementary level, there was no statistically significant relationship between implementation fidelity and academic outcomes.

At the middle school level, moderate, positive relationships existed between BoQ and FCAT Reading subtest scores [$r=.25, n=59, p=.05$]. This finding was significant at the $p<.05$ level with six percent of the variance shared by the two variables. The findings between the BoQ and FCAT Math subtest scores were not statistically significant [$r=.20, n=59, p=.13$] (Table 10).

The significance levels for these results should be treated cautiously as it may have been influenced by the small size of the sample ($N=59$) of middle schools.

Research Question 4

To what extent is there a statistically significant difference during the 2007-2008 school year in mathematics and reading FCAT scores among elementary and middle schools that scored in the top quartile of BoQ scores, those that were in the bottom quartile of BoQ scores, and those schools which did not implement SWPBS?

A one-way between-groups analysis of variance was conducted to explore the impact of implementation fidelity as measured by the BoQ on academic achievement as measured by Mean FCAT Reading and Mathematics subscale scores.

Elementary schools were divided into groups based on the total BoQ score (Group 1: Lowest quartile; Group 2: Highest quartile; Group 3: No PBS training). There was no statistically significant difference in FCAT Reading subscale scores between the three groups [$F(2,87)=1.07, p=.35$]. Conversely, there was a statistically significant difference at the $p<.01$ level in FCAT Math subscale scores between the three groups [$F(2,87)=24.92, p<.01$]. The effect size, calculated using eta squared, was .36 which indicated a large effect. Post-hoc comparisons using the Tukey HSD test indicated that the mean Reading score for Group 1 ($M=332.46, SD=15.80$) and Group 2 ($M=329.70, SD=16.96$) were significantly different from Group 3 ($M=303.98, SD=18.81$). No significant difference between Group 1 and Group 2 was noted. It is interesting to note that both Group 1 and Group 2 scored above the State of Florida mean ($M=312$) which was calculated by adding the mean scores for grades three through five for all schools in the state.

A second set of one-way between-groups analysis of variance were conducted to explore the impact of implementation fidelity as measured by the BoQ for middle schools.

Middle schools were divided into groups based on the total BoQ score (Group 4: Lowest quartile; Group 5: Highest quartile; Group 6: No PBS training). There was no statistically significant difference in FCAT Reading subscale scores between the three groups [$F(2,39)=1.31, p=.28$]. In addition, no statistically significant difference was noted between groups for mean FCAT Math scores [$F(2,39)=.34, p=.71$].

It is important to note that many factors should be considered when considering these results. One such consideration is sample size. Since a small sample was selected for this study results may be influenced by a small number of schools.

Findings

Prior to discussing the findings of this study it seems pertinent to review the limitations of the study. The implementation fidelity data used for this study from the BoQ tool is based on self reported information from each school. As a self evaluation tool, some inconsistency could result. In addition, the level of fidelity at each grade level is assumed to be consistent with the level of implementation of the school as a whole since grade level data was not collected regarding implementation. Therefore, assumptions regarding the impact on specific grade levels or individual students could not be made. Data from different cohorts of students were analyzed in aggregate. This limits any conclusions regarding individual academic and behavioral functioning. Finally, due to the relatively small sample size for correlational statistics, conclusions are limited.

Research question one examined the extent that SWPBS was being implemented with fidelity as measured using the BoQ in selected elementary and middle schools in Florida during the 2007-2008 school year and if there were significant differences between schools that had implemented SWPBS for one, year, two years, or three or more years. This study suggests that schools that have implemented SWPBS for three or more years have higher fidelity scores than schools who have implemented the program for one or two years. This question was answered using a sample which included 145 elementary and 60 middle schools that actively utilized SWPBS during the 2007-2008 school year and had completed the BoQ survey. The results indicated that the majority (71.7%) of elementary and middle schools in Florida did in fact implement SWPBS with fidelity as indicated by a total BoQ score of greater than 70. Further investigation suggested that a greater percentage of elementary schools in this study implemented the framework with fidelity than middle schools. To answer the second part of this question, a one-way between groups ANOVA was conducted to examine the impact of years of implementation on implementation fidelity. The results indicated that there was statistically significant difference at the $p < .05$ level in scores between the schools that had implemented SWPBS for one year ($M=72.96, SD=13.77$) and schools that had implemented SWPBS for three or more years ($M=80.01, SD=18.19$). These findings indicate that schools are able to successfully adopt SPWBS with fidelity in the first year of implementation and sustain or increase the use of these practices over time.

Research question two asked: what is the relationship, if any, between fidelity of implementation of SWPBS as measured using the BoQ during the 2007-2008 school year and student problem behaviors as measured by office discipline referrals and the number of days for out of school suspensions in selected elementary and middle schools in Florida? This question was answered using a sample which included 134 elementary and 59 middle schools that actively utilized SWPBS during the 2007-2008 school year, had completed the BoQ survey, and had reported ODR and OSS data. The relationship between implementation fidelity as measured by the BoQ total score and ODR per 100 students was investigated using a Pearson's product-moment correlation coefficient. A Pearson's correlation was also used to examine the relationship between implementation fidelity and OSS days per 100 students. Both statistics indicated that a statistically significant relationship existed between implementation fidelity and these measures of behavioral outcomes. For office discipline referrals the significance was at the $p < .05$ level.

The significance level for out of school suspension days was at the $p < .01$ level. In each case higher levels of fidelity were associated with lower levels of undesirable behaviors.

Research question three asked: what is the relationship, if any, between fidelity of implementation of SWPBS as measured using the BoQ during the 2007-2008 school year and academic achievement as measured by FCAT Reading and Mathematics subtest scores in selected elementary and middle schools in Florida? The sample for this question included 134 elementary and 59 middle schools that actively utilized SWPBS during the 2007-2008 school year, had completed the BoQ survey, had reported ODR and OSS data and had valid FCAT Reading and Mathematics subtest scores. The scores for elementary schools were calculated using the mean FCAT Reading and Mathematics subtest scores for grades three through five at each school. The scores for middle schools were calculated using the mean FCAT Reading and Mathematics scores for grades six through eight. Pearson's product-moment correlation coefficients were utilized to examine the relationship between fidelity and FCAT reading and mathematics subtest scores. The results indicated that there was no statistically significant relationship between implementation fidelity and academic outcomes as measured by FCAT scores for the group as a whole. When broken down into elementary and middle schools, results indicated that there was a moderate positive relationship at the $p < .05$ level between BoQ and FCAT reading subtest scores in middle schools. Due to the small sample size of middle schools ($N=59$) these results should be viewed cautiously. However, these results do warrant further investigation.

Research question four asked: is there a statistically significant difference during the 2007-2008 school year in Mathematics and Reading FCAT scores among elementary and middle schools that scored in the top quartile of BoQ scores, those that were in the bottom quartile of BoQ scores, and those schools which did not implement SWPBS? This question was answered using elementary and middle schools selected based on their total BoQ scores. The three groups of elementary schools were identified as Group 1, Group 2, and Group 3. Group 1 included 40 elementary schools that scored in the lowest quartile of total BoQ scores. Group 2 consisted of 40 schools in the highest quartile of total BoQ scores. A comparison group, Group 3, included 40 schools that had not participated in SWPBS training. The three middle school groups were identified as Group 4, Group 5, and Group 6 and consist of 14 middle schools each. Group 4 consisted of middle schools that scored in bottom quartile of BoQ scores, Group 5 consisted of middle schools in the top quartile of BoQ scores, and Group 6 included non-SWPBS middle schools. One-way between-groups ANOVAs were conducted to examine the impact of implementation fidelity as measured by the BoQ total score on academic achievement as measured by FCAT reading and mathematics subtest scores. At the elementary level, no statistically significant difference between FCAT Reading scores was noted. Conversely, the mean FCAT Mathematics subtest score for Group 1 ($M=332.46, SD=15.80$) and Group 2 ($M=329.70, SD=16.96$) were significantly higher at the $p < .05$ level than Group 3 ($M=303.98, SD=18.81$). The groups were then compared to the state mean FCAT Mathematics score ($M=330$). It is relevant to note that both Group 1 and Group 2 were similar to the state mean while Group 3 was significantly lower. Here the limitation of the sample size ($N=40$) should be considered when evaluating these results as it may have influenced the results. No statistically significant differences were noted for the mean FCAT Reading and Mathematics subtests for the middle school cohorts. It is interesting to note that the academic outcomes for

SWPBS schools were in line with or were greater than the outcomes for schools that did not participate in SWPBS training. Frequently, schools focus on one area for improvement such as writing, mathematics, reading, or improved behaviors. When this occurs, attention to other areas may lapse. The outcomes of this study may suggest that schools implementing SWPBS improve student behavior while sustaining or improving academic outcomes.

Discussion

The influence of multiple factors should be considered when evaluating the outcomes of this study. These include other academic and behavioral programs that may have been in place, administrative and staff buy-in, and environmental factors. In addition, staff tolerance for different behaviors may influence behavioral outcomes. The results of this study suggest that SWPBS practices can be implemented with fidelity on a large scale and greater fidelity is associated with fewer instances of negative behaviors. The strength of the relationship between fidelity and the behavioral measures was low to moderate. One possible explanation is that schools may have over reported the level of implementation. The results also indicate that there may be a relationship between implementation fidelity and academic outcomes as indicated by the middle school outcomes. The findings from the evaluation data and results have important implications for policy, practice, and SWPBS program evaluation.

Recommendations for Policy

This research has important implications for policy makers. The findings of this study suggest that implementation fidelity is mildly associated with reduced instances of ODRs and days for OSS. As a self reported tool the possibility exists that BoQ scores may have been over reported which could have the effect of reducing the strength of the correlation between fidelity and behavioral outcomes. Policy makers should consider examining how closely schools are accurately reporting implementation fidelity. Identifying schools that are utilizing SWPBS appropriately with data to support the results will undoubtedly help school leaders utilize SWPBS effectively.

In some cases SWPBS has also been associated with improved academic outcomes. Since SWPBS focuses on improving student behavior, this may not be a causal relationship. However, by improving behavioral outcomes, SWPBS creates an opportunity for schools to improve student achievement by increasing the time available for planning and implementing engaging lessons for students. Policymakers should take note that this success is based on sound instructional practices and effective training on appropriate behavioral strategies. By appropriately utilizing the time available for instruction, behavioral and academic outcomes can be maximized.

This research has also suggested that the fidelity of SWPBS increases over time. Policy decisions should be made to support the continued implementation of SWPBS and examine if this trend leads to improved outcomes over time.

Recommendations for Practice

While the findings of this study are subject to limitations, they offer guidance to practitioners. One of primary findings of this study is that a relationship exists between implementation fidelity and behavioral outcomes. There is also some limited evidence that a relationship between implementation fidelity and academic outcomes may exist as well. Prior research has indicated that a total score of less than 70 on the BoQ indicates partial implementation of the critical components of SWPBS which may not be sufficient to achieve desirable outcomes. To implement SWPBS with fidelity, practitioners should strive to implement each of the major components of SWPBS. These components include establishing a planning team, defining school-wide behavioral expectations, training teachers, teaching behavioral expectations to students, developing procedures for acknowledging appropriate behaviors and discouraging inappropriate behavior, utilizing data to monitor behaviors, and evaluating the system (Sugai & Horner, 2002). As a school implements this framework, some of the factors that impede the implementation of SWPBS such as insufficient funding, lack of time, and lack of stakeholder buy-in should be addressed. By developing an awareness of the possible pitfalls to implementation and focusing on the research based strategies of SWPBS practitioners may experience some of the positive outcomes suggested by the findings of this research. School based leaders should also conduct classroom walkthroughs and have frequent discussions with stakeholders such as staff members, students, and parents to investigate implementation fidelity. In addition, school leaders should ensure that additional time is used appropriately to improve student instruction.

Recommendations for SWPBS Program Evaluation

This research examined the relationship between implementation fidelity and behavioral and academic outcomes. To validate this research further research should be conducted in this area of investigation. In addition, emerging research has begun to examine qualitative data regarding improved quality of life outcomes for students. Future research should include longitudinal studies of behavioral, academic, and quality of life outcomes in relation to implementation fidelity. Research should be directed in this area in addition to examining factors that influence the adoption of evidence based practices, how to sustain SWPBS practices, and the integration of SWPBS with additional types of intervention efforts such as response-to-intervention (RtI). The findings of this study support previous research advocating SWPBS as a conceptually sound framework for improving student behaviors when implemented with fidelity.

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Examining Teacher's Comfort Level of Parental Involvement

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Abstract

The connection between home and school is of utmost importance. Therefore, an important concern for those educating teachers is to help teachers recognize the need for and importance of establishing parental involvement and to help them create avenues in which communication can occur. Knowing that parental involvement is important and putting that knowledge into practice is often difficult for teachers. This study uncovered the present practices and attitudes of 131 urban teachers about parental involvement by asking them to complete an online survey. It was found that the teachers' current practice and their schools' policy did not align with their definitional understanding of parental involvement. In practice, parents were included in school sponsored back-to-school nights, parent-teacher conferences, chaperoning trips, fund raising activities, and implementing school and classroom agendas. There were few opportunities to include parents in policy making, curriculum decisions, or activities to determine and use home literacy events in the classroom.

The importance of creating a connection between home and school cannot be underestimated. Therefore, an important concern for those educating teachers is to help teachers recognize the need for and importance of establishing parental involvement and to help them create avenues in which communication can occur.

This study uncovers the present practices of teachers when establishing a connection between home and school. It looks at ways in which schools and teachers involve parents by asking elementary school teachers to complete a survey designed to determine their schools' policies and practice. The purpose of the research is to determine levels of comfort of elementary school teachers when involving parents in their classrooms with a focus on ways in which they create partnerships with parents around literacy development.

Need for Parent-School Connections

Schools and families must work together to ensure student academic success. The need for home-school partnerships cannot be underestimated. In fact, the importance of parental involvement has been the focus of considerable research for quite some time (for example, Beck, 2002; Epstein, 1988; Shockley et al., 1995). In reviewing the literature on parental involvement, Henderson and Mapp (2002) found that students with involved parents were more likely to earn higher grades, enroll in higher level programs, be promoted, attend school regularly, have better social skills, and graduate. "When schools engage families in ways that are linked to improving learning, students make greater gains," (p. 8). They also concluded that to be effective the form of involvement should be focused on improving achievement, helping parents develop specific knowledge and skills, inform parents what their children are learning, and how to help their children at home.

In addition, schools can better engage families by working actively to invite them into a partnership (Hoover-Dempsey & Sandler, 1999), build programs and initiatives that focus on building trust and respect (Beck, 2002), and develop mutual understanding in each others interests (Epstein & Sanders, 2000). Parents need to know they are welcome to be a part of the school community and that their participation is valued. “Lack of interest is a natural response when parents do not feel valued,” (Endrizzi, 2008, p. 9). Efforts for parental involvement are most successful when the school staff assumes that all parents want the best for their children (Shartrand et al., 1997). It is essential for teachers and school staff to have a positive attitude toward family-school relationships (Graue, 2005).

There is considerable consensus that schools should incorporate home literacy practices into the curriculum of the classroom and into school programs (Gonzalez, Moll, & Amanti, 2005; Shartrand et al., 1997). Doing so recognizes the multifaceted nature of literacy and acknowledges existing family literacy practices (Dail & Payne, 2010). Auerbach (1995) asserted that programs should build on the resources that families possess and encourage parents to be collaborators in their children’s literacy development. Wherry (2009) citing a 2001 study by the U.S. Department of Education stated that when teachers reported high levels of outreach to parents of low achieving students, their reading tests grew at a rate 50% higher than in students where teachers reported low outreach to parents. Henderson and Mapp (2002) also found teacher outreach to parents are related to strong and consistent gains in student performance in reading and mathematics. “ While sporadic parenting activities that encourage literacy interactions among parents and children are valuable, intensive and lasting literacy services are needed to help parents and children achieve the readiness skills desired for school success, “ (Swick, 2009, p. 404).

However, in their report Henderson and Mapp (2002) cited a number of studies that concluded that some forms of parental involvement such as volunteering, attendance at school events, and parents being in communication with the school had little effect on student achievement. This traditional view of parental involvement activities is one where parents give something to the school, communication is unidirectional, and a narrow range of ways parents can participate (Shartrand et al., 1997). In her study of preservice teachers, Graue (2005) asserted, “Despite the strong value placed on parental involvement in education, this group of preservice teachers indicated that relationships with families are built on a foundation of unequal partnership,” (p. 182). Schools and teachers need to examine ways in which they reach out to families and must learn new ways to promote parental involvement.

Teachers and Parental Involvement

“School efforts to promote family involvement in children’s education will succeed only if teachers are adequately prepared to support these efforts,” (Shartrand et al., 1997, p.1). Schools also need a philosophy and a positive belief that parental involvement is important and that a partnership requires the sharing of power (Henderson & Mapp, 2002; Nelson & Guerra, 2010). The National Task Force on School Readiness (1991) found that inadequate time and training of school staff as well as an institutional culture that places little value on parental involvement and participation discourage home-school partnerships. In a study of principals, Hoover-Dempsey and her colleagues reported principals placing blame on parents, saying they

did not have the understanding or capacity to be involved, and on teachers, reporting that they were ineffective in fostering school-family partnerships. Barriers such as these often limit the type of parental involvement programs and efforts at schools even when school administrators and teachers know home-school partnerships are essential.

Knowing that parental involvement is important and putting that knowledge into practice is often difficult for teachers. A number of studies (see Isenberg & Jalongo, 1997; Lazar et al., 1999; Martin & Hagen-Burke, 2002) suggest that teachers are not prepared to work with families, nor are they prepared to design and implement effective methods to communicate with families of their students. Lazar et al. (1999) surveyed teachers and found that most received information about parental involvement by speaking to colleagues and reading professional literature rather than it being addressed in college courses. Parental involvement training is rarely interactive and depends mostly on lectures, readings and other traditional teaching methods (Shartrand et al., 1997).

Teachers claim to want support from parents and are troubled by low parent involvement but also claim they do not know how to collaborate with them productively (Henderson et al., 2007). Parental involvement is often overlooked in teacher education programs and it then becomes incumbent upon all school staff to identify their beliefs as a means of strengthening the motivation and skills necessary to work with parents (Hoover-Dempsey et al., 2002). School efforts to involve families in their children's education will only succeed if teachers are prepared to support the efforts (Shartrand et al., 1997). Teachers must be given opportunities in their coursework or during school inservice workshops to critically examine and identify personal characteristics, beliefs, and attitudes that influence their involvement with families (Baum & King, 2006).

Levels of involvement, according to the research, does make a difference when looking at the relationship of home-school partnerships and student achievement. The survey used in this study gave teachers an opportunity to examine their own practice and to consider their schools' policies and practices in involving parents. When the survey was piloted with graduate students, all of whom were practicing urban elementary school teachers, there was an opportunity for them to score their own surveys to discover how their own practice related to their attitudes toward parental involvement.

Research Methods

Participants

Professors teaching graduate students, all current teachers, in the school of education at an urban college were asked to forward, by email, a letter of explanation and link to a survey about the graduate students' comfort level of parental involvement. In addition, the same email with letter and survey link was sent to graduates for whom email addresses were available. Only current teachers of elementary school children were eligible to participate. Of those invited to participate, 131 elementary school teachers completed the survey.

Of the respondents, 93.7% (119) were female. The majority of respondents (47.7% or 62) had been teaching five years or more compared to 15.4% (20) of respondents in their first year of teaching. Sixty-two respondents (47.7%) had been teaching five years or more compared to 15.4% of respondents in their first year of teaching. Of the respondents, 77.7% (101) described their ethnicity as Caucasian, 7.7% (10) as Hispanic, 5.4% (7) as Black or African American, 3.1% (4) as Asian or Pacific Islander, 3.1% (4) as other and 3.8% (5) preferred not to answer.

Survey Design

The survey is a multiple choice tool designed by the researcher (Jensen et al., 2010) and asked about the school practices and personal practices in establishing parental involvement. The questions were leveled; each first response indicating a policy, attitude or practice involving parents the most (choice a) to the last choice as being the least receptive (choice d) to parental involvement. A total of 25 questions were asked.

The first 20 questions had to do with parental involvement at their school and in their classrooms. The last five questions collected demographic information. Respondents could choose to skip any question on the survey and progress to the next question. The survey was available online using a commercial survey tool.

Analysis

All survey results were aggregated using a tool within the online survey program. The 20 survey questions were grouped. Three of the questions asked about school policy and practice, 4 questions asked about general attitudes of parental involvement, and 13 questions asked teachers to identify their current practice for involving parents. Following each of the three groups of questions a table is presented illustrating the responses to the questions in that section.

Responses from the two groups on school policy and practice and teachers' attitudes and beliefs were filtered and then cross-tabbed in order to determine if a relationship existed between policy, attitudes, and practice.

Results of School Policy/Practices

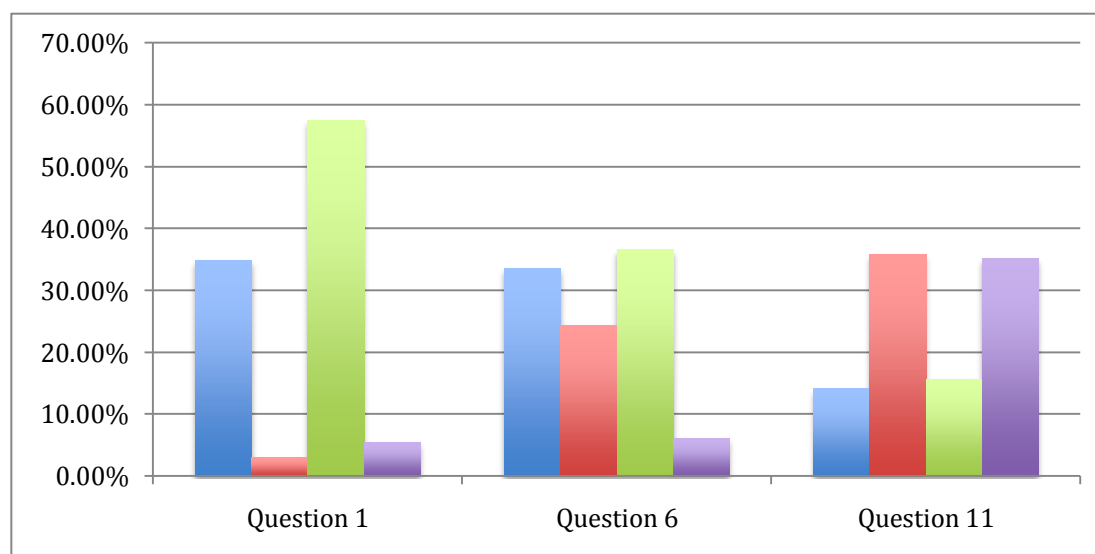
Teachers were asked three general questions about their schools' policy and practice relating to parental involvement. Question 1 asked about the level of their schools' requirements for parental involvement, 34.9% (45 respondents) required the teacher to communicate with the parents on a monthly basis and 3.1% (4) were required to communicate with parents monthly when a child was struggling.

Of those respondents, 57.4% (74 respondents) of the schools required the teacher to communicate with parents during school sponsored activities such as parent- teacher conferences and back to school nights and when a child is having difficulty Only 5.4% (7) were required to communicate with parents only around a specific problem.

Question 6 asked about school wide activities designed for parental involvement, 33.6% (44) of the schools planned to engage families in the academic lives of their children and social activities to help make families feel comfortable and connected to the school. Of the respondents, 24.4% (32) of the schools planned social activities to help the parents feel connected and comfortable with the school. The majority, 36.6% (48) of the respondents planned back to school night activities as well as parent-teacher conferences during the academic year and 6.1% (8) stated parent-teacher conferences were the only planned activity.

When question 11 asked about the level of parental involvement at the school 14.1% (18) of the schools' parents played an active role in forming policy and curriculum. Of the respondents, 35.9% (46) stated schools' parents were active volunteers by helping the school raise money, 15.6% (20) of the schools' parents helped implement an agenda set by the principal, and 35.2% (45) of the schools' parents were involved by helping with specific projects when asked by the principal.

Figure 1.
School Policy and Practice



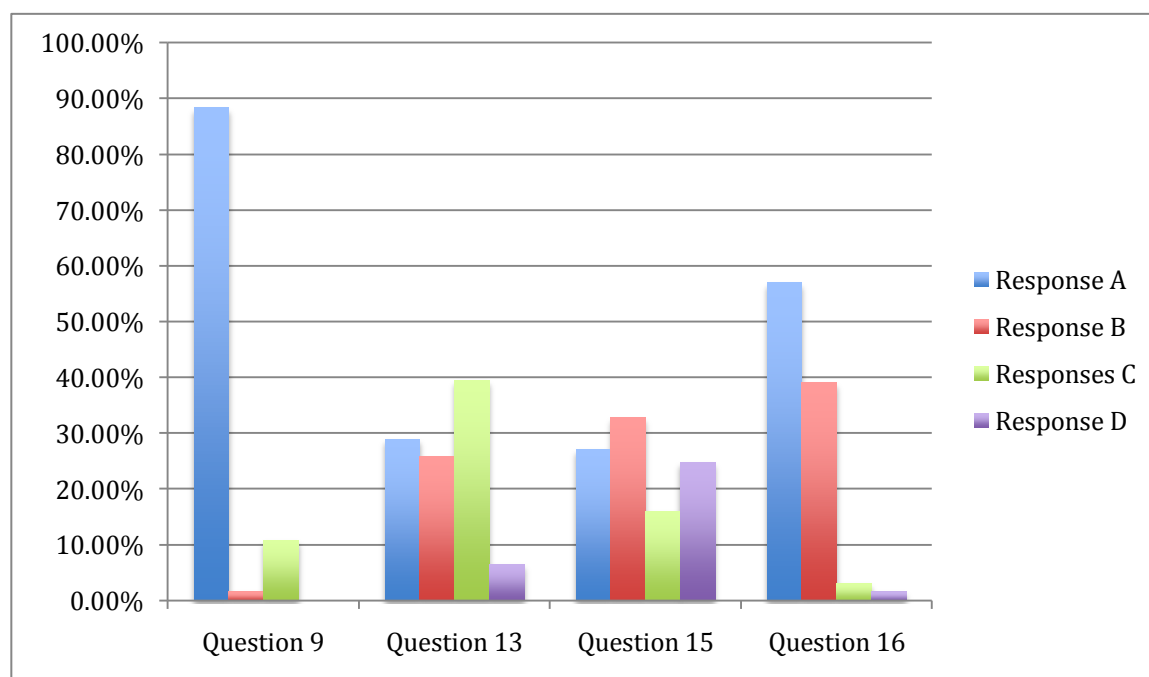
Results of Teacher Attitudes of Parental Involvement

Four general questions were asked which required teachers to identify their perceptions and attitudes about parental involvement. Question 9 asked, "My idea of parental involvement is:" 88.4% (114) teachers chose "a partnership where families and the school work closely together to ensure student success." Only 1.6% (2) of the respondents said their idea of parental involvement was one where parents and families are involved in planning and getting people out only for school sponsored activities and the remaining respondents (10.9%/14) said their idea of parental involvement was parents volunteering when help is needed and working with their children at home.

In question 13, teachers were asked to select a statement which best represented their attitude about parental involvement in their classrooms. Thirty-six (29%) respondents stated they believed every family has something to contribute so they send home a survey at the beginning of the school year to discover ways in which they can work together. Thirty-two (25.8%) of the respondents believed parents should help in the classroom so often sent letters home requesting help with certain projects. Close to 40% (39.5% or 49 respondents) said they asked parents to help with class parties and to chaperone on class trips.. The remaining 6.5% (8) respondents did not want parents in their classroom.

Question 15 asked about home literacy events, 27.2% (34) stated that home literacy events should be included in the life of the classroom. 32.8% (41) of the respondents stated that they were important to know about in order to understand their students' home lives. Twenty respondents (16%) defined home literacy events as reading and writing activities children do at home. Of the respondents, 24.8% (31) stated that literacy events were not present in the homes of their students. Question 16 asked to identify what they believed their responsibility was, 57% (73) of the respondents believed their responsibility was to help parents understand that their home literacy events play an important role in helping their children become successful readers and writers and must build parents' knowledge of how to support their children's literacy development in school and at home. Nearly 40% (39.1% or 50) of the respondents that it was their responsibility to help parents understand that their simple every day interactions with their children establish a foundation for literacy. Less than 5% (6) of the respondents felt that it was their responsibility to instruct parents on ways to implement activities at home (3.1%/4) or believed they had no responsibility to instruct parents (1.6%/2).

Figure 2.
Teacher Practices



Teacher Practices

Thirteen questions asked teachers to identify their current classroom practices. Four of the questions allowed respondents to select multiple responses to illustrate the variety of ways they attempt to create parent involvement.

Question 2 asked teachers to select the statement which best matched their current practice. Over half of the respondents, 51.9% (67) stated that they alerted parents to the areas of study in school and asked that they made sure their children completed the assignments. Only 10.9% (14) of the respondents sent home a variety of book, website, learning activity or other suggestions for families to do at home and discussed how work in school and home met the standards. In fact, 4.7% (6) respondents stated that the parents of the children in their classroom do not have time or interest to help and would rather not have them involved in what was being taught.

Question 3 asked how parents understood the purpose of their children's work and 41.9% (54) of the teachers said they sent home monthly newsletters explaining the work being done, 14% (18) respondents said parents could look at the bulletin board exhibits outside their classrooms which explained the purpose of the work, 27.1% (35) stated parents would understand if they visited on open school days, and 17.8% (23) said parents could understand the work by observing how well their children performed on graded work.

Question 4 asked respondent to complete the sentence, "When working with parents I..." Most teachers (82.3%/ 107) explained ways parents can monitor their children's work and build their skills, 5.4% (7) of teachers told parents to have their children follow directions on homework and other assignments, 3.1% (4) said they left it up to parents to help with homework in the way they knew best, and 10% (13) teachers said they could not count on parents to help their children with homework.

Question 5 asked teachers what they did after they selected books to read in their classroom. Only 1.6% (2) teachers told the parents ahead of time and gave them the opportunity to read and discuss the book in a parent book club. The parents were told about the book in the monthly newsletter by 20.2% (25) of the teachers. While 46.8% (58) of the teachers stated the parents learned about the book from their children's work related to the book, 32.3% (40) of the teachers said the parents would learn about the book only if their children decided to share their book experiences and discussions at home.

Question 7 asked teachers how they instruct parents and 14.4% (18) of the teachers instructed parents in school-based literacy and sought to learn about and integrate parents' existing knowledge and resources into the school curricula and 21.6% (27) instructed parents in school-based literacy and offered them opportunities for parents to share their knowledge on specific teacher selected topics. Most prevalent, 46.4% (58) of the respondents instructed parents in school-based literacy practices only and 18.4% (23) of the teachers limited the instruction of parents in homework routines.

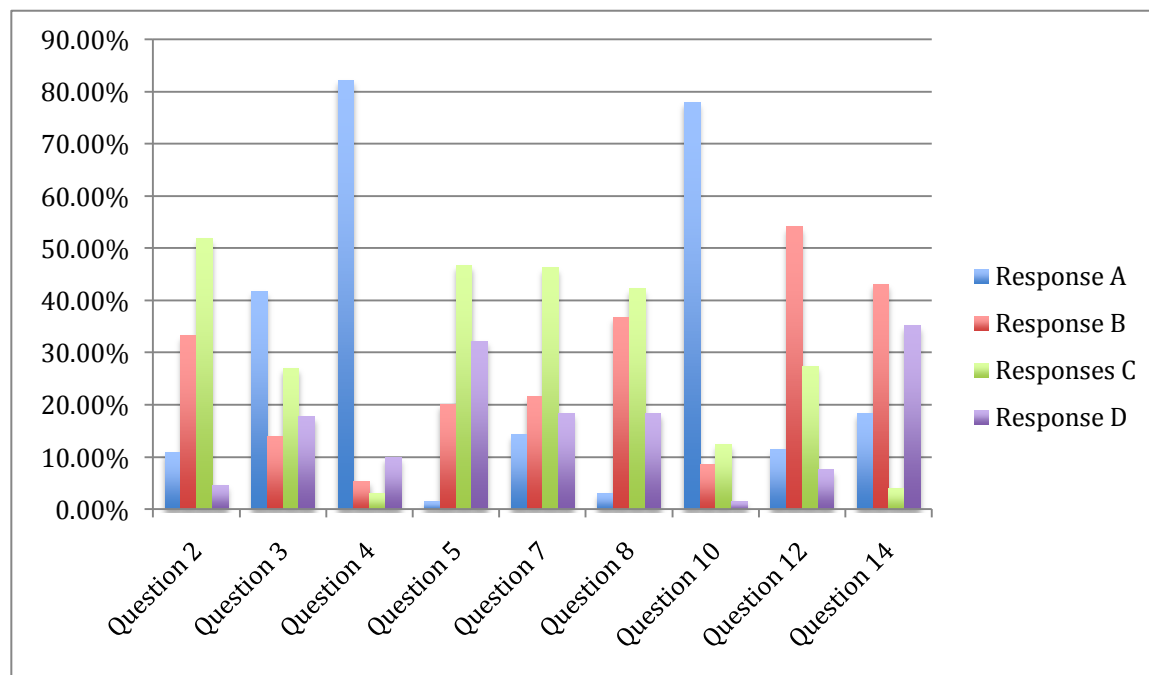
Question 8 asked how parents learned about classroom activities and 3.1% (4) teachers designed workshops for parents on the topic. Additionally, 36.9% (48) of the teachers sent home weekly or monthly newsletters. However 42.3% (55) of the teachers stated that parents learned about the activities by talking with their children and 18.5% (24) of the teachers said parents would learn about the activities by looking at the work their children brought home.

Question 10 asked about Back to School Night. The majority of respondents, 78.1% (100) stated that parents got a clear idea of what their children would be learning and doing during the year, have opportunity to look at the textbooks they would be using, how the work would meet the standards, expectations, and possible class trips at Back to School Night. The other respondents stated the parent would learn how the room is set up and encourages learning (8.6%/11), told parents what the children would be studying, gave homework expectations and possible trip ideas, and 1.6% (2) teachers told parents topic under study for the year.

Question 12 asked teachers to identify the way in which they linked parents with the topics under study. 11.5% (15) of the respondents worked with parents by sending home learning packets, educational games, or videos linked to what the children were studying in school. Over half of the respondents, 54.2% (71) stated that they made it clear what parents could do at home to promote learning by making suggestions linked to what the children were studying. 27.5% (36) of the teachers simply stated they expected parents to work with their children and 7.6% (10) of the respondents did not expect the parents to be familiar with the topics being studied in school.

When asked about read alouds (question 14), 18.4% (23) of the teachers stated that the parents knew the value of reading aloud to their children and how to interact with their children from workshops the teacher has conducted. An additional 43.2% (54) of respondents stated that the parents knew the value of reading aloud to their children and were, hopefully, following suggestions given at Back to School Night. A small percentage, 4% (5), of the teachers said that parents read aloud to their children from a selection of books sent home and 35.2% (44) of the teachers said that parents should read to their children every night.

Figure 3.
Teacher Practices



Questions 17, 18, 19, and 20 allowed teachers to give multiple responses. Question 17 asked teachers what in their current practice helped them to understand their students. The most prevalent method, choice C, (87.1%/108) was to speak to parents at parent-teacher conferences about what is read at home. Also, 71% (88) of the teachers asked parents to contact them to discuss any problem their children might be having with reading and writing (choice D, the lowest level response). Only 21% (26) of the respondents said that students brought in portfolios of literacy events that are part of family routines and 27.4% (34) of the teachers had parents and students complete a survey about literacy events in the home.

Question 18 asked teachers about their practice concerning the focus of parent-teacher communication. The focus of communication 89.1% (114) of the time was on the progress of each of the children in the classroom (choice A, the highest level of response) and specifically the progress of each child with academic problems by 56.3% (72) of the teachers, which was the choice B on the survey.

Some of the focus was on class trips, picture day and other general information by 63.3% (81) of the teachers and 71.9% (92) of the teachers said the focus of communication with parents was on misbehaving children.

Question 19 asked teachers to identify when face-to-face meetings with parents occurred. Most teachers, 86.7% (111) stated these occurred at school sponsored Back to School Nights or Parent Teacher Conferences (choice C on the survey). Face-to-face meetings occurred by 71.9% (92) of

the teachers were having problems with a child (choice D) , and 16.4% (21) of the teachers stated they have face-to-face meeting with parents at workshops they ran for the parents (choice A).

Question 20 asked teachers to identify current practices that occurred regularly in their classrooms. The practice of using family poems, totems, memoirs, stories, etc. characteristic of family cultures was regularly used by 34.5% (29) of the teachers, choice A or the highest level of response. Parents as story tellers or readers could be found in 31% (26) of the classrooms. Parents were invited to send in books characteristic of family culture was found in 42.9% (36) of the classrooms and 63.1% (53) of the teachers regularly used favorite family storybooks (choice D).

Results of Cross-tabbing Attitudes with Practice

The most prevalent responses to the above seven questions were filtered and then cross-tabbed to some of the questions on the survey which asked teachers to identify their current school and classroom practices.

School policy/practice and teacher attitudes/practice

Of the teachers who stated that their school policy required them to communicate monthly with parents of children, in their classroom, 93% stated that parental involvement was a partnership where families and the school work closely together to ensure student success.

Of this group of respondents, 53.3% stated that parents were active volunteers, helping the school raise money and 17.8% stated that parents played an active role in forming school policy and curriculum.

When respondents identified that their the school policy required teachers to communicate with parents at conferences, back to school nights, and when children were having specific problems, 84.9% also stated that a partnership was where families and the school worked closely together. The same respondents stated that the level of parental involvement at the school was where parents helped with specific projects where asked by the principal (46.4%), were active volunteers helping to raise money (23.3%), helped implement an agenda set by the principal (19.2%), and played an active role in forming policy and curriculum (15.1%).

Teacher Attitudes and Beliefs

Of the respondents who stated that parental involvement was a partnership where families and the school work closely together to ensure student success, 55.4% stated it was their responsibility to help parents understand that their home literacy events play an important role in their children becoming successful readers and writers and also felt it was their responsibility to build parents' knowledge of how to support their children's literacy development. Just over 40% (40.2%) felt it was their responsibility to help parents realize their every day interactions at home help establish a literacy foundation.

Of these teachers, 45.5% instructed parents in school-based literacy activities, 23.6% offered that instruction and offered opportunities for parents to share their knowledge on specific topics they

selected, and an additional 15.5% also sought to learn about and integrate parents' existing knowledge and resources into the curricula.

Of these same respondents, 35.2% asked parents to help with class parties and chaperone class trips, 30.6% surveyed parents at the beginning of the year to discover ways in which they could work together, and 28.7 of them sent home letters requesting help with certain projects.

Teacher practice and attitudes

Those teachers who responded that their practice included sending home book, website, learning activity or other suggestions to do at home around books or authors being studied in the classroom and how that work meets standards, 100% (14) also stated that a partnership was one in which families and schools worked closely together to ensure student success.

When the teachers identified their current practice to include a monthly newsletter that discussed areas of literacy study and suggestions of books or websites which may be of further interest, 85.4% (35) of the teachers identified their idea of parental involvement as a partnership where families and the school worked together to ensure student success and, except for one teacher, identified their idea of parental involvement as being one in which parents should volunteer to help when needed and work with their children at home.

Also 86.4% (57) of the teachers who identified their practice as alerting parents to areas of study and asking them to make sure their children have completed the assignments, identified their idea of parental involvement as a partnership where families and schools worked together to ensure student success. The other teachers, except for one teacher, identified their idea of parental involvement as being one in which parents should volunteer to help when needed and work with their children at home.

Of the teachers who stated that the parents of children in their classroom do not have time or interest to help their children and would rather not have them involved in what they are teaching, 100% stated that parental involvement was a partnership where families and the school worked together to ensure student success.

Of the 51 teachers who identified the monthly newsletter as the method used to develop parental understanding of the work they do in class, 43.1% (22) of the teachers also stated that parents learn about the books read in class from the children's work related to the book, 39.2% (20) stated they used the newsletter to tell parents about the book, and 21.6% (11) of the teachers stated the parents learned about the book only if the children decided to discuss it with them.

These same teachers who said parents develop an understanding of the work they do in class by using a monthly newsletter, said the parents learned about classroom activities in the newsletter by 75% (39) of the respondents and 26.9% (14) of the respondents stated that parents would learn about classroom activities by talking to their children.

School Activities and Classroom Activities

When the teachers identified their school as having a plan to engage families in the children's academic life and social activities to help families feel comfortable and connected to the school, 4.7% (2) teachers said there were workshops designed for parents, 48.8% (21) teachers said they sent home newsletters in order for parents to learn about classroom activities, and 41.9% (18) stated that parents would learn about classroom activities by talking to their children.

Of those teachers who stated that the school has social activities to help make families feel comfortable and connected to the school, 45.2% (14) of the teachers stated that parents would learn about classroom activities by talking with their children and 41.9% (13) of the teachers used newsletters for parents to learn about classroom activities.

When the teacher identified Back to School Night, Parent-Teacher conferences and other whole school sponsored once a year events as the activities for parents, 41.7% (20) teachers stated parents would learn about classroom activities by talking to their children, 29.2% (14) used a newsletter, and 27.1% (13) of the teachers said parents would learn about classroom activities by looking at the work their children brought home from school.

*Discussion**School Policy and Practice*

The policies and practice of their schools, identified by the teachers, was not conducive to supporting partnerships with parents. As identified by Henderson and Mapp (2002) parental attendance at school wide events and volunteering did not have a positive impact on student achievement. The majority of teachers in this survey do not have to communicate regularly (defined on the survey as monthly) with the parents of children in their classroom. School policy requires them to attend whole school functions for parents such as Back to School Night and Parent-Teacher Conferences. The level of parental involvement at most schools was one of fund raising as well as implementing the agenda set by the principal.

Interestingly, a vast majority of teachers who described the school policy as one in which teachers are required to communicate at school-wide sponsored events, also stated that a partnership was one where families and the school worked closely together. A third of the teachers stated that their school did plan activities for families around academic and social events, a higher level choice than planned Back-to-School nights and Parent-Teacher conferences. However, when put into practice, few teachers discussed how their school planned workshops to enhance parental understanding of curriculum or shared policy making with parents. The vision of how a partnership is defined by the school and the way it is put into practice does not support student academic achievement or a sharing of power (Henderson et al., 2007; Nelson and Guerra, 2010). Efforts of this kind may discourage parental involvement.

Teacher Attitudes

The majority of teachers who participated in this survey understand the nature of home-school partnerships yet their practice is not consistent with their attitude. How their definitional understanding of parental involvement could be put into practice was not evident in their responses to their or their schools' current practice. Even though a vast majority of the teachers said their idea of parental involvement was a partnership which families and the school should work closely together to ensure student success, most said parents should help in the classroom on special project, help with class parties, and chaperone on class trips. Almost a third of the teachers felt that parents have something to contribute and actively try to discover ways in which they can work with parents. From their responses to the survey contributions by parents are limited to chaperoning class trips, following teacher suggestions given at Back-to-School nights or in newsletters, and by monitoring their children's homework.

Of the teachers who believed that parental involvement was a partnership, over half of these same teachers felt it was their responsibility to help parents understand that their home literacy events play an important role in their children becoming successful readers and writers. Almost half of these teachers instructed parents in school-based literacy activities but did not try to discover home literacy events in return.

The views of the teachers for parental involvement are traditional, where communication is unidirectional and where parents give something to the school within a narrow focus (Shartrand et al., 1997).

Teacher Practices

Where teachers outreached to parents by using newsletters, sending home suggestions of books, videos, websites, and other suggestions to support classroom learning as well as informing parents about areas of study and how the children's work met standards, they also indicated that parental involvement was a partnership with the school. Yet even teachers whose practice in working with parents was not at a high level also stated their idea of parental involvement was one of a partnership. What was astonishing was that all the teachers who stated that the parents of children in their classroom do not have time or interest to help their children and would rather not have parents in their classrooms, stated that parental involvement was a partnership between families and school.

Teachers rely on parents to look at the work that their children bring home and have conversations with their children about school in order to discover what work is being done in school, what books are being read, and by looking at the bulletin boards outside of the classroom. The majority of teachers rely on Back to School Night to inform parents about the standards, expectations, and topics for the school year. However, those teachers that did use a weekly or monthly newsletter, relied on the newsletter to be a vehicle for parents to learn about what was going on in the classroom. Most communication initiated by the teacher was on misbehavior.

As suggested by the research, teachers do not know how to effectively put into practice activities or communication systems to create the partnerships they believe will enhance student academic success.

Most teachers instructed parents in school-based literacy practice, educating them on homework routines, asking them to monitor their children's work and to see if their children had completed the assignments. Little time is spent learning about or incorporating family literacy events into the classroom suggesting an uneven power distribution between the parents and teacher (Graue, 2005; Nelson & Guerra, 2010).

There appears to be a disconnect between what teachers believe and what they practice when it comes to parental involvement. Schools are relying on school-wide events to inform and involve parents as partners, activities we are told do not promote student success. Teachers are using Back to School Nights and Parent-Teacher conferences to inform, instruct, and to get to know the parents of the children in their classrooms. They see parents as partners, but not as equal partners, relying on their help with specific projects, as chaperones, and to monitor the work their children are doing.

Implications

As suggested by the research, teachers need the opportunity to reflect on their personal characteristics, beliefs, and attitudes about involving parents. They need support in planning long term, consistent programs to foster partnerships.

Teachers need to know how to make parents feel welcome, valued, and interested. Taking an approach that identifies and builds on parents' strengths and resources allows teachers to build on their wealth of knowledge, experience, and skills (Shartrand et al., 1997). There are a number of resources available to teachers in helping to create a home-classroom connection. The use of newsletters has been an effective method for opening communication and creating an inclusive environment for parental involvement (Jensen, 2007). Teachers have the opportunity to share student work and how that work meets Standards on bulletin boards outside their classrooms. By surveying parents on their interests and how they wish to be involved may help to discover common ground.

Policy statement of schools should include a working philosophy of parental involvement. Administrators must stop placing blame on the inexperience or inability of teachers to work with families and help their schools adopt policies of inclusion. Planned, purposeful in-service and pre-service education is necessary to move teachers from a narrow to a more encompassing view of parental partnerships. Successful family centered programs need to be put into place that value parental input and provide the opportunity for parents, teachers, and administration to work together to ensure student success.

Teacher educators need to make room in their course work for practical experience with parents. When struggling readers come for tutoring in the practicum component of many literacy programs, they often arrive with their parents. Instead of sending parents away while their children are being tutored, have students design and deliver workshops with parents on a rotating

or revolving basis. As part of student teaching experiences, have students work with their cooperating teachers and schools to organize and participate in parental involvement initiatives.

For many, it requires some innovative thinking and creative use of already limited amounts of time in planning for work with parents. Two books that are good starting points for administrators and teachers are *Becoming Teammates* (Endrizzi, 2008) and *Beyond the Bake Sale: The Essential Guide to Family-School Partnerships* (Henderson et.al., 2007).

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The Structure of Mixed Method Studies in Educational Research: A Content Analysis

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Abstract

Educational researchers are beginning to use mixed methods designs to answer complex research questions. This content analysis investigates the structure and use of mixed methods in educational research in order to work toward a more standardized presentation. I used a concurrent mixed methods approach to analyze 30 studies from three prominent journals. Studies were analyzed to determine whether appropriate mixed methods terminology was used and a rationale provided for the use of mixed methods design. Six of 30 articles used mixed methods terminology and 11 studies provided no rationale. From the rationales provided, four themes emerged and are discussed. Data sets were merged to explore the use of terminology with respect to rationales provided. Suggestions are offered for the presentation of mixed methods in educational research.

Quantitative and qualitative purists have for decades advocated the *incompatibility thesis*, which contends that quantitative and qualitative research paradigms cannot be mixed (Johnson & Onwuegbuzie, 2004). The basis of this argument is that the underlying assumptions and philosophies of the quantitative and qualitative paradigms, positivism and interpretivism, hold competing ideas that can never be reconciled (Johnson & Onwuegbuzie, 2004). Some have argued that this reluctance to combine qualitative and quantitative data has prevented researchers in the humanities and social sciences from answering research questions in a holistic way (Johnson & Onwuegbuzie, 2004). The proponents of this argument present mixed methods research as the third research paradigm, with pragmatism as its underlying philosophy, (Johnson & Onwuegbuzie, 2004; Tashakkori & Teddlie, 2003). According to pragmatism, researchers should use an outcome-oriented rule with regards to methods; in other words, “research approaches should be mixed in ways that offer the best opportunities for answering important research questions” (Johnson & Onwuegbuzie, 2004, p. 16). Pragmatism rejects the dualisms of rationalism vs. empiricism, subjectivism vs. objectivism, and instead views knowledge as being both “constructed *and* based on the reality of the world we experience and live in” (Johnson & Onwuegbuzie, 2004, p. 18). Pragmatism prefers “action to philosophizing” and views current understandings or assertions of truth or meaning as fluid and changing (p. 18). Under pragmatism, researchers choose the methods that will provide them with the most complete answers to their research questions (Tashakkori & Teddlie, 2003). This paradigmatic stance most accurately represents research that is carried out in practice, since “in real world practice, methods can be separated from the epistemology out of which they emerged” (Patton, quoted in Tashakkori & Teddlie, p. 18) and this is often what researchers do (Greene & Caracelli, 2003). Although the “Paradigm Wars” are largely over (Tashakkori & Teddlie, 2003; Creswell & Plano Clark, 2007) this debate has slowed the development of mixed methods research and accompanying standards and nomenclature (Creswell & Plano Clark, 2007).

Background

Presenting Mixed Methods Studies

Methodologists have offered an overall language and system for mixed methods research, though they are often underused or confused in practice (Tashakkori & Teddlie, 2003). These issues, as well as some lingering doubts about the compatibility of quantitative and qualitative paradigms, have resulted in some trepidation over the use of mixed methods. There is currently no well-established structure for presenting mixed methods findings in a precise and intelligible way that will also fit the standard length for journal articles – approximately 20 pages. If researchers fear they will not be able to publish their mixed methods research or they are unsure how to organize it, they are less likely to make use of such methods. This is true within the field of educational research, even though the use of mixed methods is well-suited to the complex study of education (Tashakkori & Teddlie, 2003). However, there are four steps that researchers can take to present their mixed methods findings in a way that is more understandable and accessible to the reader: (a) identify the study as mixed methods; (b) identify the timing or design used in data collection and analysis; (c) explicitly address these factors within the abstract and the methods sections; and (d), explicitly state the rationale for using mixed methods design.

Openly identifying a study as mixed methods is one of the easiest ways researchers can help readers begin to understand how the data in the study was collected and analyzed. Discussing timing is another important part of presenting mixed methods research for several reasons. First, using the terminology “concurrent” or “sequential” allows the researcher to convey in a precise manner the way in which the data were collected. This information is useful to readers of the research, as it allows them to make sense of the procedures used by the researcher. Second, discussing the timing of data collection is also necessary in mixed methods research because timing that is not well-planned by the researcher can confound or compromise the research findings. An example of this would be a researcher who plans to collect and analyze quantitative and qualitative data on the same sample. If the quantitative data are collected and analyzed before the collection of the qualitative data, it is possible that the quantitative findings would influence the emerging themes discovered by the researcher during qualitative analysis. In the interest of transparency it is necessary for the researcher to divulge when the data types were collected.

Creswell and Plano Clark (2005) argue that it is important for mixed method research to be driven by the research questions, and for this reason it is especially important for researchers to address the rationale for collecting both types of data and using a mixed methods design. When methods are used without a clear rationale, researchers can end up answering the wrong question, or failing to answer a question at all. This is especially problematic in mixed methods research, which usually involves more time and funds than a single method study. Providing a rationale also allows the reader to see how the research questions drove the research design. Developing a well-structured rationale stating the need for collecting qualitative and quantitative data is an important part of designing and conducting mixed methods research (Creswell & Plano Clark, 2007).

Content Analyses of Mixed Methods Studies in Other Fields

Content analysis has been used previously to understand how mixed methods design is currently being used within a field of research (Bryman, 2006; Hanson, Creswell, Plano Clark, Petska, & Creswell, 2005; Plano Clark, Huddleston-Casas, Churchill, Green, & Garrett, 2008). These content analyses were used to investigate how researchers were currently using mixed methods and to then make recommendations for the development of this practice (Hanson et al., 2005; Plano Clark et al., 2008). Researchers undertaking this kind of project almost immediately bumped up against the issue of locating mixed methods articles within the chosen field, often using a number of different methods to search for relevant studies (Bryman, 2006; Plano Clark et al., 2008). Researchers also had to determine the criteria for the selection of articles, as few articles would self-identify as mixed methods. Plano Clark et al. (2008) used articles that self-identified as having used both quantitative and qualitative methods. The content analysis conducted by Bryman (2006) included any studies using the terms qualitative AND quantitative, multi-method, mixed method, or triangulation in the title, as key words, or in the abstract. After initial difficulties locating articles, both studies found that mixed methods designs within the target field were rare, with one study noting that less than 1% of publications within the selected time frame were mixed methods (Plano Clark et al., 2008). Bryman (2006) noted a lack of rigorous standards for mixed methods research in some articles, as some researchers used methods that did not meet the standards of the paradigm from which they emerged. Both studies noted a lack of a common nomenclature between the studies within the samples (Bryman, 2006; Plano Clark et al., 2008). Plano Clark et al. (2008) chose to summarize the types of mixed methods designs used and the topics investigated in the sample studies. Bryman (2006) analyzed the specific methods employed and the rationales for collecting both types of data. By summarizing the topics and methods involved in the sample studies, these content analyses helped to organize and present the mixed methods research currently being used successfully within their respective fields. Plano Clark et al. (2008) and Hanson et al. (2005) both conclude their content analyses with recommendations for future mixed methods studies within their fields, such as reminding researchers to be mindful of the paradigmatic lens that they apply to their research (Hanson et al., 2005), or urging researchers to adopt a common terminology (Plano Clark et al., 2008). Since these outcomes are similar to the aims of this study, content analysis is an appropriate technique.

The purpose of this study is to perform a content analysis of mixed methods studies within the field of educational research to gain a better understanding of what multiple method designs are currently being employed in these studies and why. A triangulation mixed methods design will be used, in which both quantitative and qualitative data will be collected from the same sample (Creswell & Plano-Clark, 2007). Since the purpose of this study is to address both a “what” and a “why” question, it is necessary to collect both types of data, as neither type alone would achieve this goal. Quantitative methods will address the “what” most effectively, while qualitative is most useful in addressing the “why.” The two types of data will be collected concurrently. The findings from these two types of data will be merged at the interpretation phase for comparison; therefore, equal priority is given to the quantitative and qualitative data. The notation for this study is QUAN + QUAL (Creswell & Plano Clark, 2007). Mixing of the two data sets occurs at the design, collection, and interpretation phases of the study. At the

design stage because this study was intentionally designed as a mixed method content analysis, at the collection phase because the instrument used includes both the quantitative and qualitative protocol and data will be collected at the same time, and at the interpretation phase because the individual findings from each data set will be merged for interpretation (Creswell & Plano-Clark, 2007). Quantitative data will be collected in the form of a structured checklist of characteristics that will be used to analyze each study. Qualitative data will be collected in the form of one open-ended question included in the checklist that each study will be coded for. The sample for this study was taken from three major journals in the field of educational research: the *American Educational Research Journal*, the *British Educational Research Journal*, and the *Journal of Educational Research*. All articles self-identified as having collected qualitative and quantitative data. This sampling criterion was used by Plano-Clark et al. (2008) in their content analysis of family science research. The following research questions will guide this content analysis:

Research question 1 (quantitative): Within the sample, what percentage of the studies makes use of mixed methods terminology?

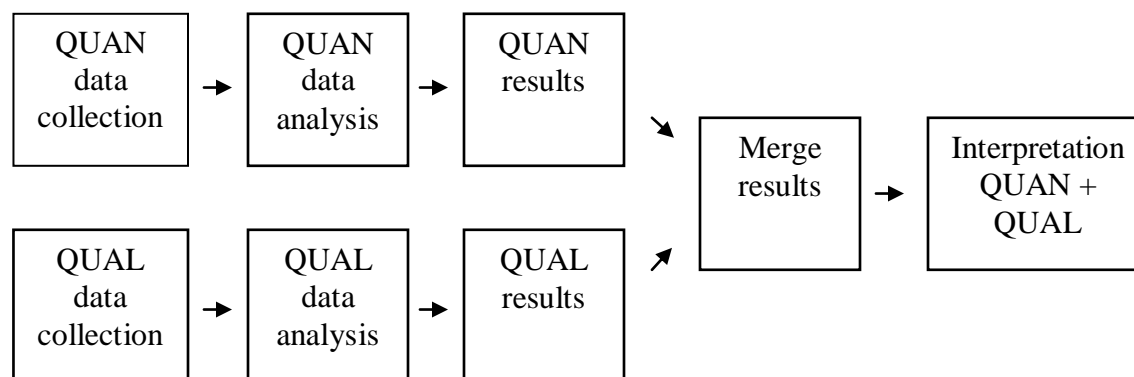
Research question 2 (qualitative): Within the sample, what rationales or reasons emerge for collecting both kinds of data?

Research question 3 (mixed): How do the rationales of the studies associate to the use of mixed methods terminology?

The following flow chart summarizes the phases of this study:

Figure 1

Flow Chart of Content Analysis Design



(Adapted from Creswell & Plano-Clark, 2007)

Methods

Sample

Articles for the analysis were chosen from three major journals in educational research. These were the *Journal of Educational Research*, the *British Journal of Educational research*, and the *Journal of Research in Education*

American Educational Research Journal. The sampling was done by starting with the most recent volume of each journal and searching backwards for articles that identified as having collected both quantitative and qualitative data. Further analysis was done to determine whether the two data sets had truly been integrated within each study. Articles were not searched for the term “mixed methods” as it was assumed that not all mixed methods articles would identify themselves as such. Thirty total articles were chosen for the analysis, ranging from 2002 to 2009. While one possible method to identify articles for the sample might have been to search the ERIC database for articles including the terms ‘quantitative’ AND ‘qualitative,’ ‘mixed methods,’ or ‘multi-methods,’ I instead chose to sacrifice breadth for depth and focus on three journals.

Instrument and Procedure

One instrument was used to collect quantitative and qualitative data from the sample. The quantitative portion of the instrument involved determining whether or not the authors had used appropriate mixed methods terminology. In order to qualify as having done so, the authors had to meet three criteria: (a) they had to identify the study as mixed methods; (b) they had to identify the timing and/or the design of the study; and, since the goal of using mixed methods terminology is to make the articles more readable (c) this had to be done within the abstract and/or method section of the article.

The qualitative portion of the instrument involved an open-ended question to assess the rationale provided by the authors for collecting both data types. Each article was analyzed to identify any statements addressing the need for both types of data. Statements addressing the need for or specific use of each of the data types were considered a rationale statement. These excerpts were collected and coded for emerging themes.

In the final part of the analysis, quantitative results and qualitative results were merged to gain a more holistic sense of the findings.

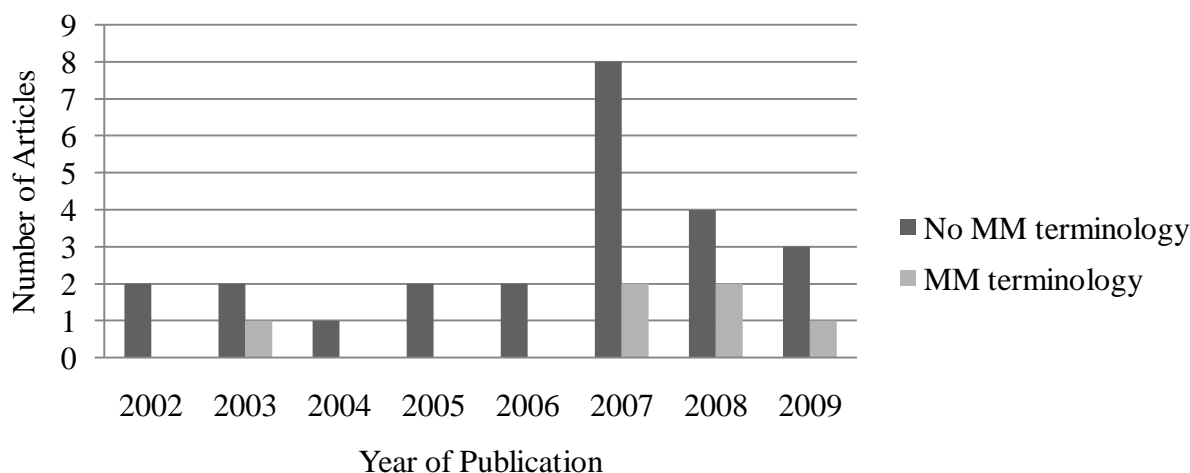
Results

This section of the paper will briefly present the findings for the quantitative analysis, qualitative analysis, and mixed analysis. An overview of the articles in this content analysis is provided in Table 1.

Quantitative Results

Of the 30 articles analyzed in the sample, six articles used mixed methods terminology. This means that only twenty percent of the articles identified as mixed methods, identified the timing or design used within the study, and did this within the abstract or method section. Figure 2 illustrates the trend of mixed methods terminology use from 2002 to 2009 for the three journals. Interestingly, 2007 saw a spike in the number of mixed methods articles published. However, only two of the eight articles published that year used mixed methods terminology.

Figure 2.
Use of Mixed Methods Terminology by Year



Qualitative Findings

After articles were explored for rationale statements and all statements were coded, four themes emerged. Of the sample, 11 of the articles offered no rationale statement for collecting both kinds of data. This means that more than one third of the sample did not address why it was necessary to use both qualitative and quantitative techniques.

Of the remaining 19 articles, four themes emerged upon exploring the rationale statements:

1. The research questions necessitated the collection of both data types;
2. To illuminate understanding of the phenomenon;
3. To use one data type to supplement or explain the other; and
4. To compare both data types to strengthen the findings.

The results of the qualitative exploration are illustrated in Figure 3.

The majority of the rationales, about 37%, were included in theme 2: *To illuminate understanding of the phenomenon*. All other themes had an equal number of rationales included; four each.

Mixing Findings

When the quantitative and qualitative results were merged, several interesting results emerged. First, for the third rationale theme: *To use one data set to supplement or explain the other*, each article within this theme used mixed methods terminology. For the 11 articles providing no rationale, only one used mixed methods terminology. For theme 1 and theme 4, none of the articles used mixed methods terminology. Mixing findings are illustrated in Figure 4.

Discussion

This section of the paper will discuss how the findings from each data set relate back to the original research questions.

Research Question One

The first research question asked: Within the sample, what percentage of the studies makes use of mixed methods terminology?

It was surprising to find that the vast majority of the studies (24 of 30) did not use mixed methods terminology. Many of the articles met one or two of the necessary criteria, such as identifying as a mixed methods design and stating this in the abstract or method section, but then fail to meet other criteria, such as identifying the timing or design of the study. While identifying as mixed methods was useful, this did not provide any information on how the researchers collected their data or in what order. A study had to meet all of the criteria in order for there to be any clarity regarding what the researchers had actually done.

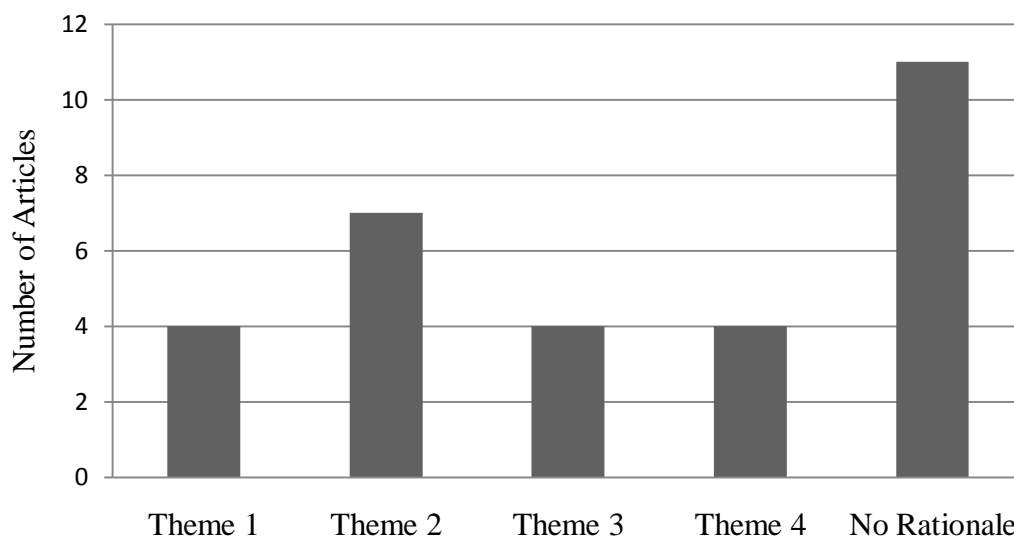
Research Question Two

Research question two asked: Within the sample, what rationales or reasons emerge for collecting both kinds of data?

Four themes emerged when the sample was explored for rationale statements. These themes were:

1. The research questions necessitated the collection of both data types
2. To illuminate understanding of the phenomenon
3. To use one data type to supplement or explain the other
4. To compare both data types to strengthen the findings

Figure 3.
Rationales Provided by Researchers in the Sample



Note. Theme 1 = the research questions necessitated the collection of both data types; Theme 2 = to illuminate understanding of the phenomenon; Theme 3 = to use one data type to supplement or explain the other; Theme 4 = to compare both data types to strengthen the findings.

The research questions necessitated the collection of both data types.

Rationales consistent with this theme were very pragmatist in nature. These explanations were generally very brief and did not discuss any paradigmatic stance for the study. Researchers stated what the different data types were used to address. Hoffman, et al (2008) offered this rationale:

The study measured student achievement, differences in instructional practice, self-reported teacher efficacy, and student teacher opinions. We used a mixed-methods evaluation methodology. (p 17)

This excerpt offers an example of the brevity of these rationale statements. Hoffman, et al (2008) simply explained what they meant to accomplish and that they used mixed methods to do so. Avoidance of any discussion of the paradigms guiding the research is interesting as it supports Greene and Caracelli's (2003) assertion that, despite the paradigm wars, researchers' paradigms rarely effect research decisions. In fact, Greene and Caracelli found that practice was characterized "by the absence of explicit or clear relationships between philosophical beliefs and practice decisions, or by the absence of philosophy altogether," (2003, p 105).

To illuminate understanding of the phenomenon

The majority of the articles providing rationales had a statement aligned with this theme (7 of nineteen). Rationales consistent with this theme were usually much longer and more detailed

than those of the previous theme, and incorporated the idea of trying to paint a complete picture. The paradigmatic stance utilized for the study was often addressed in these rationales. Sammons et al. (2007) expressed the idea that integration of the two paradigms (quantitative and qualitative) would allow for better understanding of the phenomenon:

VITAE brought together research in two areas: mainly quantitative research on teacher (and school) effectiveness on the one hand, and mainly qualitative research on teachers' work and lives on the other. Each of these has, in the majority of cases, been associated with 'paradigm specific' methods of data collection and analysis. VITAE sought to integrate these different perspectives in order to better address the central research questions.

Using these qualitative and quantitative data, detailed, holistic profiles of teachers' work and lives over time were constructed to see if patterns emerged over a three-year period in terms of perceived and relative effectiveness and, if so, the reasons for these. (p 684)

Sammons et al.'s (2007) purpose statement is also a great example of the rationale statements that should be provided in all mixed methods research articles because it clearly explains how the research questions guiding the decision to collect both forms of data and how each data type would be used.

Gilrane et al. (2008) addressed the complex nature of topic of the study, and how the use of two different data types enabled them to reach a more complete understanding of the phenomenon:

In ill-structured domains such as teaching and learning, discerning quality is a complicated endeavor and requires attention to data collected from multiple perspectives for evaluating multiple facets of an issue. Our choice of the naturalistic case study enables us to use a variety of data sources (e.g., qualitative data such as interviews and observations, quantitative data available in artifacts such as student achievement scores and teacher surveys and questionnaires) to illuminate our understanding of the phenomenon of teacher development in the 2-year period of the project.

Gilrane et al.'s (2008) purpose statement is another good example of a rationale statement. It explicitly states that the complexity of the research question drove the methodological decisions in the study. This purpose statement relates to Tashakkori & Teddlie's (2003) statement that "mixed methods research can answer questions that other methodologies cannot," (p 14).

To use one data type to supplement or explain the other

Four of the nineteen articles provided a rationale that indicated that one data type was intended to elaborate on the other. These rationale statements expressed the need for a second data type in order to fully understand the results of the first. Alviar-Martin, Usher, Randall, and Engelhard's (2008) rationale statement is a good illustration of this intention:

For that reason, we used an explanatory mixed model that permitted us to investigate teacher confidence while taking into account national context. Sometimes called an

explanatory sequential design, ours was a two-phase model in which we used qualitative data to supplement quantitative findings. Researchers use this model when qualitative data are needed to explain significant or surprising results or to explain relationships between findings. (p. 179)

These rationales focused on gaining a full and complete understanding of the initial data set, as opposed to the previous theme which focused on a complete understanding of the entire phenomenon. Researchers stating these rationales used qualitative data to explain quantitative data.

To compare both data types to strengthen the findings

Four of the articles provided rationales within this theme. These rationale statements used words such as “triangulation” (Weiss, Mayer, Kreider, Vaughan, Dearing, Hencke, & Pinto, 2003, p. 886) and “complementary” (Blatchford, Russell, Bassett, Brown, & Martin, 2007, p. 9). The intent behind these rationale statements focused on reducing weaknesses of each of the data types to add more weight to the conclusions drawn by the researchers. Weiss et al.’s (2003) rationale demonstrates this point:

For this study we employed a mixed-method approach, using both quantitative and qualitative analyses. The added value of mixed-method analysis has been well-documented in the literature, allowing, for example, better triangulation and expansion of findings. (p. 886)

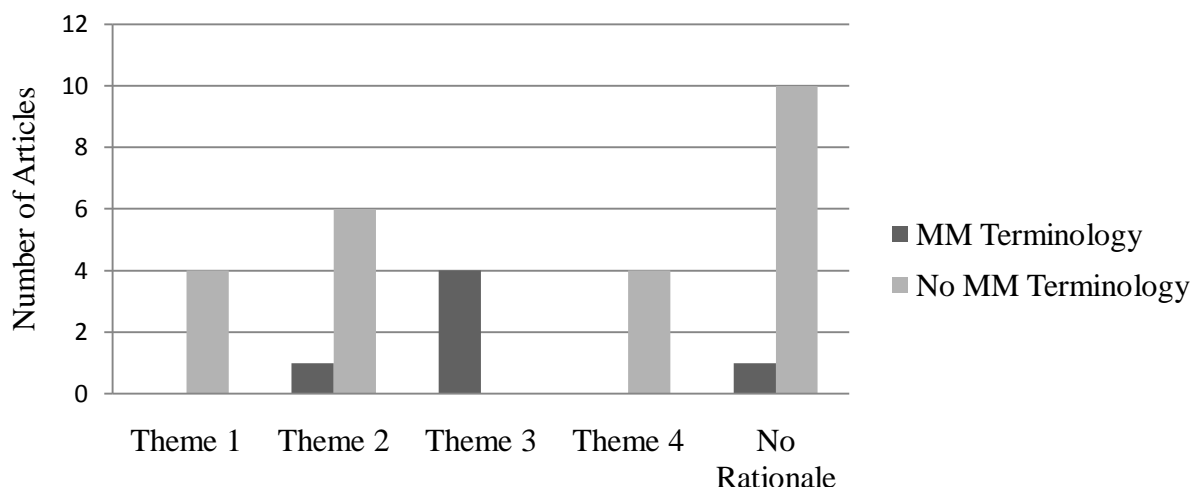
It is interesting to note that, while Weiss et al. (2003) cited triangulation as an intent of the research design, the researcher employed a sequential design. According to Creswell and Plano Clark (2007), Tashakkori and Teddlie (2003), and Greene (2008) triangulation or convergence of data is best achieved through concurrent designs.

A total of 11 articles, about 37% of the sample, did not present a rationale for using both quantitative and qualitative data. This large percentage is problematic in that it decreased the readability of the articles. Without addressing why the decision was made to collect and analyze both forms of data, the researchers are missing the opportunity to explain why the research questions made it necessary to do so and how the chosen design will accomplish the goals of the study.

Research Question Three

Research question three asked: How do the rationales of the studies associate to the use of mixed methods terminology? To answer this question, it was necessary to merge the quantitative and qualitative data sets.

Figure 4
Use of Mixed Methods Terminology by Rationale Provided



Note. Theme 1 = the research questions necessitated the collection of both data types; Theme 2 = to illuminate understanding of the phenomenon; Theme 3 = to use one data type to supplement or explain the other; Theme 4 = to compare both data types to strengthen the findings.

It is interesting to note that, for the studies with rationales that were included in theme one, none of these articles used mixed methods terminology. Rationales in theme one were very pragmatic; both types of data were collected simply because the research questions could not be addressed by one data type alone. Researchers using this rationale were most likely less focused on using mixed methods as an emerging methodology and more focused on doing what was necessary to accomplish the goals of the study. For this reason, mixed methods terminology was probably given little priority. Theme four rationales were similar; none of these articles used mixed methods terminology, either. Theme four rationales discussed triangulation, and using the two data types to strengthen the findings. It is unclear why these articles would not make use of mixed methods terminology, since expressing this rationale would require some familiarity with mixed methods as a methodology.

In contrast, the four studies that gave rationales consistent with theme three all used mixed methods terminology. These rationales addressed the fact that one data type was needed to fully understand the other, and lend themselves to sequential designs. Since sequential designs are slightly less common than concurrent and triangulation designs, and also slightly more complicated, it is possible that researchers expressing this rationale have more familiarity with mixed methods, and are therefore more likely to make use of the terminology.

Overall, it is important to note that the large majority of articles neither used mixed methods terminology nor provided a rationale for their design.

Conclusion

While mixed methods designs are currently being used with the field of educational research, researchers need to continue to work toward a common structure for the presentation of these

studies in order to make these articles more concise and understandable. Doing so would make this information more accessible to the readers and would also make these studies easier to publish. Making mixed methods designs easier for educational researchers to use is valuable in that many of the research questions within the field of education cannot be addressed through one data type alone. In order to fully understand many of the phenomena within education, both quantitative and qualitative data are necessary. Therefore, some recommendations are offered for the use of mixed methods in educational research:

1. In the future, researchers using mixed methods should label their work appropriately. This includes identifying the study as mixed methods, identifying the design used, and identifying the priority given. These factors should be discussed both within the abstract and the methods section of the article, so that this information is easily located by the reader.
2. Researchers using mixed methods studies should include a rationale in their presentation. This rationale should be clear in how the research questions drove the methodological decisions and it should make explicit the need for collecting both forms of data. Ideally, such rationales will also include the reason for mixing the two data sets.

Using these steps will help to develop mixed methods within the field of educational research, making this methodology more useful to those presenting and reading mixed methods findings. This is in the field's best interest, as the questions educational researchers are asked to tackle continue to grow more complex. Mixed methods designs are simply additional tools for researchers to use in order to investigate phenomena in a way that will ultimately be useful to practitioners.

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Table 1.
Overview of the Educational Research Multiple Method Studies (N=30)

Article	Journal	Affiliation	Topic of the study
Achinstein, Ogawa & Speiglmann (2004)	<i>AERJ</i>	United States	New teacher socialization
Alviar-Martin, Usher, Randall & Engelhard (2008)	<i>JER</i>	United States	Teacher confidence
Astor, Benbenishty & Estrada (2009)	<i>AERJ</i>	Israel	School violence
Bauman, Edwards, Boland, Olejnik & Kame'enui (2003)	<i>AERJ</i>	United States	Effects of instruction in morphology and context
Billings & Fitzgerald (2002)	<i>AERJ</i>	United States	Dialogic discussion and Paideia seminar
Blatchford, Russell, Bassett, Brown & Martin (2007)	<i>BERJ</i>	United Kingdom	The roles of teaching assistants in primary schools
Brouwer & Korthagen (2005)	<i>AERJ</i>	Netherlands	Teacher education
Cady, Meier & Lubinski (2006)	<i>JER</i>	United States	The transition from preservice to experienced teacher
Demie (2005)	<i>BERJ</i>	United Kingdom	Achievement of Black Caribbean pupils in Lambeth
DePlanty, Coulter-Kern & Duchane (2007)	<i>JER</i>	United States	Parental involvement and academic achievement
Finnigan & Gross (2007)	<i>AERJ</i>	United States	Accountability policies and teacher motivation
Gilrane, Roberts & Russell (2008)	<i>JER</i>	United States	Literacy instruction
Hallam & Ireson (2007)	<i>BERJ</i>	United Kingdom	Ability grouping in public schools

(table continues)

Hoffman, Badgett & Parker (2008)	<i>JER</i>	United States	Single-sex instruction in high schools
Lewin & Stuart (2003)	<i>BERJ</i>	United Kingdom	Teacher education in low-income countries
Linek, Sampson, Gomez, Linder, Torti, Levingston & Palmer (2009)	<i>JER</i>	United States	Middle school alternatively certified teachers
Monte-Sano (2008)	<i>AERJ</i>	United States	Historical writing instruction
Morgan & Hansen (2007)	<i>JER</i>	Australia	Primary school physical education
Morgan, Nutbrown & Hannon (2009)	<i>BERJ</i>	United Kingdom	Fathers' involvement in children's literacy development
Onwuegbuzie, Witcher, Collins, Filer, Wiedmaier & Moore (2007)	<i>AERJ</i>	United States	Evaluation of college teachers
Pickens & Eick (2009)	<i>JER</i>	United States	Teachers' motivational strategies
Raffe, Howieson & Tinklin (2005)	<i>BERJ</i>	United Kingdom	Unified curriculums and qualifications systems
Reutzel, Fawson & Smith (2008)	<i>JER</i>	United States	Silent reading
Rodriguez & Berryman (2002)	<i>AERJ</i>	United States	Sociotransformative constructivism
Sammons, Day, Kington, Gu, Stobart & Smees (2007)	<i>BERJ</i>	United Kingdom	Teachers' work and lives
Sheriff (2007)	<i>BERJ</i>	United Kingdom	Peer group culture 's and social identity's influence on masculinity
Watkins, Mauthner, Hewitt, Epstein & Leonard (2007)	<i>BERJ</i>	United Kingdom	School violence and school differences

(table continues)

Weiss, Mayer, Kreider, Vaughn, Dearing, Hencke & Pinto (2003)	<i>AERJ</i>	United States	Low-income working mothers' involvement in children's schooling
Wighting (2006)	<i>JER</i>	United States	Computer use and high school students' sense of community
Wilson, Malcolm, Edward & Davidson (2008)	<i>BERJ</i>	United Kingdom	Truancy

Evaluating the Effectiveness of Reading Strategies for College Students: An Action Research Approach

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Abstract

This study was an action research project evaluating the effectiveness of selected reading strategies on student learning. The action research was conducted in an undergraduate measurement course in a teacher preparation program. Students used a pre-selected reading strategy to read assigned readings then completed a quiz on the readings and a survey on their perception of the effectiveness of each reading strategy. A mixed-method approach was employed. Results indicated the active processing strategies were effective, with the "I" graphical organizer was perceived by most students as an efficient tool for quizzes and was also perceived as being more efficient than reflections.

Assigning readings for homework, to be completed outside of class time, is a common practice in higher education. The abundance of content information and limited face-to-face instruction time often results in a moderate to large amount of outside reading for college students. During informal and formal class discussions, students very rarely discuss any formal reading strategy. The National Endowment for the Arts conducted the largest household survey to date and reported a disappointing state of affairs for the reading habits of college-aged students (NEA, 2008). Only one third of 12th grade students are at or above reading level (NEA, 2008). Among adults between the ages of 18 to 24, reading proficiency has decreased more than any other age group (Gioia, 2006). Similarly, the ACT's High School Profile Report noted only 53 percent of the students who took the ACTs were ready for the college-level reading requirements (ACT High School Profile Report, 2008). In addition reading readiness for college, employers identified reading and writing as top deficiencies of new employees (Wachholz, Ray, Hibbard, & Ndiang-ui, 2010). Secondary teachers of all subjects have been told all teachers are teachers of reading for years (Wachholz et al., 2010). The lack of reading proficiency of incoming college freshman may now extend the notion of all teachers are teachers of reading to instructors of higher education.

Rationale

An instructor of higher education at a small liberal arts college was interested in examining the impact of reading strategies with undergraduate college students. The instructor typically assigns weekly readings throughout semester courses and was disappointed in the student outcomes. Each semester, students were provided with a list of reading assignments including questions the students are responsible for answering. Most of the time, the comprehensive of the readings were

assessed through short quizzes and small and large group discussions. Over the years the instructor was disappointed in not only the quiz scores, but student responses to discussion questions in class. Discussions with students indicated they either do not want to read, or have trouble comprehending the readings. As a result, the instructor began to focus on the reading behaviors of college students.

Memory, Comprehension, and Learning

Performance on quizzes and class discussions are dependent upon a person's memory and comprehension, examining the way memory operates is imperative. Specifically, investigating the ways in which people remember information is critical. Craik and Tulving (1975) presented evidence supporting the importance in the processing of information, not the structure of the memory. Subjects in their study who actively processed information remembered more than other subjects: "Subjects remember not what was 'out there', but what they *did* during the encoding" (p. 292). This study presents the idea that *how* information is processed is the determining factor in memory. Klein and Salts (1976) investigated the concept of differentiated levels of processing with the semantic realm. Their study examined the effects of the number of dimensions used to process information had on recall; the results indicated the greater number of dimensions used, the better the recall, especially if the dimensions were not correlated to each other. Craik and Tulving's (1975) and Klein and Saltz's (1976) studies demonstrated the improved memory of subjects who actively processing information using different dimensions compared to subjects who did not.

More recently, Wolfe (2010) discussed the concept of "elaborative rehearsal" and states the process "requires students to reflect on the information being taught, relate it to something they already know, form meaningful mental associations" (p. 158). Nuthall (1999) proposed the use of "multiple representations of the same experiences" (p. 326). Nuthall (1999) proposed students learn when they are given the opportunity to express knowledge in different formats, and he also recommended the use of narrative and interactive activities such as group work. Another example of using different dimensions to aid learning and remembering comes from Willis (2006); Willis endorses activating multiple senses, looking for patterns, connecting the school experience to the student's outside experience, creating an authentic product, and interpreting the material. Marzano (2007) advocated using the processes of comparing/contrasting, hypothesizing, summarizing, and using nonlinguistic representation

Using different dimensions (making connections) to learn also includes the act of monitoring one's own learning. People possess different learning styles and individuals have the capability to analyze her/his knowledge style (Tobias, 1994). According to Tobias (1994), "learning how to recognize and appreciate learning styles can help you identify the natural strengths and tendencies each individual possesses" (p. 9). Costa (1984) discusses self-monitoring skills which include knowing when a sub goal has been attained, finding and analyzing errors, and choosing appropriate strategies.

Reading Strategies

A key ingredient to the reading effectiveness of students lies in teacher perception of what the reading comprehension process really entails. Formerly reading was viewed as the simple process of decoding text, with the student or reader receiving the information presented by the text. Today, it is seen as “a dynamic process in which the reader works actively to construct meaning” (Barton, 1997). This dynamic process consists of different types of concrete strategies. Harvey and Goudvis (2000) present seven such strategies:

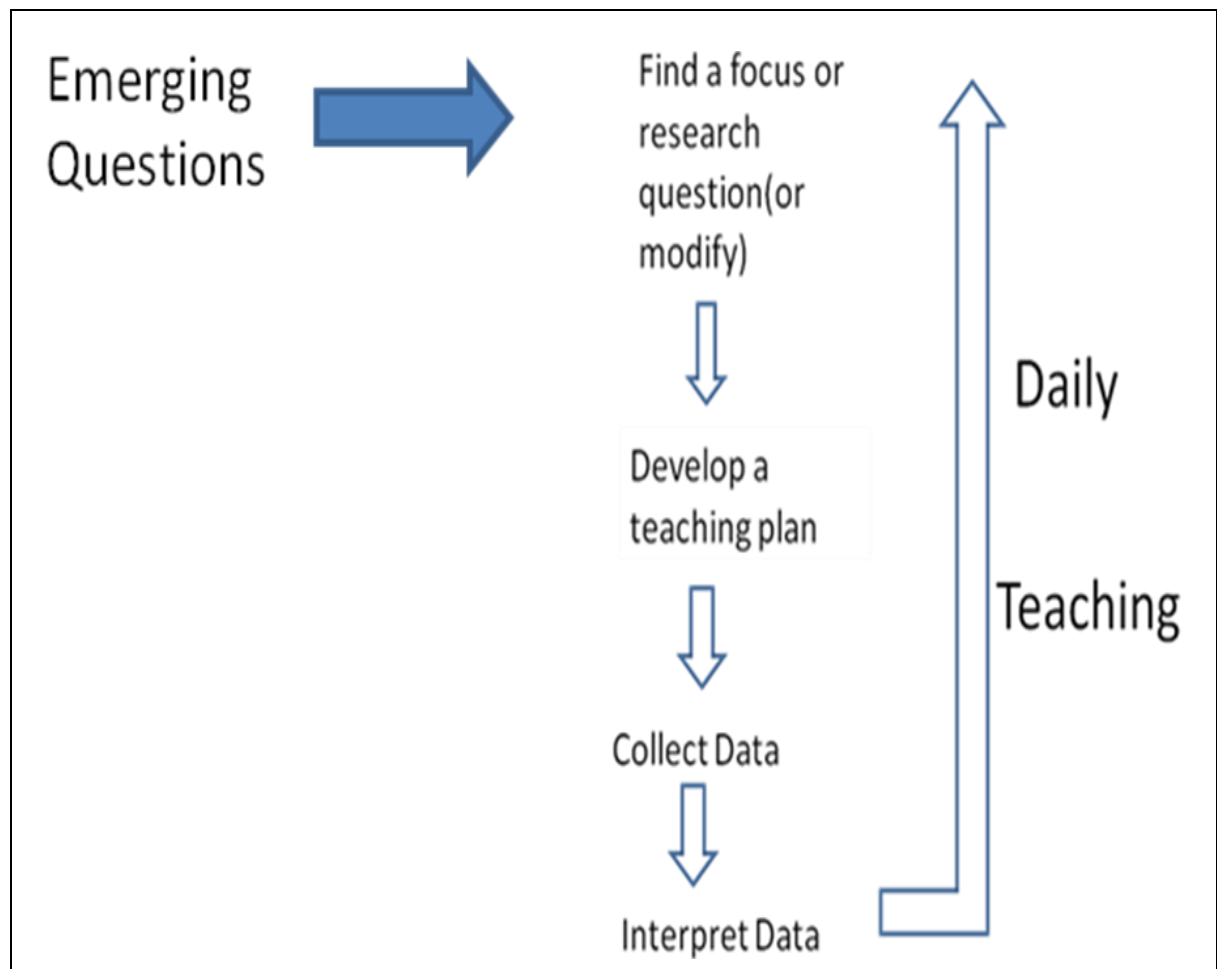
- Making connections between prior knowledge and the text
- Asking questions
- Visualizing
- Drawing inferences
- Determining important ideas
- Synthesizing information
- Repairing understanding

The reading strategies described above can be summarized as being “Constructivist”, or “Student-Centered”, or “Active Strategies,” (Pelech, 2010). The core element of these types of strategies is the students are not receiving information, rather the students are creating information by analyzing it and re-organizing information in order to create a new mental space. The strategies used in this study, are of the “Student-Centered” nature.

Method

Action research approach was used to evaluate the effectiveness of different reading strategies for students in an undergraduate education course. Action research is a systematic approach of inquiry in which the teacher/researcher, administrator, or counselor gathers information in order to examine ways to improve his/her school or classroom, or how to improve student learning (Mills, 2003). Another view of action research is a continual process of formal inquiry asking educators to examine their practices and context; this then leads to exploring changes in their practices and examining the effects of these changes (Calhoun, 2002). Action research is conducted in a naturalistic setting; the emphasis is on the teacher teaching, with the data being collected in this contextual setting. Action research is usually conducted in a cyclical frame, and consists of discrete phases. Once the steps have been completed, the educator/researcher looks for cognitive disequilibrium in the form of a new focus, or new and emerging questions. With these new (emerging) questions as the focus, the cycle begins again. The action research cycle, as used in this study, is shown:

Figure 1.
The Action Research Cycle



The focus of this study was to examine the effectiveness of reading strategies used by students to prepare for quizzes and class discussions. The following research questions were used to guide the study:

1. What reading strategies are effective for preparing students for quizzes?
2. What reading strategies do undergraduate students perceive to be effective for achieving high scores on quizzes?
3. What type of reading strategies do college students perceive to be effective for them in regards to depth of understanding?

To answer the research questions a plan was created based on regular classroom activities. The typical class schedule contained two parts: class readings were provided with a “Problematic”,

and then a quiz was administered based on the class readings. A Problematic is an authentic situation education students will encounter during their teaching career; like all authentic situations, it is ill-defined, messy, and will not have one solution. An example of a Problematic is shown in Figure 2.

Figure 2.

An example of a Problematic- The Standardized Score Problematic

THE STANDARD SCORE PROBLEMATIC

You are talking with some colleagues right after your first Parent Teachers Night. The principal joins the conversation. You share one conversation in which one parent stated that his daughter scored a 21 on the ACT and that he is confused with what these scores mean. Two of your fellow teachers relate similar stories.

The next day the principal contacts you, and states that he has heard many of the same stories from other teachers. He wants you to head a project that will educate parents on the meaning of these standardized test scores. He has indicated to you that you must either write a newsletter, or design a manual explaining to parents (most of these parents have had no more than some training in Algebra I). The topic is to explain, in simplest terms, what a 21 on the ACT means.

A reading list was provided to aid students in working through each Problematic (Authentic Situation) covered in class. The Reading list for this Problematic consisted of a variety of online resources surrounding standardized tests and interpretation of the results. Each reading included a set of questions, which formed the basis of the quiz given to students. A quiz was administered for each Problematic in the course. A total of three Problematics and six quizzes were included as part of this action research study.

By definition, teacher action research is conducted within in the context of the normal classroom paradigm. Since the normal class paradigm was to have quizzes, it was a normal extension to have a quiz followed by a survey concerning the student perception of the success of the reading strategy that was used.

The data from this study were both quantitative and qualitative. While each form of data had its own purpose, both types interacted with each other. The quantitative data were in the form of quiz scores and numerical ratings of the effectiveness of the reading strategies. Qualitative data came from the open-ended questions of the survey, student interviews and instructor observation. Statistical tools used for the quantitative data were the mean, median, and mode. Overall, the purpose of the quantitative data was to describe and summarize the relationships developed by the study. The purpose of the qualitative data was to develop the *meaning and significance* of the data for *the student*.

Procedures

An initial quiz (Quiz 1) and survey were used to develop baseline data. For this initial survey (Week 1), students were to use a reading strategy of their own choosing. The purpose was to obtain data on what they already do (prior knowledge) and their perceptions of the effectiveness of these strategies. Since this was the beginning of the semester and some administrative issues and procedural issues had to be presented, limited time for discussion was anticipated: thus, students were not required to rate the effectiveness of their selected reading strategy in regards to discussion. The survey had two items in which students responded on a four point liker-scale: strongly agree, agree, disagree, and strongly disagree. The two items were: 1. The reading strategy helped with the quiz, and 2. The reading strategy helped me with the class discussion and helped me have a deeper understanding of the Problematic. A third item was open-ended and allowed students to provide any other comments they had on the reading strategy. During week 1, students were given the opportunity to choose their own strategy. In order to analyze the responses from Week 1, codes were developed a priori to analyze the responses. The coding for the Week 1 quiz was:

- **Read Notes and Highlight**- this category included taking notes, reading aloud, highlighting important facts or a combination.
- **Read and Looked for Answers**- this category included the strategy of looking at the questions from the reading list and then looking for the answers in the reading.
- **Interaction**- This category included any activities as having friends quiz them after the reading, quizzing friends on the way to class, discussion with friends, and pair/share.

The quiz scores for the first quiz (pre) yielded baseline data for the study. The mean was 82.87%, a C+ for this course, the median and the mode indicate students' selected method was effective. No specific conclusions could be made whether a relatively mediocre class result was a result of the weakness(es) of students' method or the result of students not being mentally disciplined or the result of the negative effects of outlier values. Table 1 presents the data from the quiz scores.

Table 1.
Mean, Median and Mode for Quiz 1

	Quiz 1 (n = 31)
Mean	82.87
Median	100
Mode	100

The preferred methods and student perceptions of the effectiveness of their selected method are described in Table 2. The data from the Table 2 indicated that students scored successfully on the quiz and the majority of them felt that their strategy was effective. A close look at the Table 2 indicated that 16 out of 28 students used the technique of highlighting and taking notes, a technique that is considered “traditional.” It must be noted that no data were provided by students from the “highlight” category to determine if this method was a form of “active” processing. Another eight students used what can also be considered a traditional method, that of looking for the answers. Only four (4) students participated in what could be considered “Interaction” activities; they utilized such activities as quizzing each other and Think/Pair. This category represented an “active” approach.

Table 2.

Student Perceptions of the effectiveness of their selected strategy

Strategy	Student perception of effectiveness of strategy		
	Strongly Agree	Agree	Disagree
Highlight, take notes (n = 16)	4 (25%)	11 (69%)	1 (6%)
Read, looked for answers (n = 8)	2 (25%)	6 (75%)	0 (0%)
Interaction (n = 4)	3 (75%)	0%	1 (25%)

Emerging Questions and Action Plan Modifications

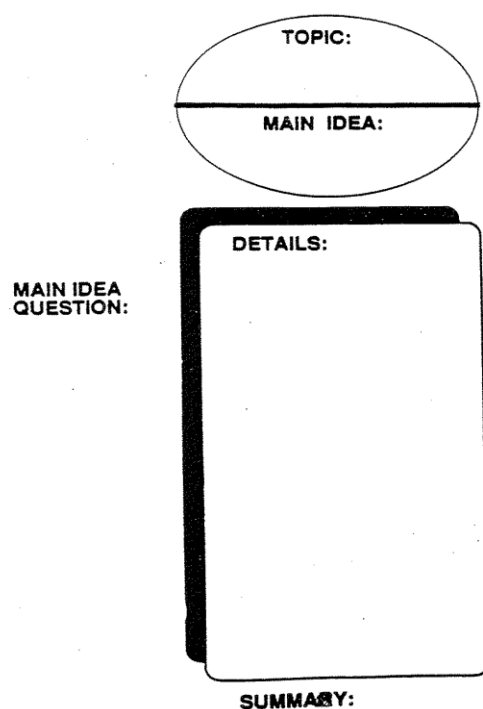
The majority of students used reading, taking notes, and highlighted key points, they offered no comments indicating what they were thinking; additionally another four (4) students utilized the technique of just looking for the answers. The initial quiz results indicated the majority of students may or may not have created any “mental connections/spaces.” The results led to the researcher to investigate which reading strategies would enable students to make connections while they are reading, and if other reading strategies would improve student quiz scores and enhance student participation and contributions in class discussions.

Based on the initial quiz and survey results, the action plan focused on the types of reading strategies to use. The instructor used constructivist and cooperative learning strategies as part of the class structure, such as Think/Pair/Share and reflections. These types of activities were blended into the course. The following strategies and sequences were used:

1. Students wrote a one-page reflection blending their answers to the questions; here the students used the answers to the questions to create an essay that summarizes the reading.
2. Students wrote a one-page reflection and used the cooperative learning activity “Think/Pair/Share” to summarize their reflection for their partner.

3. This strategy used the “I Graphical Organizer”, which is shown in Figure 1. *This visual was taken from the Phi Delta Kappa seminar (approximately twenty years ago) conducted by Larry L. Welch, Ed.D. The visual was attributed to William L. Christen and Thomas J. Murphy.* It is important to note that this organizer uses the visual mode as well as the written mode. Students are to put the topic and main idea in the “dot” above the “I”, put what they believe should be the main idea question, and write a three-sentence summary. An example is shown in Figure 3. Students were given blank copies of this organizer, but many chose to either create their own using paper, pencil, and a straight edge or create their own using the computer.

Figure 3.
The “I” Graphic Organizer



Note: *This visual was taken from the Phi Delta Kappa seminar (approximately twenty years ago) conducted by Larry L. Welch, Ed.D. The visual was attributed to William L. Christen and Thomas J. Murphy.*

4. Students wrote a one-page reflection and used both the cooperative learning activity “Think/Pair/Share” to summarize their reflection for their partner and the “I” Graphic Organizer.

Each week the reflections were graded. Students completed a survey consisting of selected response and open-ended items. The action plan consisted of a cycle using each of four strategies consecutively. The following schedule was used:

Quiz 1- Quiz on Readings using the strategy of writing a reflection embedding the questions.

Quiz 2- Quiz on Readings using the strategy of writing a reflection embedding the questions, followed by a Think/Pair/Share.

Quiz 3- Quiz on Readings using the “I” graphic organizer.

Quiz 4 - Quiz on readings 3 and 8 from the Action Research Problematic, using “I” graphic organizer with a Think/Pair/Share.

Results

An important parameter for any type of research is that of validity and credibility. Since all action research is done in a “natural setting”, certain occurrences may affect the validity. In this case some students were absent when certain statistical analyses were performed. Later on, they made up the quiz they missed and their scores were included in the data set. As an example, a student may have missed Quiz 2 and data on Quiz 2 was performed without this student’s score. Later, when the student made up the quiz, the score was included in the data set and this “updated” data set may have been compared with other data sets.

The baseline data was collected prior to Week 1, when students were able to use their own reading strategy. Table 3 displays the results from student weekly quiz scores.

Table 3.

Student quiz scores with reading strategy

	Baseline (Prior to Week One)	Week 1	Week 2	Week 3	Week 4
Strategy	Students choose their own strategy	Reflection	Reflection with Pair/Share	“I” graphical organizer	“I” graphical organizer with Pair/Share
Percentage, Letter Grade	82.87	81.11	88.35	93.84	84.96

The quiz scores for all five strategies indicated that each of the strategies was successful to a degree. The mean scores of quizzes ranged from C+ to A-, with only one mean score being in the A range. This A score came from the “I” graphical organizer method.

Surveys were used to examine student perceptions on the effectiveness on each of the four reading strategies. The results indicated that each of the strategies was perceived as effective for both quiz preparation and for class discussion. The surveys asked students to rank the effectiveness of the reading strategy in terms of quiz preparation and class discussion. Table 4 displays these results. The coding system was: 4= Strongly Agree, 3=Agree, 2= Disagree, 1= Strongly Disagree.

Table 4
Mean Ratings for the effectiveness of Strategies

	Mean Effectiveness of Strategy for Quiz	Mean Effectiveness of Strategy for Discussion
Quiz 1	3.2	3.42
Quiz 2	3.23	3.33
Quiz 3	3.32	3.23
Quiz 4	3.14	3.24

The results indicated students found each of the five methods effective in preparing them for quizzes and the class discussion. Differences in ratings were not significantly different. It is important to note all students agreed with the statement that the strategy was effective.

The open-ended questions from the survey provide insight into student perceptions concerning the Reflection and Reflection/Pair/Share strategies. The comments from the surveys provide insight into the meanings for students. The comments refer to the Reflection strategy or to the Reflection/Pair/Share. Table 5 provides examples of comments presented.

Table 5.
Student Comments on Reflections Strategy and Think Pair Share

Reflection Strategy	Think Pair Share
<i>I think writing the summary helped me understand the information better.</i>	<i>I think they have helped (reflection and Pair/share)</i>
<i>I cannot remember all the terms word for word but I retained the <u>ideas</u> that were maintained in the text and in the article.</i>	<i>The pair share was nice because I can usually remember things better when I say them aloud</i>
<i>The only reason why this reading strategy didn't really help with the quiz is because I spent more time writing and making sure it was well written rather than memorizing some of the info.</i>	<i>I liked doing the pair share ...it really helped to reinforce the information that I learned.</i>
<i>Sometimes it takes away from memorizing the answers because I am focusing on the paper.</i>	<i>If we had longer time to share our reflection it would have helped...the reading strategy really helped.</i>

Students' comments demonstrated students' perception of the effectiveness of the reflection strategies, and also indicated students' recognition of reflection as active mental processing. Comments and phrases such as "expand on", "I understand the information better," "reinforce the information", and "as I could hear what my partner had to say," provide this evidence. Some students stated they wanted more time for the Pair/Share whereas others had mixed feelings on Pair/Share. This was consistent with the quantitative results. Some students reported writing the reflection took away from their memorization of the answers to the reading questions; since the purpose of the reflection was to move away from memorization and to remember through a connected concept, this comment suggests further examination on the effectiveness of reflections be done.

Positive survey comments indicated students thought the "I" graphical organizer enabled active processing skills which could be combined with other strategies already used by students, and was an efficient tool. Following is a sample of these comments:

- *I think it really helped me get the main points of the article down on paper in a clear way to see them.*
- *This was a way more helpful way for me to understand and comprehend...rather than writing a reflection.*
- *It was fast and easy to learn from.*

- *It helped me pull out the main points and review them in an organized fashion.*
- *The “I” graphic organizer will help me with the problematic by organizing my thoughts and information learned.*

The survey comments pointed toward the “I” organizer’s ability to enable students to actively process the readings. Comments indicated the students thought the “I” graphical organizer (“I”) prepared them for the quizzes, and inferred the organizer enabled active processing. Also, students indicated the “I” was a very efficient method of organizing and presenting information. While some students noted the “I” helped them with discussions, others thought the reflections were more effective.

Emerging Questions and Modifications to Plan

The data indicated all four methods were found to be effective by students and all four methods enabled active processing. However, there was not a great deal of evidence discussing what types of active processing were used for each method. While there was apparent enthusiasm for the “I”, subsequent t-tests did not yield any statistically significant difference. Thus, it was not clearly apparent at this stage which strategy was most preferred by students. The data from the previous five quizzes and strategies indicated that students had a “preferred” strategy (though it was not clear which one it was), and it was in the best interest of student learning to conduct a final phase in which students would chose their preferred reading strategy.

The final part of the study allowed students to choose their preferred method (this included methods not used in previous weeks). Table 6 below shows method selected and students’ perceived effectiveness of this strategy.

Table 6
Student selected strategy and ratings

Strategy	Quiz Rating	Discussion Rating
Writing (n = 1)	Strongly agree= 1	Strongly agree = 1
Reflection (n = 3)	Strongly agree = 1 Agree= 2	Strongly agree= 1 Agree = 2
Think/Pair/Share (n = 1)	Agree= 1	Agree = 1
“I” organizer with Think/Pair/Share (n = 1)	Strongly Agree = 1	Strongly Agree = 1
“I” organizer N = 24	Strongly Agree=15 Agree = 9	Strongly agree= 14 Agree = 10

The “I” graphic organizer was selected by the most students when provided with a choice of method. Only one student opted to use the Think/Pair/Share, and one only student chose to use the “I” graphic organizer with the Think/Pair/Share.

Summary

This study examined the effectiveness of pre-determined reading strategies on quiz scores and class discussion. The pre-determined reading strategies were student-chosen strategies, reflections, think/pair/share, the “I” graphic organizer, and the “I” graphical organizer with Pair/Share. The study used student quiz scores, student surveys, and instructor observation to collect data. The following points summarize the results. Overall, active processing strategies were effective for preparing students for quizzes. Students preferred the “I” graphic organizer over other strategies, and indicated it was efficient and visual. In terms of preparing for quizzes, students found the “I” graphical organizer to be the most effective. The perceived effectiveness of the “I” for class discussion was mixed. Some students who preferred the “I” for quizzes preferred reflections for the class discussions.

Students comments indicated the “I” graphic organizer and reflections enabled them to be actively involved in the creation of their own knowledge base. Some students indicated that the “I” was ineffective because it did not enable them to process fully and in depth. Results from the surveys indicated the Pair/Share with another strategy was not as effective as other strategies. Students hesitated about whether they would use the “I” graphic organizer or reflection in other classes due to the element of time. While students indicated that they would use the “I” graphic

organizer in their own practice, they noted the time it took to explain and implement it may be a deterrent.

Conclusion

There were some limitations to this study and unanswered questions. Only undergraduate students were included in this study. Results may be different if graduate students were included in the sample. The degree to which students preferred a technique was not answered. While students might choose “Strongly Agree” or “Agree”, student comments from the surveys and interviews indicated the *degree* of their perception was not fully described by the present system.

While students preferred the ‘I’ graphic organizer for quizzes, the extent to which students would prefer the strategy if quizzes contained higher level items is unknown. Students’ perception of the ‘I’ graphic organizer’s effectiveness may have been different if higher level items were posed. In addition, connection of the “I” graphic organizer strategy to an effective class discussion was not strongly supported. Students thought the reflections and the “I” graphic organizer were effective, but no evidence was provided to connecting student perceptions to an increase in learning.

The purpose of this study was to evaluate the effectiveness of different reading strategies used by undergraduate education students as instructed by the professor. According to the results, students found the “I” graphic organizer to be the most useful for demonstrating knowledge of their reading. The vast majority of students in the sample chose to use the “I” graphic organizer when given a choice of strategies to use. Teaching undergraduate students how to use reading strategies such as the “I” organizer can be a useful technique to aid in student learning.

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Students' Preferences for Cooperative Learning Instructional Approaches: Considerations for College Teachers

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Abstract

Student acceptability of various teaching formats and techniques is an important factor for teachers to consider in determining their usage and effectiveness. Cooperative learning is a technique that is utilized by teachers from elementary through higher education. The present study compared the acceptability of three cooperative learning techniques: Think-Pair-Share, Three-Step Interview, and Roundtable. Eighty-six college students were first exposed to all three distinct cooperative learning techniques and then asked to rate the acceptability of each. Students completed both quantitative and qualitative assessment measures. Quantitative results showed that students significantly preferred the Roundtable technique over the Think-Pair-Share and Three-Step Interview techniques. The qualitative analysis included highlighted themes such as frequency of use and preference of approach. Considerations for college teachers were also discussed.

Best practices in college teaching indicate that cooperative learning techniques are valuable tools that are widely underutilized in higher education (Shimazoe and Aldrich, 2010). Effective cooperative learning strategies offer an alternative format for the delivery of material (Allison and Rehm, 2007). Furthermore, they are one way to help prevent and remediate difficulties students may encounter when learning a new application or theory (Naested, Potvin, & Waldron, 2004). While a variety of instructional techniques are available to college teachers, they often go unused or underutilized. The present study assessed student acceptability of three distinct cooperative learning styles. The need for information related to the acceptability of cooperative learning styles is great, given that there is scant, if any, research in this area. This article briefly reviews general issues pertaining to treatment acceptability and presents findings from a study in the area of cooperative learning.

Cooperative Learning

Cooperative learning is an approach that organizes classroom activities into academic and social learning experiences. Students must work in groups to complete the two sets of tasks collectively. When the group succeeds, everyone in the group succeeds (Giles and Adrian, 2003). While theorists began establishing the tenets of cooperative learning theory prior to World War II, modern theorists, David and Roger Johnson are currently among the most well known. Johnson and Johnson identified that cooperative learning promoted skills within the group including better communication, mutual liking, and high acceptance and support (Johnson and Johnson, 1975). Subsequently, Johnson and Johnson identified the 5 elements effective for group learning. These

elements are positive interdependence, face-to-face orientation, individual accountability, processing, and social skills (Johnson and Johnson, 1994). Two types of cooperative learning are formal and informal. Formal cooperative learning is structured and is used to achieve group goals. Informal cooperative learning incorporates group learning with passive teaching (Sharan, 2010).

Cooperative learning techniques that relate to the current study are Three-Step Interview, Think-Pair-Share, and the Roundtable Technique. These three approaches are explicated below.

Three-Step Interview Technique

Three-step interviews can be used as an introductory activity or as a strategy to explore concepts in depth through student roles. Paired students ask one another questions. Members then share their responses with the group.

Think-pair-share Technique

This approach is useful for encouraging time on task, and, listening to each other (Kagan, 1999). In this approach, the instructor poses a question to the class, students think about the question, and students share their thoughts with other students.

Roundtable Technique

This approach is useful as a content-related team building exercise (Kagan, 1999). In this approach, the instructor poses a problem with many possible answers. The students write an answer and pass the sheet amongst the group. Finally, the group discusses all possible answers on the sheet.

Treatment Acceptability

Treatment acceptability is a judgment by laypersons, clients, and others of whether treatment procedures are appropriate, fair, and reasonable for the problem or client (Kazdin, 1981). Several models of treatment acceptability have been developed. The first, developed by Witt and Elliott (1985), stressed the interrelationship of four elements: treatment acceptability, treatment use, treatment integrity, and treatment effectiveness. Reimers, Wacker, and Koepl (1987) expanded on Witt and Elliott's work and focused on the importance of understanding a treatment before acceptability can be assessed. Accordingly, a treatment perceived as low in acceptability will likely be low in compliance or teacher implementation, whereas a treatment rated as high in acceptability will likely result in high compliance.

Teacher and Student Acceptability

Previous research has indicated that many effective classroom activities and interventions are unused by teachers due to low levels of acceptability (Martens, Peterson, Witt, & Cirone, 1986; Witt, 1986). For example, Witt (1986) discussed four factors that have been linked to teachers'

continued use of an intervention: (a) intervention effectiveness, (b) time and personnel resources required, (c) theoretical orientation of the intervention, and (d) the degree to which the treatment is ecologically intrusive. When judging an activity's or intervention's effectiveness, teachers often do not have data concerning the effectiveness of a specific approach, and they often rely upon perceived effectiveness of an intervention. With regard to time and personnel resources, Witt found that teachers prefer interventions that require less time and fewer personnel resources.

Witt, Martens, and Elliott (1984) investigated the influence of time involvement, intervention type, and problem severity on teacher acceptability and found that interventions requiring high levels of time were less acceptable for many classroom problems except those that were very severe. In a related study, Martens et al. (1986) assessed teacher perception of effectiveness, ease of use, and frequency of use for various school-based interventions. The highest rated interventions were redirection, manipulation of material reward, alteration of classroom environment, consultation, time-out, and removal from classroom.

Overall, previous research (Witt, 1986; Witt et al., 1984) on treatment acceptability with teachers has suggested a preference for interventions that are effective, easy to implement, and require short periods of time to implement. Although several studies (e.g., Martens et al., 1986; Witt, 1986; Witt et al., 1984) have increased knowledge of intervention acceptability, the research, for the most part, has been analogous in nature with little emphasis on insuring that participants have sufficient knowledge and use of the interventions they rate. Particularly in the area of cooperative learning approaches, research that directly exposes teachers and students to interventions and examines acceptability is needed.

Relative to teacher preferences, few, if any, studies have assessed student acceptability of instructional approaches, including cooperative learning. This apparent gap in the research provided the impetus for the current study.

Purpose of the Study

What are the key research findings associated with the utilization of cooperative learning approaches in the classroom? Furthermore, do students show a preference for any of these cooperative learning approaches? The current study addressed the need for additional research by extending our knowledge of the acceptability of three distinct, cooperative learning styles (Think-Pair-Share, Roundtable, Three-Step Interview) by comparing the judgments of students. The researchers employed a mixed-methods research design using the Cooperative Learning Approach Rating Profile (CLARP) as the primary quantitative measure and qualitative data from the student demographic questionnaire completed by the participants. The goals of the study were to:

1. Do students show a preference for any of the cooperative learning approaches?
2. How many courses had the students completed that utilized cooperative learning approaches?
3. Which types of cooperative learning activities had students been engaged in previously?

4. Of the cooperative learning activities that students had engaged in, previous to this study, which types of activities do they prefer?

Method

Participants

Students. A total of 86 students participated in the study. The students were enrolled at a community college or a 2-year-college in the Mid-Atlantic region of the U.S. They were college freshman and sophomores. Fifty-seven females and 29 males, ranging from 17 to 58 years of age, participated in the study. There were 36 Caucasian, 7 Asian-American, 19 African-American, 10 Hispanic, and 8 students identified as other. Thirty-two students identified themselves as freshman, and 54 students identified themselves as sophomores. The students agreed to participate in this research study.

Materials

Student Demographic Questionnaire. This questionnaire consisted of information related to age, gender, ethnicity, and previous relevant coursework (see Appendix A). The questionnaire was administered to all students at the outset of the study by the principal researcher.

Student questionnaire. Students were asked to complete an acceptability questionnaire after completing each cooperative learning technique. Witt and Marten's (1983) Intervention Rating Profile (IRP) is a commonly used acceptability measure. Previous research (Witt, 1986; Witt, Elliott, & Martens, 1984; Witt & Martens, 1983; Witt, Martens, et al., 1984) indicates that the IRP has demonstrable reliability and validity; consequently, it was selected as the primary measure to assess technique acceptability. However, each IRP is worded in a way that reflects intervention acceptability for a specific instructional approach. Because the current study investigated three distinct cooperative learning techniques, the IRP was modified to reflect the nuances of cooperative learning techniques. The modified IRP renamed the Cooperative Learning Approach Rating Profile (CLARP) consisted of 10 Likert-type items using a 6-point scale (1 = Strongly Disagree ..., 6 = Strongly Agree), and it assessed acceptability in terms of ease of implementation, instructional impact on students, and utility of implementing approaches (see Appendix B). Using the student sample from this study, internal consistency analyses were conducted on the modified IRP to assess reliability. The resulting Cronbach alpha was .91 (Arra, 2010).

Procedure

Students implemented and then evaluated all three cooperative learning techniques during one session. First, a demographic questionnaire was completed by all students. Next, the principal researcher read standard instructions to the students for the Roundtable technique (see Appendix C). The researcher and an assistant then modeled the Roundtable technique for all students. The

students then spent 5 minutes implementing the technique in small groups. Finally, they individually completed an acceptability questionnaire for the Roundtable technique. Once the first cooperative learning technique had been implemented, the principal researcher presented the second technique, Think-Pair-Share, to the students. The principal researcher read standard instructions to the students for the Think-Pair-Share technique (see Appendix C). Students then spent 5 minutes implementing the technique in small groups. Upon completion, students individually evaluated the acceptability of the Think-Pair-Share technique. Finally, the Three-Step Interview technique was presented to the students. The principal researcher read standardized instructions to the students for the Three-Step Interview (see Appendix C). The students then spent 5 minutes implementing the technique. Upon completion, students evaluated the technique using the CLARP.

Interrater Agreement

For the CLARP, the researcher summed the individual item scores to create a total score, which served as the unit of analysis. Ten percent of the measure was randomly selected for interrater agreement. An outside observer, unfamiliar with the study's purpose, was recruited to serve as a blind rater. Percent of agreement was calculated by dividing the number of agreements by the total agreements plus disagreements and multiplying by 100% (Sulzer-Azaroff & Mayer, 1977). Interrater agreement for the CLARP was 100% .

Data Set 1 consisted of data from the responses to the questionnaire prompt "Number of college classes that you have enrolled in that utilized cooperative learning activities." This prompt were used during the administration of the demographic questionnaire. The primary investigator and a graduate assistant both reviewed the data in a systematic manner, reading all 86 questionnaires after the study ended (Henning-Stout, 1999). The data were reviewed by each party to identify data sets, categories of responses, and code responses. This method of data analysis was modeled on a qualitative analysis conducted by Henning-Stout (1999).

Data Set 2 consisted of coded data from the responses to the journal prompt "Types of activities conducted in these classes." This prompt was used during the implementation of the demographic questionnaire.

Data Set 3 consisted of coded data from the responses of the questionnaire prompt "Types of cooperative learning activities that you prefer." This prompt was used during the implementation of the demographic questionnaire.

Results

First Research Goal

Do students show a preference for any of the cooperative learning approaches?

Using the total scores as the unit of analysis, a one-way, between groups ANOVA revealed a statistically significant interaction, $F(2, 255) = 151.07$, $p = .001$, Cohen's $d = .69$. Additionally, a Tukey's Post Hoc revealed a significant difference amongst the three approaches, with a statistically significant difference between the Roundtable approach and the Three-Step Interview and the Think-Pair-Share approaches. Therefore, pertaining to this study's first research goal, the significance indicated that students preferred Roundtable approach over the Think-Pair-Share approach and the Three-Step Interview.

Second Research Goal

How many courses had the students completed that utilized cooperative learning approaches?

Eighty-six student responses were analyzed for the first probe (see Table 1). The question asked students to report the number of course they had taken that incorporated cooperative learning. The participants reported having been enrolled in an average of 4.25 ($SD = 2.28$) courses that utilized cooperative learning approaches. The study included students who identified themselves as college freshman or sophomores.

Third Research Goal

Which types of cooperative learning activities had students been engaged in previously?

Eighty-six student responses were analyzed for the second probe (see Table 1). This question asked the students to report which types of cooperative learning activities they had engaged in. Themes and high frequency responses that emerged included high levels of participation in group projects, group presentations, and group discussions. Group projects and group presentations had the highest frequency of responses at 48, while labs had the lowest frequency of responses at 11. For the second probe, most students reported having engaged in more than one activity in previous coursework. For example, student 51 reported having engaged in group projects, group research, and group presentations. Additionally, student 84 reported having engaged in group discussions, group test reviews, and labs.

Fourth Research Goal

Of the cooperative learning activities that students had engaged in, previous to this study, which types of activities do they prefer?

Eighty-six student responses were analyzed for the third probe (see Table 1). This question asked the students to report which types of cooperative learning activities they preferred. Themes and high frequency responses that emerged included high levels of preference for group projects, group presentations, and group discussions. These high frequency responses were identical to the high frequency responses given by the students for the second probe. So, students reported having been exposed to and preferring the same cooperative learning activities. Group projects and group

presentations had the highest frequency of responses at 25, while labs had the lowest frequency of responses at 3. For the third probe, many students reported having been exposed to many activities, but, preferred only one. For example, student 35 reported having engaged in group work, group research, and group presentations, but preferred only group presentations. Also, student 27 reported having engaged in group research, group presentations, and group projects, but preferred only group presentations. Additionally, several students listed preferences for activities that they had not previously listed as having been exposed to. For example, student 1 reported having engaged in group projects and labs, but preferred group exam reviews. Furthermore, student 31 reported having engaged in group presentations and group research, but preferred group lab work. Finally, it is important to note that 6 students listed that they prefer to work alone.

Conclusion

The present study assessed the acceptability of three cooperative learning approaches by college students. Administration of the CLARP revealed a significant preference, by students, for the Roundtable cooperative learning approach over the Three-Step Interview and the Think-Pair-Share approaches. This finding is useful for college teachers to consider when recommending a cooperative learning approach to a colleague, or, implementing an approach in their own class. Teachers may also consider that the Roundtable approach, as compared to the other techniques, is an approach that utilizes a group effort throughout the entire process. In comparison, the Three-Step Interview and the Think-Pair-Share techniques focus on individual and paired efforts. It may be that college students prefer cooperative learning activities that have a group focus over approaches that focus on individual and paired efforts. It is also noteworthy to report that the CLARP served as a useful tool for the researchers to identify student preferences for cooperative learning approaches.

Qualitative Conclusions

Several qualitative conclusions emerged from the data analyzed in the current study. These conclusions were structurally corroborated across four data sets that included students' answers for three questions and administration of the CLARP. Data collection revealed that students have been exposed to an average of four cooperative learning approaches across a maximum of two years of college training. This number speaks to the amount college teachers are using cooperative learning techniques in their classes. The number of cooperative learning experiences may vary by teacher pedagogy or the type of course. It may be that certain college courses are not conducive to these types of activities.

Data collected from the students in this study indicated that with regards to cooperative learning approaches, college freshman and sophomores have been exposed to a wide variety of cooperative learning approaches through their coursework (e.g., group presentations, group discussions, and peer editing). However, although students have been exposed to a variety

of cooperative learning approaches, some showed a preference for specific approaches. In fact, several students, who had been exposed to multiple cooperative learning approaches, reported preferences for a single cooperative learning activity.

Interestingly, students also showed preferences for approaches that they had not previously engaged in. This finding suggests that students have a broader knowledge of cooperative learning approaches beyond what they have been exposed to during their college coursework. It could prove valuable, in a future study, to determine students' cooperative learning baseline upon entering college.

Finally, 6 students reported that they prefer to work alone. It is important that educators are aware that cooperative learning approaches are not for every student. It could be that, based on previous cooperative learning experiences, some students prefer to work alone.

Considerations for College Teachers

Teachers must consider several factors before implementing a cooperative learning approach. As discussed in the introduction, factors such as ease of implementation, ecological intrusiveness, perceived effectiveness, and time constraints, must all be considered. The current study's researchers ask teachers to consider implementing cooperative learning approaches based on the study's results. Perceived acceptability of a cooperative learning approach by a student is an important consideration for teachers. The results of the present study suggest that the Roundtable approach is reported to be more acceptable by students, than either the Think-Pair-Share or Three-Step Interview approach. As teachers have many approaches to consider before implementing a cooperative learning strategy, the current study makes a statistically significant suggestion concerning three approaches. These findings, when combined with other research on acceptability of cooperative learning approaches, could inform changes in the teaching process. With all the helpful findings in this study, it is paramount that teachers and students are aware that the process student acceptability of cooperative learning approaches is an ongoing process that transcends other courses and professional experiences. The present study adds important information to teachers' understanding of treatment acceptability related to college students.

Limitations and Future Research

Limitations to this study included the educational levels of the students. For the present study, the participants were limited to college freshman and sophomores.

Another limitation to this study would be that the CLARP is not psychometrically sound. The only analysis performed on the tool was a Cronbach's alpha, a measure of internal consistency reliability. One may infer construct validity from the results of this measure, but overall, support for the validity and reliability of the CLARP is lacking.

An area of future research could be to include college juniors and seniors in the participant pool. This would allow researchers to infer their results to a broader college population.

Another area of future research could be to determine students' cooperative learning knowledge base upon entering college. Research around this topic would give teachers information regarding what experiences students bring with them to their course. Teachers could then determine which types of cooperative learning activities to engage in with their students.

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Table 1. Frequency of themes and subcategories from journal entries

I. Types of Activities conducted in these classes.

Category	Frequency
Group Projects and Presentations	48
Group Discussions and Debates	46
Peer Editing and Problem Solving	24
Team Building Activities	20
Labs	11

II. Types of Cooperative Learning preferred.

Category	Frequency
Group Projects and Presentations	25
Group Discussions and Debates	18
Peer Editing and Problem Solving Activities	9
Group Research Activities	9
Labs	3
No Preference/prefer to work alone	6

APPENDIX A

Cooperative Learning Approach Rating Profile (CLARP)

Directions: Please answer the following questions using a rating of 1 to 6, where 1= Strongly Disagree and 6= Strongly Agree.

1. _____ Most students would find this cooperative learning approach helpful for students.
2. _____ Most students would find this cooperative learning approach appropriate for various introductory psychology topics.
3. _____ This cooperative learning approach should prove effective in helping the student with their introductory to psychology coursework difficulties.
4. _____ This cooperative learning approach would be helpful for student's with difficulties in an introductory to psychology course.
5. _____ Overall, this type of cooperative learning technique would be beneficial for the student.
6. _____ This cooperative learning technique would not negatively affect a student's psychology performance.
7. _____ This cooperative learning technique would not result in risk to the student.
8. _____ This cooperative learning technique would not be considered a last resort.
9. _____ This cooperative learning technique would not be difficult to implement in a classroom with 30 other students.
10. _____ This cooperative learning technique would not be disruptive to other students.

APPENDIX B

DEMOGRAPHIC QUESTIONNAIRE

Age: _____

Sex: _____

Years of Community College Education: _____

Total years of College Education: _____

Ethnicity: _____

Number of college courses completed: _____

How would you describe yourself: (circle one) Freshman Sophomore Junior Senior

Number of college classes that you have enrolled in that utilized cooperative learning/group work:

Types of activities conducted in these classes:

Types of cooperative learning activities that you prefer:

Thank you for your time and cooperation.

APPENDIX C

Think-pair-share Technique

1. The instructor poses a question to the class.
2. Students then think about the question silently.
3. Next, individuals pair up and exchange thoughts.
4. Finally, the pairs share their responses with the entire group.

Roundtable Technique

1. The instructor poses a problem with many possible answers.
2. The students write an answer and pass the sheet amongst the group.
3. The group discusses the possible answers on the sheet.

Three-Step Interview

1. The instructor poses a question to the class.
2. Students choose another member to be a partner.
3. Individuals interview their partners.
4. The partners reverse roles.
5. Finally, they share their partner's answer with the instructor.

Theory of Mind, Material Altruism and Family Context in Preschoolers

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Abstract

The relationship between theory of mind, material altruism, and family context was examined. Forty-one preschool children (16 females and 25 males) enrolled in a private school participated in the study. Results of this study showed no relationship between theory of mind and altruism. There were no significant correlations between theory of mind and family context. However, a significant correlation was found between altruism and one of the variables of family context (number of sibling a child has). Results were discussed and suggestions for future research were made.

Due to its complex nature, understanding the origin of morality has, for a long time, perplexed individuals including philosophers, psychologists, and educators. Typically, their questions center on the nature of moral judgments, including how individuals make moral judgments. Behaviors that are considered moral, however, are not unique to humans. Surprisingly, some animals (such as dolphins, marmoset monkeys—*Callithrix jacchus*—, chimpanzees), and even insects (such as termites and ants), can display “moral” behaviors (for more information, see Booth, 1989; Burkart, Fehr, & Efferson, 2007; Warneken & Tomasello, 2009). While defining morality as a uniquely human attainment remains debatable, there is no question that the most advanced morality belongs to humans. Moreover, morality is related to the understanding and caring for other minds. Thus, research has shown that very young children demonstrate behaviors that involve some aspects of morality (see Johansson, 2008; Moore, Barresi, & Thompson, 1998).

In the current study we explore an aspect of moral cognition by examining potential influences on young children’s altruistic behaviors. Specifically, we study the relationship between theory of mind, family context, and material altruism. Altruism refers to actions that are performed with the intention of assisting another individual, while expecting no compensation in return (Bukatko & Daehler, 1998). In short, it is a selfless concern for others. In an altruistic act, the assistance is offered even if it necessitates some sacrifice (Monroe, 2002). According to Monroe (2002), this definition involves several important aspects:

1. Action is necessary for altruism: Good intentions or ideas are not good enough. These intentions, or ideas, have to be reflected upon as an action.
2. The action must involve a purpose, whether or not it is conscious or reflexive.
3. The goal of the action has to intent to assist another.
4. The intentions are more important than the results.

5. The actions should be unconditional. That is, the action must be performed in a way that does not entail any kind of compensation for the actor (altruist).
6. The action must involve a possible reduction or decrease in terms of the actor's level of comfort.

Children's altruistic behaviors involve understanding the other individual's mental states. This is because the tendency to help others also entails taking the other's point of view. That is, theory of mind and altruism are both centered on an individual thinking about others. Theory of mind "refers to the ability to reason and make inferences about another's mental states, and presupposes the ability to hold beliefs about another's beliefs or to mentally represent another's mental representation" (Jarrod, Carruthers, Smith, & Boucher, 1994, p. 446). Possibly, taking others' needs and desires (others' mental states) into consideration could facilitate a person's altruistic behavior. It seems that the more the individual knows about the other person's mental states (—what that individual thinks, wants, believes etc.), the more likely it is that he or she will perform an altruistic behavior. Surprisingly, however, few studies have addressed both theory of mind and altruism. While some researchers suggest a possible link between theory of mind ability and some aspects of altruism (e.g., giving up immediate gratification for the sake of other's well-being, see Moore et al., 1998), they refrain from specifying the precise nature of the relationship, or even establishing its existence. In sum, there is uncertainty regarding the nature of the theory of mind and altruism relationship, on both theoretical and empirical grounds (Moore & Macgillivray, 2004).

The limited literature addressing theory of mind and altruism suggest that mindreading ability, or knowing about another person's mental states, wants, or beliefs, can lead to altruistic acts, and that there is a connection between moral cognition and mindreading. Yet, there is some uncertainty about the relationship between moral cognition and mindreading. While some researchers suggest a connection between moral cognition and theory of mind (e.g., Batson, 1991), it is disputed by others (e.g., Blair, 1995; Sober & Wilson, 1998).

Recent research suggests that family context (e.g., number of siblings or family size) could influence children's theory of mind ability (see McAlister & Peterson, 2007), as well as the development of altruism (see Stewart-Williams, 2007). For instance, having more siblings would presumably provide more opportunities for a child to take the other person's perspective. In contrast, a child with no siblings would have few such opportunities. Furthermore, because moral behaviors are developed within a social context, family context could serve as a foundation for altruistic behaviors. We propose therefore that there is a relationship between moral behaviors such as altruism, knowing self and controlling one's own behavior (Piaget, 1960), along with the understanding of other's mental states, or theory of mind ability.

Given the above framework, the current study was designed to examine the relationships between theory of mind, material altruism, and family context. Specifically, the study sought to determine the influence of family context on theory of mind ability and material altruism, as well as the relationship between theory of mind and children's development of material altruism.

In this study it was hypothesized that there would be a relationship between (1) family context and children's theory of mind ability (2) family context and children's display of altruistic behavior, and that (3) having well-developed theory of mind would lead to children displaying higher levels of altruistic behaviors. These hypotheses were tested by having the children complete four theory of mind tasks and a material altruism task.

The study was conducted with children between the ages of 3 and five for several reasons. First, although 3-year-old children typically do not perform well on tasks designed to measure false belief understanding (Wimmer & Perner, 1983; Perner, Leekam, & Wimmer, 1987), an important aspect of theory of mind, they do have some understanding of others' mental states. Second, it is during this age range that significant changes occur in children's false belief understanding (Wellman, Cross, & Watson, 2001). Third, theory of mind seems to emerge at around the age of 3 and becomes adult-like at the age of 5. It follows that, theory of mind tasks would be too challenging for children younger than three years and too easy for children older than five years.

Few researchers have examined altruism in young children. For the purposes of the current study it was decided to adopt Grunberg, Maycock, and Anthony's (1985) UNICEF donation task. Most measures of altruism have been designed for older children or adults. For example, in one study the "cabinet task" is used to measure altruism where the experimenter holds many magazines in her hands and tries to place them in a closed cabinet. The expectation then is that the child will open the cabinet for the experimenter. Another similar task used to measure altruism involves the experimenter trying to hang a piece of clothing on a line and dropping a clothespin. She then, tries to reach the clothespin that is on the floor with no success. The child is expected to pick up the dropped clothespin and give it to the experimenter (see Warneken & Tomasello, 2009).

Clearly, altruism has many facets. The tasks mentioned above involve the child in helping others without depriving him or herself of anything valuable. At most the child would be placed in an inconvenient situation. For our study we wanted a task that would not only involve helping others, but also the relinquishing of something valuable. In other words, the task should assess material altruism as opposed any other type of altruism. To our knowledge, the UNICEF task (Grunberg et al., 1985) is the only such measure.

Method

Participants

Participating in the study were children (3-4-5 years old) attending a faith-based private preschool serving children from 2 to 5 years. A total of 41 children (16 females and 25 males) participated in the study. The participants' mean age at the start of the study was 57 months. According to the questionnaire filled out by the children's parents, the participants were mostly from high income families. All participants were White except for one who was Asian.

Design and Procedure

Participants were tested individually in a quiet location in a local private school. Four theory of mind (ToM) tasks were administered to the participants, and the resulting data were used to assign each child a total theory of mind score. After obtaining a total theory of mind score, participants were tested on a material altruism task (UNICEF task). Parents were asked to fill out a questionnaire to provide information about their family context.

Instruments

Theory of mind tasks. Given the overall purpose of the study it was considered important to obtain a precise or valid measure of children's theory of mind. For this purpose we chose to use four theory of mind tasks; an approach that differs from that used by other researchers (e.g., Chin & Bernard-Opitz, 2000).

In the study, each child was presented with four theory of mind tasks as follows: (1) change in location, (2) appearance-reality, (3) unexpected contents, and (4) misleading picture. The theory of mind tasks procedures primarily followed Lundy's (2002) study, as did the wording of the theory of mind questions.

1. Change in location task. The change in location task similar to the one used by Wimmer and Perner (1983) was used in this study. Two research assistants showed two same shaped boxes of different colors (pink and white) to the child. The first research assistant put the candy in the pink box and left the room saying "I will be right back." The child was then asked the following control questions: "Where did (research assistant #1's name) put her candy?" and "Where is (research assistant #1's name)'s candy now?" After the child had provided correct answers the second research assistant took the candy from the pink box and placed it in the white box. The first research assistant then returned to the room and the child was asked in two sentences with no pause in between: "Where does (the experimenter #1's name) think the candy is? and Where will (the experimenter #1's name) go first to look for her candy?"

2. Appearance reality task. Before the start of this experiment, the name of the child's friend was obtained. A sponge painted so that it looked like a rock was shown to the child. Then, the child was asked to identify the object. After identifying the object the child was allowed to hold and squeeze the sponge that looked like a rock. The experimenter asked the child to identify the object again. The word "sponge" was provided when the child was not familiar with this word. The experimenter then asked the child the following two questions (#2) with no pause in between: "What did you first think these were? Before you touched them, what did you think they were?" Then, the last question (#3) was asked: "if your friend, (name of the friend) came here right now, what would he or she think these are?"

3. Unexpected contents task. The experimenter showed a band-aid box to the child and asked what was inside the box. After the child had responded the experimenter opened the box. Instead of band aids, the box contained several short pencils. Then, the following questions (#4) were asked with no pause: "What did you first think was inside? Before I opened this box, what did

you think was inside?" After the answer, the final question with regards to this task was asked (#5): *"What would your friend, (name of the friend), who hasn't looked inside, think is in the box?"*

4. *Misleading picture task.* A book used by Astington and her colleagues (e.g., Astington & Jenkins, 1995; Gopnik & Astington, 1988; Jenkins & Astington, 1996) with a series of drawings was utilized for this task. The first page revealed a partial drawing that looked like a dog's ears. The experimenter asked the child to identify the drawing. After the child had answered, the experimenter turned the page to reveal the whole drawing, which was a drawing of a whole dog. Then, the child was shown another partial drawing that looked like a rabbit's ears. The question regarding identifying the drawing was repeated. Then, after the child had answered, the next page was turned to show the whole drawing of a rabbit. Next, a drawing that looked like a cat's ears was shown to the child and the question regarding identifying the drawing was repeated. When the final page was turned over the child saw that this time the drawing was of petals of a flower and not a picture of a cat. After this surprising result, the child was asked: (Q#6) *"What did you first think this was?"* and (Q#7) *"What would your friend, (name of the friend), who saw only this picture think it is?"* (Lundy, 2002).

For all of the above tasks, children's responses were transcribed verbatim.

UNICEF donation task. Grunberg et al.'s (1985) UNICEF donation task was adapted for the purposes of this study. The modified version of UNICEF donation task is as follows:

First, the experimenter told the child: *"Now you get 10 pennies for playing with me."* Then, experimenter counted out loud 10 pennies and placed them on the table and said *"these are all yours, you can keep the money for yourself or give some or all of it to UNICEF. Oh, by the way, do you know what UNICEF is?"* Regardless of the reply, the experimenter continued by saying, *"UNICEF is for children like you but who are poor and need money for food and clothing. We are collecting money for UNICEF. If you want to give some of your pennies to these other children, just put them in the box in the hallway on your way out."* These instructions were repeated until the experimenter was sure that each participant understood how the procedure worked. The experimenter tried her best to avoid communicating and expectations. After talking about UNICEF, the participants were told that they could leave. The UNICEF box which was placed in the hallway could neither be seen by the experimenter nor could the participant see the experimenter when passing by the hallway. The UNICEF box was partially filled with pennies but it was not possible for the participant to see exactly how many pennies were in it.

In Grunberg et al.'s (1985) study, the exact wording for the UNICEF task is as follows: *We're collecting for UNICEF. UNICEF is for kids like you but who are poor and need money for food and clothing. If you'd like to give some of your pennies to these other kids (Experimenter 3 starts to hand pennies to subject), just put them in the box in the kitchen on your way out (p.4).*

In these statements, it sounds as though the child could only contribute some of the money. To eliminate this issue, we modified the wording and added a statement to be clear that the child

could keep the money, or give some or all of it to the children in need. When the experimenter was handing out the money she informed the child that he or she could keep the money or give some of it or all of it to the children in need.

The task that was employed in this current study was designed to assess material altruism and not compliance. The children were specifically told that they could either keep the pennies they received or give some or all of them to the poor children. The experimenter was aware that the children knew about money and that they knew they could use it to buy something. Because children were given choices to keep or donate the money and no expectations to donate the money were made, the tasks addressed altruism and not necessarily compliance.

Family context questionnaire. On the basis of the literature review, the authors listed some possible family context components that could potentially effect the development of theory of mind and/or altruism (i.e., Korchmaros & Kenny, 2001; McAlister & Peterson, 2006; Silpi & Nandita, 2004). In light of the literature review on theory of mind and altruism, a questionnaire was developed. The questionnaire included such items as: the child's date of birth, birth order, number of siblings, income level, parents' education level, family type, and number of languages spoken at home.

Results

First, descriptive statistics including means and standard deviations for theory of mind and material altruism by gender and age were calculated. These descriptive statistics are reported in Table 1 and Table 3.

Table 1

Means and standard deviations for theory of mind total score and material altruism by gender

Gender	<i>n</i>	Theory of mind		Material altruism	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Female	16	5.31	1.815	2.17	4.060
Male	25	5.04	2.300	2.08	3.752
Total	41	5.15	2.104	2.12	3.825

The descriptive statistics show that the scores received by girls for the theory of mind tasks ($M = 5.31$) were higher than the scores received by boys ($M = 5.04$). A *t*-test was conducted to determine whether the differences in the means were statistically significant. The results of the *t*-test indicate the difference in the scores were not statistically significant, as shown in Table 2.

Table 2

Summary of t-test results for theory of mind by gender

	<i>n</i>	<i>F</i>	<i>T</i>	<i>df</i>	<i>p</i> -value	Mean difference
Theory of mind	47	.213	-.400	39	.691	-.273

Table 3

Means and standard deviations for theory of mind total score and material altruism by age

Age	<i>n</i>	Theory of mind		Material altruism	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
3	4	4.00	1.414	.00	.000
4	22	4.77	2.468	2.36	4.260
5	15	6.00	1.309	2.32	3.627
Total	41	5.15	2.104	2.12	3.825

The descriptive statistics also show that 5-year-olds' theory of mind scores ($M = 6$) were higher than those obtained by 3-year-olds' ($M = 4$) and 4-year-olds' ($M = 4.77$). Similarly, the older children had higher scores on the measure of material altruism. An Analysis of Variance (ANOVA) was conducted to determine whether the differences in the means were statistically significant. There were no significant differences in the means of the theory of mind scores across the three age groups.

The Pearson Product Moment correlation coefficient was computed for the children's theory of mind ability, material altruism, and family context. The results of the correlational analyses are presented in Tables 5-6.

Table 4

Intercorrelations between theory of mind, material altruism and age

	1	2	3
1. Age	—	.370*	.098
2. Theory of mind		—	.082
3. Material altruism			—

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

Table 5

Intercorrelations between theory of mind, material altruism and sex

	1	2	3
1. Sex	—	.064	.012
2. Theory of mind		—	.082
3. Material altruism			—

Table 6

Intercorrelations between the measures of family context, theory of mind and material altruism

	Theory of mind	Material altruism
Birth order	-.010	.152
Number of sibling	-.001	.408**
Mother's education	-.220	.035
Father's education	-.040	.100
Income	-.064	.171

Other languages spoken at home	-.078	.118
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Note. ** Correlation is significant at the 0.01 level (2-tailed).

The results reported in Table 4 show that there was a significant correlation between theory of mind and age ($r=.37$). On the other hand of there were no statistically significant relationships between theory of mind and material altruism ($r=.082$), and altruism and sex ($r=.012$). The relationship between material altruism and number of siblings was judged significant ($r = .408$, $P<.001$).

Discussion

Based on our findings, we propose (in parallel to Symons, 2004) that understanding others and his or her own mental states does not lead to or elicit social behavior (in this case altruistic behavior). Having the ability and using the ability to execute positive behavior are two different things. It is likely that while having advanced mindreading ability could improve the altruism level of an individual, it could also have a negative effect (or no effect) on the level of altruism. This is because knowing more about others could lead to the exploitation of others, or ignoring the feelings and thoughts of others.

It seems therefore that the question is not whether the two are related. Instead, the two key questions are: 1. Under what conditions do children (*choose to*) use theory of mind ability to make moral judgments and perform moral behaviors? That is, under what condition will a child use his or her mindreading ability, as related to moral cognition, in either a positive or negative way? 2. Under what condition do they not use theory of mind ability to make moral judgments and perform moral behaviors?

Having an ability and using it do not operate on an “always or never” basis. It is possible that individuals occasionally use theory of mind ability, and when they do they can use it in either a positive or negative way. At the same time, individuals might not use theory of mind ability to make any moral judgments. Arguably, it is possible that altruistic behaviors are related to social skills more so than they are to theory of mind ability. After all, even animals that have no theory of mind ability can perform altruistic acts.

According to our findings the four and five year old children had higher scores on the measure of altruism. This finding is not surprising given that younger children have a tendency to be more egocentric than older children.

One goal of this study was to examine the relationship between theory of mind and material altruism, along with family context. Surprisingly, however, no relationship was found between theory of mind and any family context variables. There was, however, a moderate correlation between material altruism and the number of siblings. One explanation for this finding is that having more siblings may provide more opportunities for a child to be involved in altruistic behaviors. This being the case, then altruism could be a behavior that develops in the social

context, and is linked to social goals. Also, since moral behaviors develop in the social context, and having more siblings may provide a better foundation for altruistic behaviors.

The findings of this study present an implication for educational practice. This study informs early childhood educators that altruistic behaviors do not seem more likely to be performed on a knowledge base (see Korchmaros & Kenny 2001). If we want children to care for other children who are less fortunate, providing information about disadvantaged children alone may not be enough. Educators should go beyond this knowledge base and reach for the emotional base by providing activities to build an emotional connectedness among children through activities (i.e., watching relevant videos, engaging in role play, having children from different SES spend time together).

Clearly, there is a need for more research to shed light on the complex nature of these abilities. It is recommended that future research focus on examining the nature of the circumstances when children use or do not use their theory of mind ability to make moral judgments.

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Cultural Variations in Parents and Teachers Perceptions of Special Education Collaboration in USA and Egypt

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The school and classrooms requires an active effort to create and welcoming to the diverse cultures of their students and families (Montgomery, 2001; Parette & Petch-Hogan, 2000; Salend & Taylor, 1993). According to Cros, Bazron, Dennis, & Isaacs (1989) "culture is a set of congruent behaviors, attitudes, and policies that come together in a system, agency, or among professionals and enables that system, agency, or those professionals to work effectively in cross-cultural situations" (p. 13).

Many students may question others as peers who come from other cultures and speak other language, wear different clothes, and different customs. The teachers of special education can help student overcome these attitudes by teaching them about different cultures and the value of cultural diversity (Banks, 2006; Byrnes, 2005a).

In addition cultural is a essential element of providing education and human services to diverse populations. Cultural implies an active effort to ensure that organizations and individuals provide services and supports in a manner that is culturally competent (Barrera & Corso, 2002).

It is apparent that disabilities, poverty, limited family support, cultural differences, language differences, ineffective teaching and lack of educational funding are reflect collaboration teaching teaming.

Education is a multidimensional and comprehensive event connecting varied professionals and experiences. The choice to work as a cooperative unit or independently directly affects the form and extent of learning (Cook, Klein, and Tessier, 2004).

Effective teamwork... will enhance the development of the child with special needs and the satisfaction of the family. On the other hand, lack of effective teaming results in insufficient access for key players' input... and perhaps even harmful service delivery. (Ibid, p. 403).

The purpose of this research is to investigate whether there is significance difference between the collaboration as pereceived by specials Education teachers, and by the parents in the US an Egypt.

Literature Review

Collaboration

Collaboration refers to a process of interaction in which the partners share resources and knowledge and work together in achieving a common goal (Turnbull & Turnbull, 2001). Also collaboration is an umbrella term that includes a wide array of interactions between individuals where as co-teaching is a specific instructional service-delivery model by which "two or more professionals jointly deliver substantive instruction to a diverse, or blended, group of

students in the same physical space" (Cook & Friend, 1995, p. 1).

Collaboration is more than different individuals simply working together, working on the same project, or being agreeable with each other. Instead, collaboration is the process by which people with different areas of expertise work together to identify needs and problems and then find ways to meet the needs and solve the problems. Collaboration may occur between as few as two people, such as between a special educator and parent, but more ideally collaborative teams consisting of several professionals, paraprofessionals, and parents work together on behalf of individual students. (Westling & Fox, 2004, p. 60).

Recognition of the need for collaboration has occurred in recent years because of the complexity of the needs of students with disabilities. This complexity calls for the knowledge and skills of many different persons if maximum learning and development are to occur (Cook & Friend, 2002; Downing, 2002; Orelove & Sobsey, 1996; Pugach & Johnson, 1990, 2002; Rainforth & York, 1997; Vandercook & York, 1990). As noted by a number of authorities, successful collaboration especially in the area of disabilities is characterized by several features, including the following:

- Concern with mutual exchanges.
- Recognition of diverse areas of expertise.
- Sharing of expertise.
- Equality of team members.
- Decision making by consensus.
- Shared responsibility and accountability.

Pugach and Johnson (2002) maintain that professionals who are successful collaborators have several personal or professional characteristics that contribute to their roles as collaborators. These characteristics should be considered important by those teaching or planning to teach students with severe disabilities.

- Collaboration is recognized as a complex process.
- Creativity generated by working together is acknowledged.
- Collaboration is enjoyed process.
- Professional experience and growth are realized through collaboration.
- Collaborators are reflective professionals.
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The models of collaboration Teams

In the formation of collaborative teams, there are different possible structures, all of which are not equal in terms of their potential success. Three common team models exist: the multidisciplinary model, the interdisciplinary model, and the trans-disciplinary model. These models are:

First Model

Multidisciplinary: in this model every member in the team assessment separately, individual

participate, separate planed, individualized responsibility, implemented the part of the plan, formal communication, (Carter et al., 2009).

Second Model

The difference between the second model and first model in the parent participation, in develop plans, sharing information, grouping responsibility, periodic communication.

Third Model

In this model all members and family conduct a compresensive parents are full active, develop a service plan together, are responsible and accountable for the services implementation, information knowledge and skills are shared among team members. (Woodruff & McGonigel, 1988).

Of these, the transdisciplinary team is considered to be most effective for providing services to students with severe disabilities (Orelove & Sobsey, 1996; Rainforth & York, 1997).

Cultural Diversity and cultural views of Disability

Ethnographic studies reveal severe cultural mismatches in understandings of the meaning of the disability construct. (Harry's, 1992). Egyptian parents definitions resulting in shock and disbelief at the application of labels, such as "learning disabled" and "emotionally disturbed" for children who could speak, read and write Arabic, there is communication gaps between parents and teacher of special education. And most of the parents no understanding that their meetings with the teacher were actually conferences that produced an official document.

A series of studies provided multiple perspectives on issues related to discrimination and cross-cultural misunderstanding (Bailey, Skinner, Correa, et al., 1999; Bailey, Skinner, Rodriguez, Gut, & Correa, 1999; McHatton & Correa, 2005).

The review of these studies identifies the ideal collaborative relationships between special education professionals and culturally diverse families of children with disabilities, examines research on actual collaboration with such families, and makes recommendations regarding improvement of such collaboration. The main sources of literature are research and opinion publications in peer-reviewed journals and books by leading scholars. The review concludes that barriers to the implementation of ideal practices include deficit views of families of students with special needs, cross-cultural misunderstandings related to the meanings of disability, differential values in setting goals for individuals with disabilities, and culturally based differences in caregivers' views of their roles, recommendations for change and improvement focus on personnel preparation and on implementing existing models of effective practice (Harry, 2008).

Disability views of families

Discussions of the concept of "disability", "risk" with families have produced many of variables some of it they for exam, it poverty, family structure, educational level of parents, and parents

age are beyond disputation (Donovan & Cross, 2002; Scarborough et al., 2004).

Some ethnographic interviews with service providers revealed that thoughtless generalizations of such information were fueled by racial stereotype embedded in the taken – for – granted belief systems of professionals of all ethnic groups (Harry & Klingner's, 2006).

Most distressing is the finding that these beliefs actually influenced the decisions made about children. However, misunderstanding in the concepts can result from cultural differences in how disability is viewed and miscommunication between parents and school. (Gargiulo, R., 2003). Different families cope with illness and disability in diverse ways. Some of these are influenced by their particular culture. For example, some Hmong view epilepsy as a sign of distinction that could qualify them for the divine office of shaman (Fadiman, 1997). More often the cultural influences are subtler.

Misunderstandings can occur between the school and family as a result of cultural differences. For example, culturally and linguistically diverse, parents described themselves as being very involved in the transition process while school officials reported far less involvement in talking with their children about life after high school and caring for their disability, but lack of participation in the school-based transition process. Understanding and respecting cultural differences is important to providing positive educational experiences for the student. (Geenen, Powers, & Lopez-Vasquez, 2001).

More specifically, this study attempted to answer the following research:

- 1- Are there significance differences between the collaboration by special education teachers in USA and Egypt?
- 2- Are there significance differences between the collaboration by the parents of special education students in USA and Egypt?
- 3- Are there significance differences between parents of special education students and teachers of special education students in perceived collaboration in Egypt?
- 4- Are there significance differences between the collaboration by parents of special education students and teachers of special education students in USA?

Methods

Participants

Egyptian of special education teachers. All special education teachers from Urban (El-Mansoura city) included elementary, middle school, secondary. The number of special education teachers approximately 150 teachers we were able to get overall responses from 40%, male and female teachers were almost equally represented in the group.

Measure

The collaborative survey was developed for this research. The instrument is designed to assess special education teachers and parents of special education students attitudes, beliefs, and

perceptions of collaborative practices in the United states and Egypt. The survey was developed through a review of relevant literature and previous surveys designed to measure collaboration practices at the field of special education (Trunbull & Trunbull, 2001; Dinnebeil & Rule, 1994; Fennick & Liddy, 2001; Wiggins & Damore, 2006).

Following initial scale development. The survey was piloted with five professors (two American, three Egyptian), Based on feedback provided by these professors, several items were revised for easier comprehension, and several redundant items were removed.

The survey contains 30 items designed to assess parent and teachers attitudes and beliefs about collaborative practices, these items were created using major themes identifies in prior research on collaborative practices models (Orelove & Sobsey, 1996; Rainforth & York, 1997).

Evidence of validity

In addition we used exploratory factor analysis to study the characteristics of the theoretical factors on expectations of collaborative Team practices. The scree plot and eigenvalues were examined to determine the final number of factors to accept and only factors that to accept and only factors that had eigenvalues greater than 1 were included in the final model. As recommended by (Orelove & Sobsey, 1996; Rainforth & York, 1997). The factor structure matrix was interpreted. The results of this analysis indicate that there were three well specified factors that accounted for a total of 51.203% of the variance in teacher and parent responses given Table 1.

The first factor, professional development accounted for eigenvalue 7.676 and 25.588% of the variance and contained 16 items related to the need for professional development related to collaboration (e.g., in order for collaborative team practices, to work well, teachers and parents need development on how to work together).

The second factor, communication accounted for eigenvalue 5.213 and 17.377% of the variance and contained 9 items related to the need for communication related to collaboration, the importance of open communication a ware with messages of nonverbal body language.

The third factor, shared responsibility accounted for eigenvalue 2.471 and 8.237% of the variance and contained 5 items related to the importance of sharing power and information. These three factors constructs fit the theoretical Background which the instrument was intended.

Evidence of Reliability

Since the instrument used a likert-type scale 5 points (1= Not Relevant, 2= Unimportant, 3= Somewhat Important, 4= Important, 5= Very important) we was used two ways to calauted items Reliability, Cornbach's Alpha with belete item score from the score total, and internal consistency.

As to calauted total reliability to the instrument, we used Cronbach's Alpha, Guttman Split-Half Coefficient. The reliability Coefficient for the data as a whole was, 0.91, and 0.90, 0.85, 0.66, to

three factors. These high alpha values indicate that the instrument parts, and its items measure the same characteristics, this is consistent with reliabilities for collaborative teaming practices (Orelove & Sobsey, 1996; Rainforth & York, 1997).

Results

One hundred three American parents, forty seven American special Education teachers, twenty six Egyptian parents, forty seven Egyptian special Education teachers, were surveyed in this study. Means and standard deviations, and standards error, Means for all responses to 30 statements regarding importance are given in table 3, 4, 5, 6. Means of American and Egyptian special Education teachers managed from 4.87 for the statement "...open communications and listening" to 1.89 for the statement "... have paternalistic attitudes". Deviations ranged from 0.337 for the statement "...open communications and listening" to 1.502 for the statement "... lack self confidence".

A paired t-test for independent samples was used to determine if the differences between the two groups of teachers significantly differ from zero. The 95% confidence interval was calculated for each comparison. The results of the t-test are shown in table 3.

Data were examined for two groups (American and Egyptian special education teachers) on item-by-item level, there were nineteen differences. For the statements "... respect team members", "...feel safe with sharing information", "... Evaluate feedback when others are speaking", "... Be unaware with negative messages of nonverbal body language", "... give and receive feedback effectively", "... Evaluate, train and solve problems", "... Recognize the contributions of other professionals", "... Respect family's attributes", "... Emphasize family patience", "... Encourage and support each other", "... Open communications and listening", "... Promote self confidence", "... Be tactful and honest", "... Facilitate good team building", "... Be well informed / provide information", "... Be prompt to follow up", "... Does not use family centered approach", "... Try to remove problems", "... Display emotional detachment",

To answer the second question about the difference between American parents and Egyptian parents, means and standard deviations and standard error for all response to 30 statements are in table 3, it ranged from 4.91 for the statement "... Respect family's attributes", to 3.06 for the statement "... Evaluate feedback when others are speaking", Deviations ranged from, 3.989 for the statement "... Rush through meetings", to 0.099 for the statement "... be cold / rude."

A paired t-test for independent samples was used to determine if the differences between the two groups of parents significantly differ from zero. The 95% confidence interval was calculated for each comparison. The results of the t-test are shown in table 4.

Data were examined for two groups (American and Egyptian special education parents) an item-by-item level, there were nineteen differences, for the statements "...Respect team members", "...Feel safe with sharing information", "...Use jargon language when sharing ideas", "...Give and receive feedback effectively", "... Recognize the contributions of other professionals", "... Respect family's attributes", "... Emphasize family patience", "... Encourage and support each other", "... Build rapport", "... Promote self confidence", "... Be tactful and honest", "...

Facilitate good team building", "... Be well informed / provide information", "... Be prompt to follow up", "... Emphasize family weaknesses", "... Have paternalistic attitudes", "... Display emotional detachment", "... Use protective dishonesty", "... Be cold / rude".

To answer the third question about the difference between the Egyptian special education teachers and Egyptian parents of special education students, means standard deviations and standard error for all responses to 30 statements are in table 5, it ranged from 4.85 for the statement "... Create an atmosphere of mutual trust", to 1.89 for the statement "... Have paternalistic attitudes". Deviations ranged from 1.484 for the statement "... Display emotional detachment", to 0.416 for the statement "... Create an atmosphere of mutual trust".

A paired t-test for independent samples was used to determine if the differences between the two groups (Egyptian parents Egyptian teachers) differ from zero the 95% confidence interval was calculated for each comparison, the results of the t-test are shown in table 5. Data were examined for two groups, an item-by-item level, there were six differences, for the statements "... Use jargon language when sharing ideas", "... Be unaware with negative messages of nonverbal body language", "... Be well informed / provide information", "... Emphasize family weaknesses", "... Display emotional detachment", "... Use protective dishonesty", most of these statements including in communication.

To answer the fourth question about the difference between the American special education teachers and American parents of special education students, means and standard deviations are in table 6, means ranged from, 4.91 for the statement "... Respect family's attributes", to 3.13 for the statement "... Evaluate feedback when others are speaking". Deviations ranged from 3.98 for the statement "... Rush through meetings", to 0.000 for the statement "... Be judgmental".

A paired t-test for independent samples was used to determine if the differences between the two groups (American parents and American teachers) differ from zero to 95% confidence interval was calculated for each comparison, the results of the t-test are shown in table 6. Data were examined for two groups, an item-by-item level, there were 5 differences, for the statements "... Use jargon language when sharing ideas", "... Respect family's attributes", "... Use protective dishonesty", "... Be judgmental", "... Be cold / rude", most of these statements including in communication.

Limitations

There are three major limitations to this study both relating to the participants. First, the small sample size of the Egyptian parents of special education students. This due to low-education level to Egyptian parents of special students, this lead to variations between two samples of USA parents and Egyptian parents. And second all of the Egyptian special Education teachers were from El-Mansoura city Urban area.

The small sample size does not allow great generalization beyond this group. Although American participants the of (parents and teachers) came from all parts of the of the state of Arkansas, including rural and areas, these findings cannot be generalized beyond our sample because of the characteristics and policies unique to the state. A third and related concern is that

this study focused solely on teachers perceptions. We did not conduct observations of these teachers. So these findings are vulnerable to perceptual biases. Future research that blends survey methodology and classroom observation would help to strengthen the findings.

Discussion

The purpose of this investigation was to add to a growing body of research on collaborative teaming practices. Collaborative teaming practices are widely recommended and have adopted as one approach to address the needs of a growing number of students with disabilities.

There are several limitations that should be acknowledged prior to discussing the findings. First, we did not identify patterns of difference related to the teachers of special education, backgrounds (e.g., number of years teaching, levels of education, relationship with their collaboration partners). Second, we did not considered the variations in size samples between Egyptian samples and American samples. Third, we did not identify patterns of difference related to the American and Egyptian parents of students with special needs backgrounds (e.g., Ages, levels of economic and social parents level of education. The factors that significantly influenced the teachers perceptions collaboration were their philosophies and beliefs about the nature of disabilities, and their collaboration skills.

In regard to the first aim of the study, are there significance differences between the collaboration by special education teachers in United States and Egypt? The means of 20 items of 30 items American special education teachers were significantly Grater than Egyptian special education scores on a number of the constructs, 13 items including professional development, 4 items including shared responsibility, 3 items including communication, As such these findings can be interpreted in different ways, on one hand, they suggest that American special education teachers perceived and have experienced challenges in implementing collaborative practices and that they believe that increased levels of professional development, shared responsibility, and communication very important to improved collaborative practice.

Alternatively, it is possible that American special cultural have more understanding than Egyptian special educational about collaborative practices and so place a higher value on the importance of these items and practices. Recognition of the need for collaboration in recent years because of the complexity of the needs of students with disabilities, this complexity calls for the knowledge and skills of many different persons if maximum learning and development are to occur (Cook & Friend, 2002).

In regard to the second aim of the study, are there significance differences between the collaboration by the parents of special education students in United States and Egypt? The means of 15 items of 30 items, American parents of special education students were significantly greater than parents Egyptian special education students in 11 items including professional development, 4 items including in shared responsibility, but the means of 4 items, parents of Egyptian special education students were significantly greater than parents of American special education students including communication. As such these findings can be interpreted in different ways, on one hand, as awareness increased regarding issues in communicating with parents of children in special education, professional interactions with Egyptian parents of

children special needs continued to fall far from the ideal communication, the literature three main themes: cross – cultural differences in understandings of the meaning of disability, deficit views of special needs families, differential understanding of parents roles in the special education system, then there is a severe communication gaps with parents not knowing that their children had been moved to another school, and others having no understanding that their "meetings with the teacher" were actually conferences that produced an official document in Egyptian parents there are a confusion about and disagreement with labels. In Egypt the professional emphasis on compliance rather than communication undermined parents' intentions to attend conferences (Harry, 2008).

In regard to the third aim and fourth aim of the study, are there significance differences between parents of special education students and teachers of special education students in Egypt? Are there differences between parents of special education students and teachers of special education students in USA?

In regard to the third aim the means of 6 items, Egyptian parents of special education students were significantly greater than Egyptian teachers, 5 items of 6 items including communication, 1 item including professional development, in regard to fourth aim the means of 5 items, 4 items of 5 items including communication, 1 item including professional development, American teachers were significantly greater than American parents in 4 items, and American parents were significantly greater than American teachers in 1 item including professional development.

As such these findings can be interpreted in different ways, on one hand, there is a great difference in communication styles between parents and teachers in Egypt and USA, there are differences in beliefs and values way pose dilemmas of challenges collaboration practices, for example, Egyptian value the collective and the extended family. Extended family members may play important roles in decision making or discipline for the child. There may be differences in cultural groups relating to child discipline. (Barrera & Corso, 2002; Salend & Taylor, 1993).

In regard to the result of the fourth aim of the study, as such finding can be interpreted in different ways on one hand, an open line of communication is the most important feature of teacher – parent relations. Although services such as counseling and case management are usually provided other professionals on the collaborative team (e.g., counselors, psychologists, and social workers).

The teacher is most likely the professional with whom the parent has the greatest amount of direct contact. Additionally, the teacher is the primary link between the collaborative team and the parent, the teachers of special needs students realize that they can be help in many ways, but not in all ways. For the most part, the objective when working with parents is to find ways to support them as they try to meet their own needs.

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Appendix
The Collaborative Survey

Items	Very important	Important	Somewhat Important	Unimportant	Not Relevant
1. Create an atmosphere of mutual trust					
2. Respect team members					
3. Feel safe with sharing information					
4. Evaluate feedback when others are speaking					
5. Use jargon language when sharing ideas					
6. Be unaware with negative messages of nonverbal body language					
7. Give and receive feedback effectively					
8. Evaluate, train and solve problems					
9. Recognize the contributions of other professionals					
10. Respect family's attributes					
11. Emphasize family patience					
12. Encourage and support each other					
13. Open communications and listening					
14. Build rapport					
15. Promote self confidence					
16. Be tactful and honest					
17. Facilitate good team building					
18. Be well informed / provide information					
19. Be prompt to follow up					
20. Does not use family centered approach					
21. Emphasize family weaknesses					
22. Rush through meetings					
23. Try to remove problems					
24. Have paternalistic attitudes					
25. Display emotional detachment					
26. Lack self confidence					
27. Use protective dishonesty					
28. Prescribe to families					
29. Be judgmental					
30. Be cold / rude					

Are you a:

..... Special Education Teacher

..... Parent of a special education student

Table 1.

Summary of Items and Factor Loadings for Varimax with Kaiser Normalization three-factor for collaboration Survey (N=229)

Items	Factor Loading		
1	.513		
2			.526
3			.572
4	.390		
5		.793	
6		.408	
7	.701		
8	.697		
9	.647		
10	.660		
11	.665		
12	.790		
13	.666		
14	.747		
15	.735		
16	.665		
17	.743		
18	.658		
19	.625		
20		.425	
21			.492
22		.657	
23	.326		
24			.525
25		.570	
26		.784	
27		.830	
28		.712	
29			.510
30		.761	

Table 2.

Alpha Cronbachs Coefficeients

Item	Cronbachs Alpha if Item Deleted
1	.901
4	.921
7	.895
8	.896
9	.896
10	.896
11	.896
12	.893
13	.896
14	.895
15	.894
16	.897
17	.895
18	.896
19	.896
23	.910
Item	Cronbach's Alpha if Item Deleted
5	.818
6	.860
20	.855
22	.832
25	.848
26	.827
27	.818
28	.828
30	.830
Item	Cronbach's Alpha if Item Deleted
2	.640
3	.604
21	.608
24	.636
29	.595

Table 3.

Means, Standard Deviations, t statistics between Special education Teachers in USA and Egypt

Item	ethnicity	Mean	Std. Deviation	T
1	American	4.81	.398	-.507
	Egyptian	4.85	.416	
2	American	4.70	.462	2.053
	Egyptian	4.45	.717	
3	American	4.77	.428	2.996
	Egyptian	4.43	.651	
4	American	3.13	1.115	2.216
	Egyptian	2.60	1.210	
5	American	4.04	.509	1.223
	Egyptian	3.81	1.209	
6	American	3.77	.840	3.485
	Egyptian	3.00	1.251	
7	American	4.68	.515	2.611
	Egyptian	4.34	.731	
8	American	4.79	.414	3.438
	Egyptian	4.32	.837	
9	American	4.81	.398	3.917
	Egyptian	4.36	.673	
10	American	4.72	.498	2.173
	Egyptian	4.45	.717	
11	American	4.77	.428	2.895
	Egyptian	4.40	.742	
12	American	4.74	.441	4.274
	Egyptian	4.19	.770	
13	American	4.87	.337	3.459
	Egyptian	4.53	.584	
14	American	4.64	.486	2.472
	Egyptian	4.34	.668	
15	American	4.81	.398	1.803
	Egyptian	4.62	.610	
16	American	4.77	.428	3.599
	Egyptian	4.36	.640	
17	American	4.62	.610	4.993
	Egyptian	3.83	.892	
18	American	4.77	.560	3.627
	Egyptian	4.21	.883	
19	American	4.79	.414	5.329
	Egyptian	4.09	.803	
20	American	3.89	.729	3.718
	Egyptian	3.11	1.255	
21	American	4.04	.464	4.770
	Egyptian	3.15	1.197	

22	American	4.09	.408	1.228
	Egyptian	3.87	1.115	
23	American	4.38	.990	1.056
	Egyptian	4.17	.963	
24	American	3.79	.778	9.703
	Egyptian	1.89	1.088	
25	American	3.60	.851	.767
	Egyptian	3.40	1.484	
26	American	4.06	.438	2.425
	Egyptian	3.51	1.502	
27	American	4.09	.408	1.690
	Egyptian	3.72	1.410	
28	American	4.02	.442	1.789
	Egyptian	3.70	1.140	
29	American	4.11	.375	1.850
	Egyptian	3.79	1.122	
30	American	4.11	.375	-.259
	Egyptian	4.15	1.063	

Table (4)
Means, Standard Deviations, *t* Statistics between Parent of students with special Needs in USA and Egypt

Item	Ethnicity	Mean	Std. Deviation	T
1	American	4.85	.354	.925
	Egyptian	4.78	.491	
2	American	4.80	.405	1.910
	Egyptian	4.59	.798	
3	American	4.74	.442	1.965
	Egyptian	4.53	.718	
4	American	3.37	.929	1.399
	Egyptian	3.06	1.480	
5	American	3.87	.413	-6.132
	Egyptian	4.53	.803	
6	American	3.78	.523	-.855
	Egyptian	3.91	1.228	
7	American	4.74	.559	3.838
	Egyptian	4.22	.941	
8	American	4.66	.552	1.557
	Egyptian	4.47	.761	
9	American	4.75	.537	3.492
	Egyptian	4.28	.958	
10	American	4.91	.316	3.956
	Egyptian	4.53	.803	
11	American	4.85	.354	3.328
	Egyptian	4.50	.880	
12	American	4.82	.390	3.852
	Egyptian	4.34	1.035	
13	American	4.75	.437	1.182
	Egyptian	4.63	.707	
14	American	4.60	.530	2.555
	Egyptian	4.28	.851	
15	American	4.78	.441	2.486
	Egyptian	4.47	.983	
16	American	4.81	.397	3.405
	Egyptian	4.44	.840	
17	American	4.65	.537	4.388
	Egyptian	3.97	1.257	
18	American	4.81	.397	2.212
	Egyptian	4.59	.665	
19	American	4.74	.610	3.727
	Egyptian	4.19	1.030	
20	American	3.89	.441	1.321
	Egyptian	3.69	1.378	

21	American	3.96	.311	4.395
	Egyptian	3.31	1.401	
22	American	4.24	3.989	.164
	Egyptian	4.13	1.385	
23	American	4.48	.873	.714
	Egyptian	4.34	1.035	
24	American	3.65	.696	8.086
	Egyptian	2.19	1.355	
25	American	3.70	.624	-4.907
	Egyptian	4.44	1.045	
26	American	3.98	.139	-.661
	Egyptian	4.06	1.243	
27	American	3.95	.216	-3.914
	Egyptian	4.31	.859	
28	American	3.96	.194	-.061
	Egyptian	3.97	1.231	
29	American	4.00	.000	.782
	Egyptian	3.91	1.228	
30	American	3.99	.099	-5.728
	Egyptian	4.53	.950	

Table 5.

Means, Standard Deviations, *t* statistics between Parents and Teachers in Egypt

Item	Type	Mean	Std. Deviation	T
1	Parents	4.78	.491	-.681
	Teachers	4.85	.416	
2	Parents	4.59	.798	.855
	Teachers	4.45	.717	
3	Parents	4.53	.718	.680
	Teachers	4.43	.651	
4	Parents	3.06	1.480	1.537
	Teachers	2.60	1.210	
5	Parents	4.53	.803	2.963
	Teachers	3.81	1.209	
6	Parents	3.91	1.228	3.185
	Teachers	3.00	1.251	
7	Parents	4.22	.941	-.646
	Teachers	4.34	.731	
8	Parents	4.47	.761	.809
	Teachers	4.32	.837	
9	Parents	4.28	.958	-.439
	Teachers	4.36	.673	
10	Parents	4.53	.803	.490
	Teachers	4.45	.717	
11	Parents	4.50	.880	.522
	Teachers	4.40	.742	
12	Parents	4.34	1.035	.750
	Teachers	4.19	.770	
13	Parents	4.63	.707	.638
	Teachers	4.53	.584	
14	Parents	4.28	.851	-.345
	Teachers	4.34	.668	
15	Parents	4.47	.983	-.827
	Teachers	4.62	.610	
16	Parents	4.44	.840	.455
	Teachers	4.36	.640	
17	Parents	3.97	1.257	.575
	Teachers	3.83	.892	
18	Parents	4.59	.665	2.071
	Teachers	4.21	.883	
19	Parents	4.19	1.030	.496
	Teachers	4.09	.803	
20	Parents	3.69	1.378	1.941
	Teachers	3.11	1.255	
21	Parents	3.31	1.401	.556
	Teachers	3.15	1.197	

22	Parents	4.13	1.385	
	Teachers	3.87	1.115	.895
23	Parents	4.34	1.035	
	Teachers	4.17	.963	.763
24	Parents	2.19	1.355	
	Teachers	1.89	1.088	1.066
25	Parents	4.44	1.045	
	Teachers	3.40	1.484	3.402
26	Parents	4.06	1.243	
	Teachers	3.51	1.502	1.716
27	Parents	4.31	.859	
	Teachers	3.72	1.410	2.110
28	Parents	3.97	1.231	
	Teachers	3.70	1.140	.988
29	Parents	3.91	1.228	
	Teachers	3.79	1.122	.446
30	Parents	4.53	.950	
	Teachers	4.15	1.063	1.637

Table 6.

Means, Standard Deviations, *t* Statistics between Parent and in UAS

Item	Type	Mean	Std. Deviation	T
1	Parents	4.85	.354	.707
	Teachers	4.81	.398	
2	Parents	4.80	.405	1.261
	Teachers	4.70	.462	
3	Parents	4.74	.442	-.365
	Teachers	4.77	.428	
4	Parents	3.37	.929	1.384
	Teachers	3.13	1.115	
5	Parents	3.87	.413	-2.156
	Teachers	4.04	.509	
6	Parents	3.78	.523	.096
	Teachers	3.77	.840	
7	Parents	4.74	.559	.593
	Teachers	4.68	.515	
8	Parents	4.66	.552	-1.406
	Teachers	4.79	.414	
9	Parents	4.75	.537	-.695
	Teachers	4.81	.398	
10	Parents	4.91	.316	2.813
	Teachers	4.72	.498	
11	Parents	4.85	.354	1.326
	Teachers	4.77	.428	
12	Parents	4.82	.390	.991
	Teachers	4.74	.441	
13	Parents	4.75	.437	-1.736
	Teachers	4.87	.337	
14	Parents	4.60	.530	-.400
	Teachers	4.64	.486	
15	Parents	4.78	.441	-.422
	Teachers	4.81	.398	
16	Parents	4.81	.397	.556
	Teachers	4.77	.428	
17	Parents	4.65	.537	.339
	Teachers	4.62	.610	
18	Parents	4.81	.397	.499
	Teachers	4.77	.560	
19	Parents	4.74	.610	-.504
	Teachers	4.79	.414	
20	Parents	3.89	.441	-.004
	Teachers	3.89	.729	
21	Parents	3.96	.311	-1.265
	Teachers	4.04	.464	
22	Parents	4.24	3.989	.270
	Teachers	4.09	.408	
23	Parents	4.48	.873	.578
	Teachers	4.38	.990	
24	Parents	3.65	.696	-1.075
	Teachers	3.79	.778	
25	Parents	3.70	.624	.836
	Teachers	3.60	.851	
26	Parents	3.98	.139	-1.753
	Teachers	4.06	.438	

27	Parents	3.95	.216	-2.621
	Teachers	4.09	.408	
28	Parents	3.96	.194	-1.160
	Teachers	4.02	.442	
29	Parents	4.00	.000	-2.891
	Teachers	4.11	.375	
30	Parents	3.99	.099	-2.938
	Teachers	4.11	.375	
