The Encouragement of Early Algebra by Parents and Peers: A Critical Examination of Differential Effects on Mathematics Achievement

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This study examined effects of peer and parent encouragement/discouragement to take algebra on mathematics achievement. The differential effects of racial groups and peer and parent effects on achievement were also investigated. Parents' expectations and involvement have shown significant effects on student achievement; however, research examining the effects of peer interactions is limited. Results showed a significant effect of peer encouragement and parent encouragement on mathematics achievement. The interaction effects of race and peer/parental encouragement were significant. This research extends the body of work on peer influences to consider its impacts on mathematics achievement and how it affects racial groups differently.

Algebra is perceived by many educators to be a "gateway course". Many state graduation requirements include at lease one year of algebra; additionally, algebra is a prerequisite for higher-level mathematics courses. In a study of the long-term effects of studying algebra in eighth grade using NELS:88, Atnada (1999) found eighth-graders studying algebra were more likely to take high-level high school mathematics courses and apply to college than eighth grade students who did not take algebra. Controlling for socioeconomic background, Smith (1996) found students studying algebra earlier had more exposure to advanced mathematics curricula and showed higher mathematics achievement by the end of high school. Based on these findings, it is important for students to study algebra prior to high school.

Spielhagen (2006) supported these findings with a study of a school district in the southeast where students enrolled in algebra prior to high school showed higher mathematics scores and more advanced course taking in high school. However this study went further, examining how students gained access to algebra in the eighth grade. Although the school system had a placement policy for eighth grade algebra based on prior mathematics performance and standardized test scores, some students (mostly in the high SES schools) gained access through parent or teacher "override" of the placement policy. Teachers reported students who were placed in the class by parent or teacher override still succeeded in algebra. Spielhagen's findings call into question the role of social factors in determining students' enrollment in eighth grade algebra and the effects of encouragement on the study of algebra prior to high school. The present study examines the effects of peer and parent encouragement to take algebra, socio-economic level, race, and sex on high school mathematics achievement.

Background

Parents and teachers significantly contribute to a student's attitudes and outcomes at school (Frome & Eccles, 1998). Examining the effects of significant others in children's achievement has primarily focused on parents and teachers, and often the role of peers has not proven nearly as influential as the role of parents in a student's academic achievement. Singh et al (1995) explored the effect of different components of parental involvement on the achievement of eighth-graders. The study identified four components of parent involvement including: parental aspirations for the child's education, parent-child communication about school, home-structure, and parental participation in school related activities. These four factors had little to no effect on achievement, except for parental aspirations. Singh et al found that parental aspiration was as influential on student achievement as the influence of prior achievement. Prior achievement is usually the best predictor of a student's present achievement because it measures all the previous effects of family background and the child's abilities. Parental aspiration was the factor that had the biggest impact on pupil achievement once social class factors had been taken into account.

As children approach adolescence, they spend increasing amounts of time with their peers and less time with their parents. As peer-influence becomes more important in a child's life it is important to study if student-peer relationships are an important predictor of student achievement. The factor of peer influence needs to be further examined to better understand achievement and attitude differences in the area of mathematics.

However, peer group research is complex and difficult to measure because children's friendships are based, in part, on similarity. It is difficult to determine if friends have influenced each other because their friendships may be based on being similar (Cohen, 1983). Although peer influences are difficult to examine, they cannot be overlooked. In the famous study completed nearly forty years ago, *Equality of Educational Opportunity*, Coleman (1966) studied the features of a school environment that lead to student academic differences. A key finding of the study was student achievement is linked to the educational backgrounds and goals of other students. Horn and Chen (1998) supported this finding in a study of high school students at-risk of dropping out. The study found students at moderate or high risk levels were nearly four times more likely to enroll in college if most of their friends were planning to attend a four-year college. Peers' college goals play a role in at-risk student college enrollment.

Peer influence on academics has only been examined by a few studies although students spend large amounts of time with friends. There is evidence children may spend 25-40% of their nonclass time with friends (Larson & Richards, 1991). In a 2003 study, Altermatt and Pomerantz found friends to be the most influential with regard to report card grades. Friends also influenced achievement-related beliefs such as: to what they attributed their academic successes; the importance of meeting academic standards; as well as preference for challenging coursework. The study also concluded close friendships (i.e. personal and long-lasting) had more influence on academics than other friendships or peer group associations.

Racial Differences in Peer Influence

Historically, there is an achievement gap between racial groups on standardized tests. There are many probable explanations for this gap, but the most reasonable seems to be a complex combination of school, community, and home factors (Kober, 2001). The interaction of peers in a social group may be a contributing factor to achievement gaps between racial groups.

Asian-American students show strong academic performance. Goyette and Xie (1999) confirmed other theories that parental expectations play a major role in Asian-American students' successes. In addition to parental expectations, Asakawa and Csikszentmihalyi (2000) contribute academic success to the social orientation of Asian-American students. They found Asian-American adolescents are more socially oriented and find approval in group settings. Asian-American students are more likely to identify with and internalize the beliefs and values of significant others including the educational values of parents and peers.

Ford and Thomas (1997) found the underachievement of minority students with above average abilities could be partially attributed to negative peer pressure. The phenomenon of academically successful African-American students criticized by their low-achieving peers for "acting white" has been documented (Forham and Ogbu, 1986). A recent study of Texas schools found having more black classmates slows the achievement gains of other black elementary school children, especially above-average students; however, racial composition had little effect on other racial groups (Hanushek, Kain, & Rivkin, 2002).

Latino students seem to be affected by peer pressure differently. Conchas (2001) studied a California high school and found an "achievement hierarchy" among Latino students in which achievement levels separated students socially as well as academically. Conchas described a school in which U.S.-born Mexican-American students were often in remedial programs while first-generation and immigrant students were often in advanced programs. The high-achieving Latino students preferred not to associate with "remedial" students; therefore, Conchas believes low-achieving students lacked social encouragement to succeed.

Among First Nations students (American Indian and Native Alaskan) low academic achievement and high dropout rates are prevalent (Coladarci, 1983). Academically unsuccessful students cite feelings of disconnect from school as a major factor in their academic struggles. Researchers are looking for ways in which First Nations students can feel more connected to their school and other students. In a survey of First Nations students completing high school, half of the students found a sense of belonging and a motivation to finish high school in the rewards of sports and extra-curricular activities (Coburn and Nelson, 1987). Sports foster higher academic achievement and a sense of school spirit in First Nations students. The highest correlating factor for First Nations students' participation in extra-curricular activities was the involvement of close friends; therefore, peers influence to join school activities is linked to higher achievement (Bonneau, Ee, & Lauzon, 2006). In 1980, teachers in a Montana high school district concerned by the high dropout rate of First Nations students conducted a survey of the dropouts. Students cited different reasons for dropping out, but over one-third of the dropouts reported wanting to be with other dropouts as a major factor in their decision (Coladarci, 1983).

Other Factors and Student Achievement

Poverty, and other health problems (poor nutrition, low birth weight, substandard housing, high violence, and substance abuse) associated with poverty, can depress achievement (Kober, 2001). The College Board (1999) reported in 1990 African-American children were three times as likely to be raised in low-income families as compared to White and Asian children. Hispanic children were twice as likely to be impoverished. Although a portion of the achievement gap can be explained by socioeconomic background, when these differences are factored out there is still an achievement gap that must be due to other factors (Kober, 2001).

Gender differences must also be considered when examining achievement. Although gender differences in mathematics achievement have been declining, there is still a gap in upper-level mathematics course enrollment by females resulting in fewer females choosing professions in math, science, and technology (Dick & Rallis, 1991). Women are underrepresented in the fields of mathematics, science, and engineering contributing to the significant gap in earning ability between males and females. And, although women make up 44% of the work force, they make up only 15 % of those working in the fields of math, science, and technology (National Science Foundation, 1989). Johnson (2000) examined factors influencing advanced math coursework and students' attitudes toward math and found peer relationships have different effects on female and male decisions regarding mathematics. To address the influences of SES and gender differences on achievement, the present study controlled for these factors when examining the effects of peer and parent encouragement on math scores.

Methods

Using the National Education Longitudinal Study: 1988/2000 (NELS) dataset, the present study uses General Linear Modeling (GLM) to examine the effects of peer influence on high school mathematics achievement. The study considers parental encouragement, socio-economic level, race, and sex to investigate differential effects. In addition, the study used a longitudinal data analysis to assess the long-term effects of peer and parent influence relationships. Specifically, the following research questions were addressed:

- Does peer encouragement/ discouragement to take algebra show a significant difference in mathematics achievement in the eighth, tenth and twelfth grades? How does the relationship vary across ethnicity when controlled for SES and gender?
- Does encouragement of peers and parents have a lasting effect on mathematics achievement (8^{th} through 12^{th} grades)? How does the relationship vary across ethnicity when controlled for SES and gender?

This study uses three measures from the NELS survey, in which 1988 schools and students were selected using a two-stage stratified probability design with over 24,000 students in more than 1,000 schools sampled. This study performs both cross-sectional and longitudinal analyses using General Linear Modeling (GLM) and Hierarchical Linear Modeling (HLM).

For the cross-sectional model, two GLM analyses was used to analyze the data to determine the relationship between peer encouragement/discouragement as well as parental encouragement to take algebra and mathematics achievement in the eighth, tenth, and twelfth grades.

A two-level Hierarchical Linear Modeling (HLM) was used to analyze the long-term effects of peer and parental encouragement on mathematics achievement. The first level analyzes the overall growth of students' mathematics achievement from 8th through 12th grade; the second level examines the effects of peer and parent encouragement as well as the covariates of gender and SES. The model is shown by the equations below.

Level 1

$$Y_{Math} = \pi_0 + \pi_1 Time + e$$

Level 2

$$\pi_0 = \beta_{00} + \beta_{01} Peer + \beta_{02} Parent + \beta_{03} Gender + \beta_{04} SES + \mu_0,$$
$$\pi_1 = \beta_{10} + \beta_{11} Peer + \beta_{12} Parent + \beta_{13} Gender + \beta_{14} SES + \mu_1.$$

The dependent variable is the eighth grade math IRT scale score as measured by a 40-item multiple choice test. The independent variable, peer influences, was measured by a survey item asking if peers encouraged algebra enrollment. The peer encouragement categories were recoded 0-discouraged me and 1-encouraged me. The second independent variable used was to determine the role of parent influence. Parent influence was measured with a survey question asking if parents wanted the student to take algebra. The survey results were coded 0-no and 1-yes. The independent variable of race was first analyzed collectively for the overall model; then, it was broken into five categories [Asian/ Pacific Islander, Hispanic, Black (not Hispanic), White (not Hispanic), and American Indian/ Alaskan Native] with a separate dataset for each group. The controlling variables included gender and SES composite.

Results

First, peer effects on mathematics achievement in the eighth, tenth, and twelfth grades were analyzed using GLM. As peer encouragement to take algebra was measured in the eighth grade, it was important to understand if this encouragement had only an immediate effect on eighth grade achievement, or if the encouragement had a lasting relationship with mathematics achievement throughout high school. Supporting previous research findings showing peer influence has a significant impact on mathematics achievement, we found peer influence accounts for differences in achievement in the eighth ($F=5.524$, $p<0.05$) and twelfth grades ($F=6.765$, $p<0.01$). Specifically, students who are actively discouraged from taking algebra by their peers score significantly lower on the eighth and twelfth grade achievement tests as compared to students who were encouraged (see figures 1 and 3).

Consistent with previous research on mathematics achievement, SES had the largest effect on math scores ($\eta^2 = 0.20$) in eighth, tenth, and twelfth grades. However, when controlling for SES, race, peer influence, and the interaction effects were significant although their effect sizes were smaller ($\eta^2 < 0.01$) than SES. Asian students scored significantly higher than all other

racial groups, and Caucasian students had significantly higher mathematics achievement than African-American, Latino, and First Nations students. Furthermore, significant interaction effects were found between peer encouragement to take algebra and race in the eighth ($F=3.515$, $p<0.01$) and tenth grades ($F=2.954$, $p<0.05$). Peer encouragement positively related to student mathematics achievement for the Caucasian group ($F = 83.993$, $p<0.01$) and the Hispanic group ($F=17.741$, $p<0.01$). Caucasian and Hispanic students' achievement benefited more than other racial groups when encouraged by friends (see figures 1 and 2).

Parental influence was found to be significant ($p<0.01$) with regard to mathematics achievement at all three grade levels ($F_{8th}=58.371$; $F_{10th}=75.416$; and, $F_{12th}=55.630$). Consistent with previous findings, parents' encouragement of algebra course taking created significant differences in mathematics achievement scores. Significant interaction effects ($p<0.01$) were found between parental encouragement to take algebra and race at all three grade levels with the effect most pronounced in the eighth grade ($F_{8th}=9.088$; $F_{10th}=3.381$; and, $F_{12th}=3.477$). Students encouraged to take algebra by their parents showed increased test scores in four of the five race categories. First Nations students scored lower on the mathematics tests if parents encouraged algebra (see figures 4, 5, and 6).

This study also conducted a series of HLM analyses to examine the long-term effects of peer and parental encouragement. We discovered that peer influence had a significant effect on the math performance of 8^{th} grade students ($F= 3.860$, $p<0.01$) and the effect lasted until 12^{th} grade as shown in Figure 7. The differential peer effect for various ethnic groups was noted only for the Caucasian group ($F=4.336$, $p<0.01$).

The long-term effect of parental influence indicated a significant effect on the math performance of 8^{th} grade students ($F= 6.242$, $p<0.01$) and this effect accelerated until 12^{th} grade ($F= 0.638$, $p<0.05$) as shown in figure 8. The pattern was noticed in the Caucasian group showing the coefficients of 6.577 ($p<0.01$) and 0.701 ($p<0.05$), respectively. For Hispanic students, parental influence was significant at 8^{th} grade ($F= 8.683$, $p<0.01$), although the accelerated effect was not noticed. The other racial groups did not show significant long-term effects due to parental encouragement over time.

Limitations and Implications for Further Study

Results from the present study suggest parent and peer encouragement to take algebra impact mathematics achievement; and, these effects are different depending on the race of the student. Although the findings are statistically significant, the effect sizes are small ($\eta^2 < 0.01$) with other variables contributing to math achievement variance more than parent and peer encouragement. Additional research needs to be conducted to understand the effects noted in the present study. First, researchers need to better understand the nature of friendship and if similar academic achievement is a product of friendships or one of the reasons students become friends. Second, we need to determine if there are successful methods for school personnel or other adults to encourage friendships between students to foster academic achievement. Next, research needs to examine the social structures of students of different races at school to better understand social structures and how they may foster or undermine student academic achievement. Finally, a research study needs to be designed specifically examining the impact of peer and parent

encouragement on student enrollment in higher-level mathematics courses. The NELS:88 study did not include many questions assessing peer group, and the best representations of peer and parent influence were chosen.

Educational Importance

Research considering peer influence as a factor in student achievement is limited. The present study extends this body of work by examining peer encouragement to enroll in advanced mathematics on mathematics achievement. Furthermore, the relationships of sex, race, and SES to peer influence and parental influence are considered.

Evidence for friends' influence supports previous research findings that peer influences affect academic achievement, although the effects are modest compared to other variables such as the parent-child relationship. However, the associations revealed are important. If peers actively discouraged enrollment in algebra, mathematics achievement was negatively affected. This finding should be replicated in future research due to the problems with self-selection in friendship. Based on prior research, friendships are chosen based on similarity, so it is possible if a student has friends who are actively discouraging algebra enrollment they may not be academically motivated either. If they are not academically motivated, they may have performed poorly regardless of friends discouraging challenging academic classes.

Friends' apparent influence on student's academic achievement varied according to race. When examining mathematics achievement peer influences were greatest for the White students and had positive effect for all except the First Nations students. The long-term of effects of peer encouragement remained constant, not showing growth over time.

Consistent with prior research, the present study finds parental encouragement has a strong effect on mathematics achievement. Although both peer influences and parental influences are significant, the parent-child relationship has an even greater impact on achievement than peer encouragement. Parental encouragement had growth effects for the White and Latino students, but remained constant for the other racial groups. Further research is needed on this topic to determine if students who have parents that encourage enrollment in challenging math courses are more likely to have friends that are academically motivated. In conclusion, the findings from the present study suggest students' mathematics achievement is influenced by the encouragement of peers as well as parents.

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Table 1.

Effects of Peer Encouragement and Race on Mathematics Achievement

Source	df	SS	MS	F
8th Grade Achievement[a]				
Sex	1	736.543	736.543	6.645*
SES	1	47231.456	47231.456	426.104**
Race	4	6006.918	1501.729	13.548**
Peer Encouragement	1	612.295	612.295	5.524*
Race*Peer	4	1558.415	389.604	3.515**
Error	2070	229449.195	110.845	
Total	2082	3158382.833		
10th Grade Achievement[b]				
Sex	1	543.714	543.714	3.763
SES	1	64310.393	64310.393	445.031**
Race	4	7105.336	1776.334	12.292**
Peer Encouragement	1	469.009	469.009	3.246
Race*Peer	4	1707.638	426.909	2.954*
Error	1946	281211.845	144.508	
Total	1958	4245132.402		
12th Grade Achievement[c]				
Sex	1	4.576	4.576	.030
SES	1	57974.292	57974.292	384.132**
Race	4	5737.271	1434.318	9.504**
Peer Encouragement	1	1020.998	1020.998	6.765**
Race*Peer	4	900.903	225.226	1.492
Error	1622	244796.967	150.923	
Total	1634	4280550.484		

a. R^2 (adjusted) = .308

b. R^2 (adjusted) = .317

c. R^2 (adjusted) = .320

* $p<0.05$

** $p<0.01$

Table 2.

Effects of Parental Encouragement and Race on Mathematics Achievement

Source	df	SS	MS	F
8th Grade Achievement[a]				
Sex	1	28.796	28.796	.279
SES	1	130207.756	130207.756	1259.712*
Race	4	25281.264	6320.316	61.147*
Parent Encouragement	1	6033.426	6033.426	58.371*
Race*Parent	4	3757.430	939.358	9.088*
Error	6821	705039.587	103.363	
Total	6833	11010363.68		
10th Grade Achievement[b]				
Sex	1	163.511	163.511	1.237
SES	1	175597.927	175597.927	1328.651*
Race	4	31217.421	7804.355	59.051*
Parent Encouragement	1	9967.163	9967.163	75.416*
Race*Parent	4	1787.535	446.884	3.381*
Error	6492	857999.436	132.163	
Total	6504	15007690.04		
12th Grade Achievement[c]				
Sex	1	1336.490	1336.490	9.715*
SES	1	170798.120	170798.120	1241.490*
Race	4	25467.584	6366.896	46.279*
Parent Encouragement	1	7653.239	7653.239	55.630*
Race*Parent	4	1913.467	478.367	3.477*
Error	5493	755700.182	137.575	
Total	5505	15392878.57		

a. R^2 (adjusted) = .315

b. R^2 (adjusted) = .340

c. R^2 (adjusted) = .347

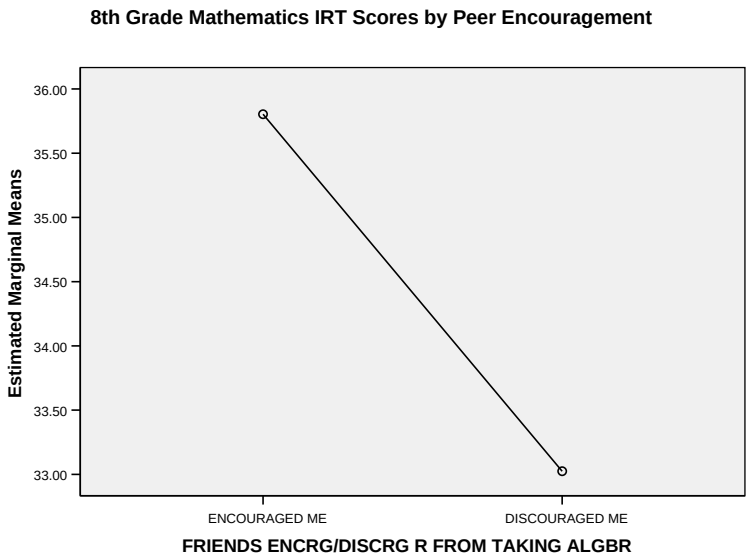
* $p<0.01$

Table 3.

HLM Results of Math IRT Scores by Ethnic Group

	Overall		Caucasian		African-American		Hispanic		Asian		First Nation	
	β	se	β	se	β	se	β	se	β	se	β	se
For Initial Score												
Intercept	38.130**	0.259	39.654**	0.308	29.600**	0.676	31.799**	0.678	44.491**	0.868	30.402**	2.404
Peer	3.860**	0.668	4.336**	0.785	1.212	1.847	3.270	1.799	3.940	3.189	-3.772	6.100
Parent	6.242**	0.682	6.577**	0.813	3.271	2.006	6.683**	1.500	6.587	3.468	-2.232	4.679
Gender	1.372**	0.526	1.694**	0.629	0.766	1.368	-0.094	1.349	0.132	1.796	3.707	4.955
SES	4.725**	0.229	4.428**	0.284	3.167**	0.724	2.770**	0.726	3.245**	0.736	6.765*	2.608
For Growth												
Intercept	5.904**	0.102	6.075**	0.122	4.502**	0.306	5.119**	0.338	6.843**	0.298	7.107**	1.152
Peer	0.349	0.311	0.256	0.374	-0.351	0.823	1.540	0.978	1.167	0.928	-4.154	4.921
Parent	0.638*	0.296	0.701*	0.349	1.578	0.905	-0.351	0.851	0.767	1.060	-1.922	2.323
Gender	-0.734**	0.204	-0.761**	0.245	-0.682	0.629	-0.452	0.678	-0.834	0.598	-3.558	1.910
SES	0.750**	0.096	0.569**	0.117	1.353**	0.300	0.898**	0.343	0.533	0.286	2.434	1.143

p<0.05, ** p<0.01



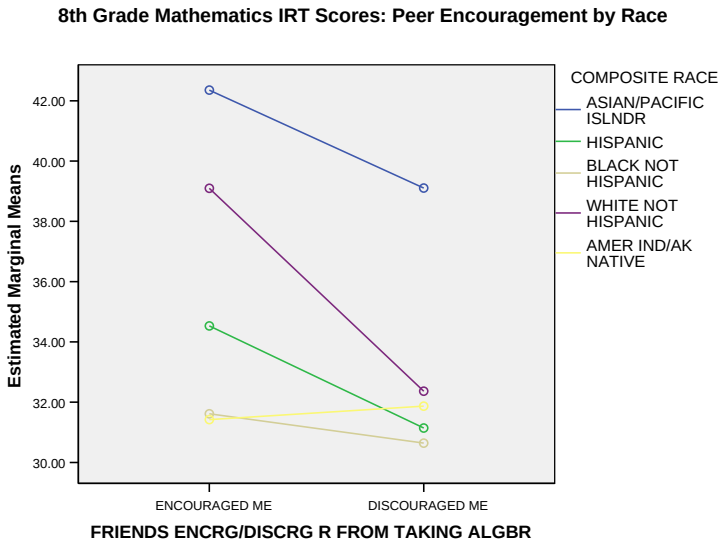


Figure 1. Estimated marginal means of 8th grade mathematics IRT-estimated number right as a function of peer encouragement and ethnic group.

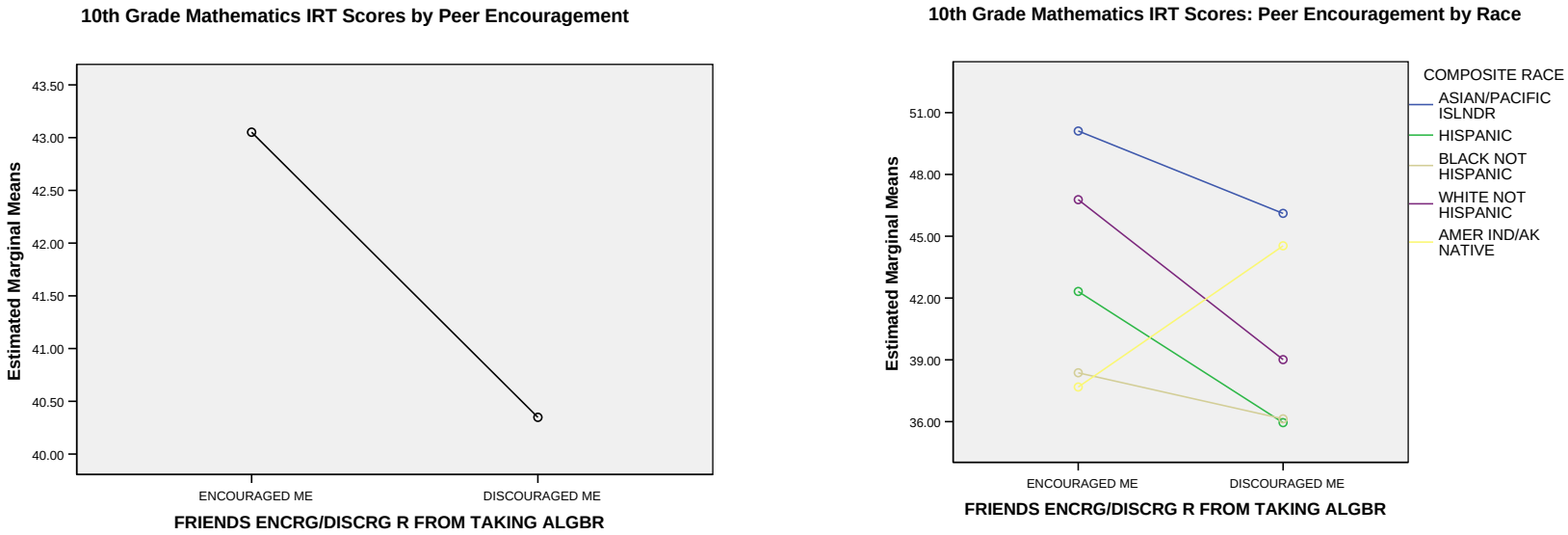


Figure 2. Estimated marginal means of 10th grade mathematics IRT-estimated number right as a function of peer encouragement and ethnic group.

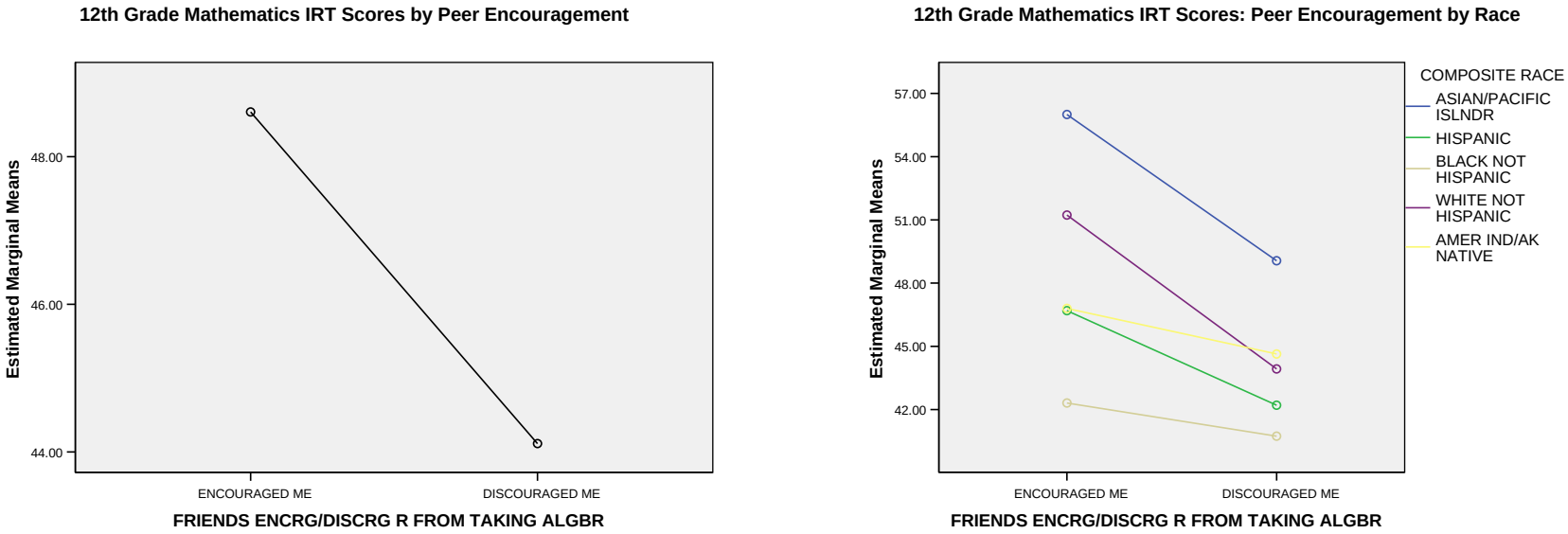


Figure 3. Estimated marginal means of 12th grade mathematics IRT-estimated number right as a function of peer encouragement and ethnic group.

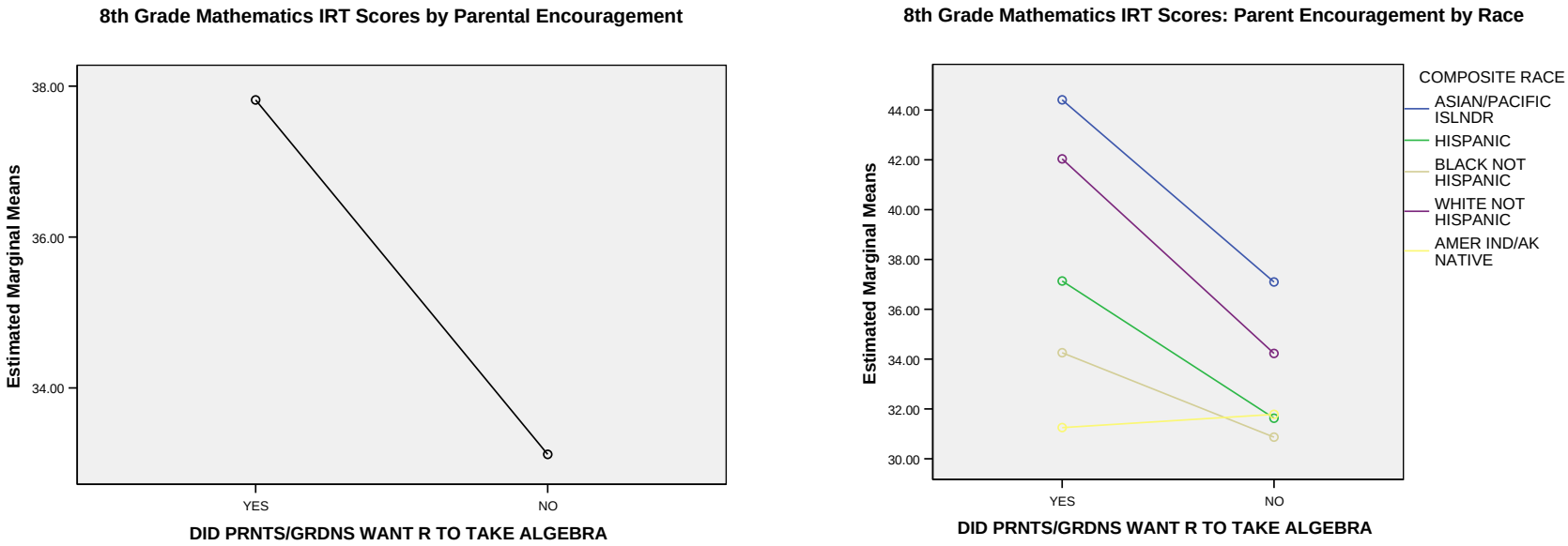


Figure 4. Estimated marginal means of 8th grade mathematics IRT-estimated number right as a function of parent encouragement and ethnic group.

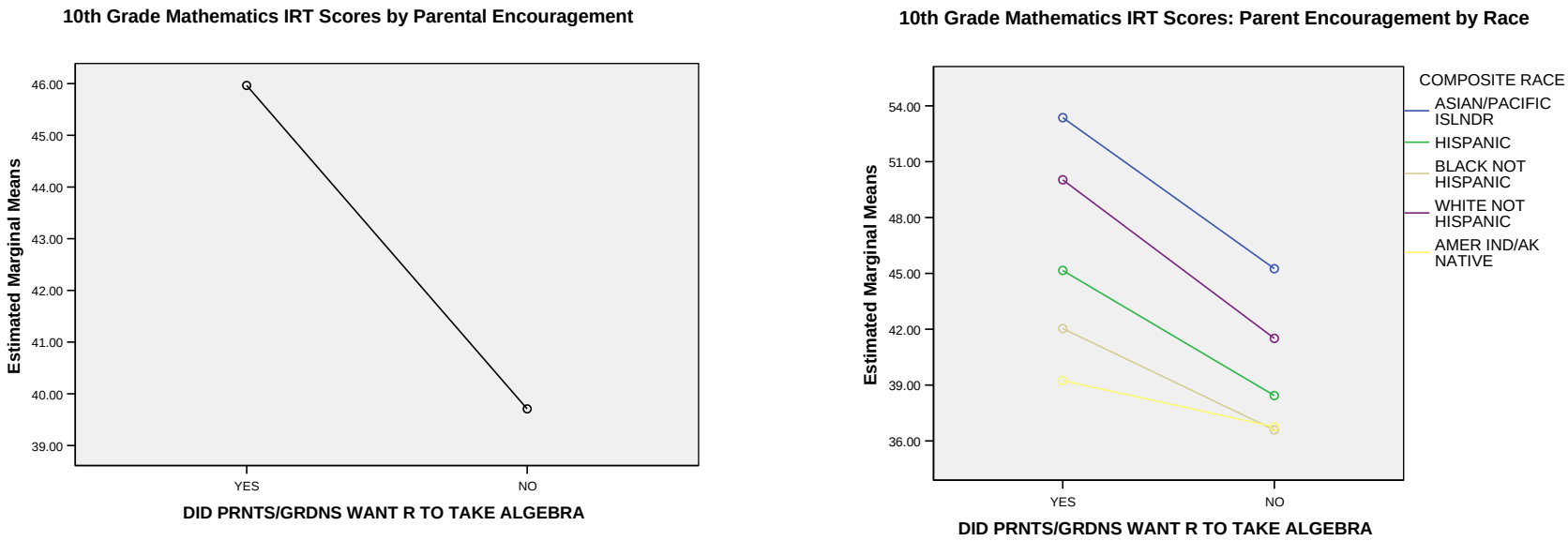


Figure 5. Estimated marginal means of 10th grade mathematics IRT-estimated number right as a function of parent encouragement and ethnic group.

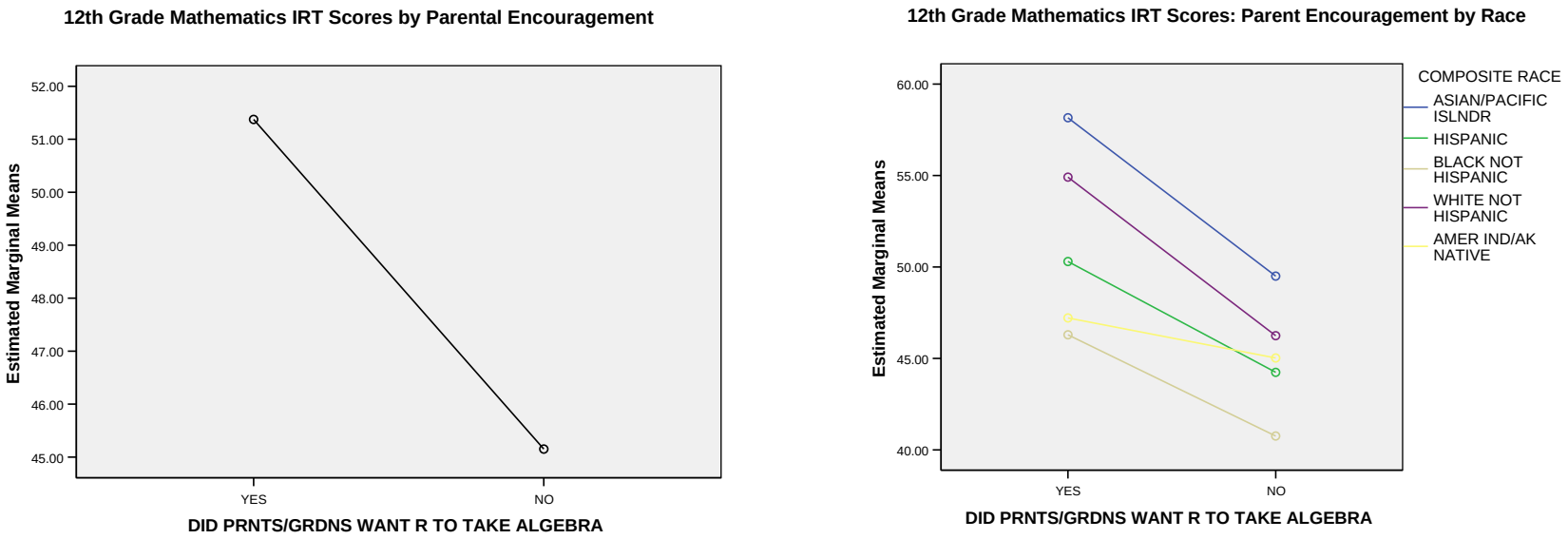


Figure 6. Estimated marginal means of 12th grade mathematics IRT-estimated number right as a function of parent encouragement and ethnic group.

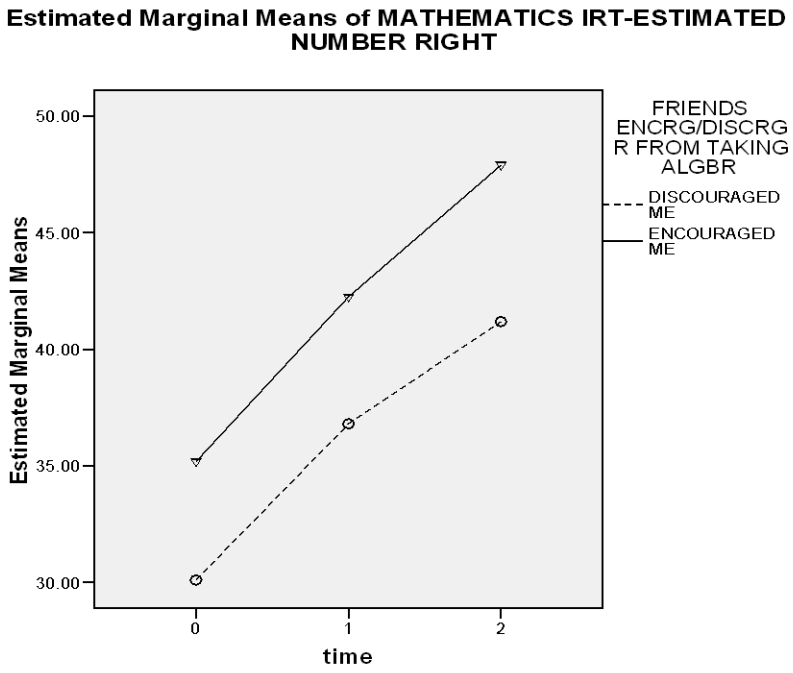


Figure 7. The longitudinal effects of peer encouragement to take algebra on 8th, 10th, and 12th grades' math IRT scores.

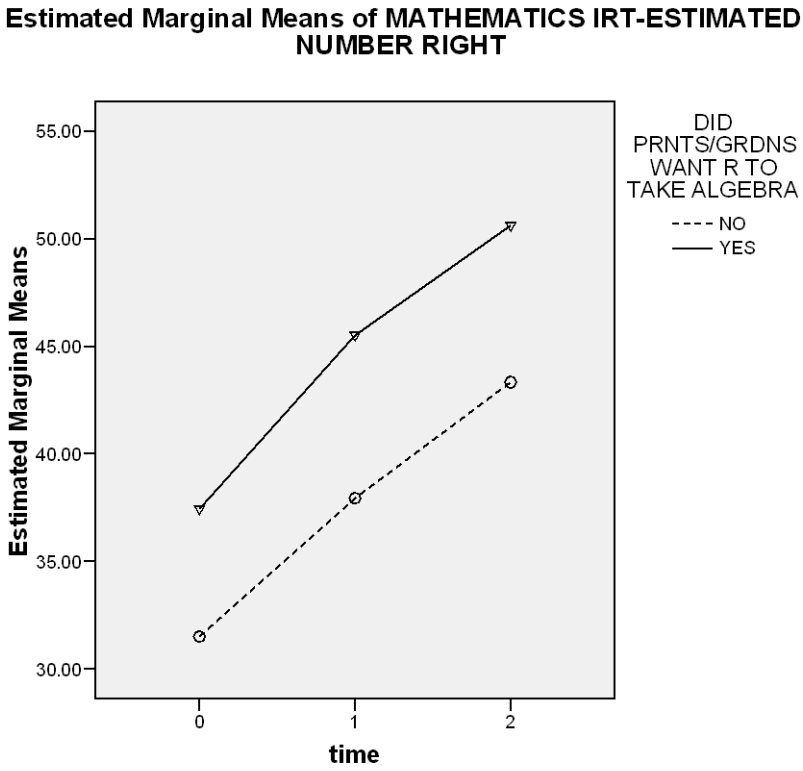


Figure 8. The longitudinal effects of parent encouragement to take algebra on 8th, 10th, and 12th grades' math IRT scores.

Sacrificing the Present for the Future: Elementary Teachers and the Transition to Middle School

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For upper elementary school teachers, the pressure of preparing young adolescents for the transition from elementary school to middle school increases the complexity of their daily practice. Demographic information, field notes, and interview data informed this qualitative study of elementary (pre-transition) teachers' beliefs and practices on the preparation of students for the transition to middle school. Findings suggest that elementary teachers inconsistently espouse developmentally appropriate beliefs regarding instruction for young adolescents, perceive distinct, and at times, inaccurate differences between the elementary and middle-school environment, and use a variety of strategies to prepare students for the transition.

Teachers face the daunting task of teaching their students the mandated curriculum while also considering the academic, social, and emotional expectations of the next grade level. Most teachers ready their students for grade transitions that occur within the same school building, suggesting a context of similar academic and behavioral expectations enhanced by close proximity to students' subsequent teachers. For those teachers preparing their students to leave the elementary school environment for middle school, grade transition is more complex. One might hypothesize pre-transition teachers, those teachers instructing students in their last year of elementary school, have limited communication with teachers and administrators at middle schools and limited understanding about the daily academic and social nature of the middle school. Furthermore, elementary certification programs typically do not adequately address the unique developmental and instructional needs of young adolescents, students ages 10-14, who may be educated in upper elementary (grade 4-6) classrooms. As such, pre-transition teachers may have limited knowledge regarding the unique academic, social and emotional needs young adolescents bring into their classrooms (Rice & Dolgin, 2005) and the instructional approaches that best serve them (Jackson & Davis, 2000).

Because preparation for the move to middle school typically begins during the last year of elementary school, pre-transition teachers are critical stakeholders in young adolescents' middle-school transition experiences. The previously hypothesized challenges may influence pre-transition teachers' decision-making in their efforts to prepare young adolescents for the instructional and social environment of middle school; however, the role of pre-transition teachers has been virtually unexplored in the research literature. Subsequently, the purpose of this research is to understand pre-transition teachers' perceptions of the academic and social needs of young adolescents and of the middle school environment and how these perceptions influence their preparation of young adolescents for the transition to middle school.

Transition to Middle School

Transition Experiences

The academic and psychological struggles of young adolescents across the transition from elementary to middle school are well documented (Barber & Olsen, 2004; Eccles, Midgley, Wigfield, Miller-Buchanan, Reuman, et al., 1993; Wampler, Munsch, & Adams, 2002; Zanobini & Usai, 2002) and provide a rationale for attending to this challenging life milestone. Researchers speculate that mismatches between the developmental needs of young adolescents and their instructional environment may provide an explanation for negative academic and emotional shifts across the transition to middle school (Eccles & Midgely, 1989; Parker & Neuharth-Pritchett, 2008). Declines in academic achievement are consistently reported across the transition to middle school in terms of readiness for class, grades, (Barber & Olsen, 2004; Seidman, Allen, Aber, Mitchell, & Feinman, 1994; Wampler, et al., 2002), and achievement (Alspaugh, 1998; Osterman, 2000). Similarly, declines in motivation are reported across the transition from elementary to middle school with the timing of school changes with the transition into adolescence (Blyth, Simmons, & Carlton-Ford, 1983) a mismatch between school environment and young adolescents' developmental needs (Eccles et al., 1993), negative shifts in student/teacher relationships (Guthrie & Davis, 2003), and motivational orientations of classrooms (Anderman & Midgley, 1997; Urdan & Midgley, 2003) identified as potential explanations.

Trends in young adolescents' self-concepts across the transition to middle school are inconsistently reported. Historically, the research literature suggests young adolescents experience declines in self-concept as they enter middle school (Seidman et al., 1994; Eccles, Wigfield, Flanagan, Miller, Reuman, & Yee, 1989; Zanobini & Usai, 2002), however, recently researchers have found stable self-concept ratings (Chung, Elias, & Schneider, 1998) and increased self-concept ratings across the transition (Barber & Olsen, 2004; Parker & Neuharth-Pritchett, 2006). These inconsistencies in self-concept reporting may be a result of varying grade configurations, the influence of transition programs, or the individual school contexts of those participating in the previous studies.

Characteristics of Young Adolescents

Conflict between the developmental needs of young adolescents and their instructional environments may be at the heart of difficult transition experiences. Young adolescents are in the midst of intense physical, cognitive, and emotional changes and as a result are developing increasingly complex cognitive capacities, including the ability to think logically and abstractly, problem-solve, draw inferences, and conceptualize the future (Rice & Dolgin, 2005). Associated with this rapid maturity are young adolescents' increasing desires for decision-making, autonomy, and choice in their educational experiences. As such, Jackson and Davis (2000) suggest appropriate middle school environments include a curriculum that is standards-based, relevant, and challenging, teachers who use multiple instructional approaches to teach diverse student populations, various organizational structures that support meaningful relationship development and learning, and overarching efforts to foster health, wellness, and safety. Additionally, structural components such as teaming and advisory, and the use of specific

instructional strategies, including cooperative learning, service learning, clear grading standards, challenging assignments, and differentiated instructional methods are deemed particularly developmentally appropriate for young adolescents (Jackson & Davis, 2000; NMSA, 2003). Full implementation of these tenets is an essential feature of establishing a developmentally appropriate school environment, and research suggests it positively impacts young adolescents' academic achievement (Backes, Ralston, & Ingwalson, 1999; Mertens & Flowers, 2003).

Young adolescents typically report instructional environments that are in direct conflict with their developmental needs. They describe classrooms that are formal, impersonal, teacher-centered and compartmentalized (Feldlaufer, Midgley, & Eccles, 1988; Midgley & Edelin, 1998; Simmons & Blyth, 1987) with an increased focus on grades and competition, social comparison, and collaboration based on task-orientation (Feldlaufer et al., 1988; Oldfather & McLaughlin, 1993; Roeser, Eccles & Sameroff, 2000) and fewer opportunities for autonomy, input, and cooperative interactions than elementary classrooms (Feldlaufer, et al., 1988; Oldfather & McLaughlin, 1993). The current era of high stakes testing likely exacerbates the problem with excessive amounts of drill and practice, fact memorization, test practice, and teacher-centered instruction designed to "cover" content for standardized tests (Solley, 2007). Research also indicates that young adolescents perceive a negative shift in their relationships with teachers across the transition to middle school (Feldlaufer et al., 1988; Oldfather & McLaughlin, 1993). This may be a manifestation of differences in methods of instruction, number of students involved in lessons, duration of time spent with the teacher, and student perceptions of teachers as less caring and supportive (Guthrie & Davis, 2003). Perceived negative shifts in student-teacher relationships associated with the transition to middle school may result in changes in students' attitudes toward school, may influence overall academic effort and motivation, and may impact student compliance with school norms (Guthrie & Davis, 2003; Murdock, 1999, Murdock & Miller, 2003).

Understanding the academic and emotional developmental needs of young adolescents, as well as the challenges associated with the transition to middle school underscores the need for investigating how pre-transition teachers prepare their students for this life experience.

Method

Study Context

The authors conducted a large, school-based transition project examining academic achievement, teacher perceptions, and adolescents' psychological outcomes associated with the move to middle school. The data reported from this study are from this larger project. Four schools, Winthrop Middle and its three elementary feeder schools, Lane, Sixth Street, and Howard (all pseudonyms) participated. These schools are located in a rural southeastern community nestled between a major university town and a large metropolitan area. The school district services approximately 9,000 students from a wide range of socioeconomic (34% free or reduced lunch) and ethnic backgrounds (77% European-American, 13% African-American, 4% Hispanic-American, and 6% Asian-American). Each school's student body reflects the socioeconomic and racial composition of the county.

While demographically similar, the contextual experiences of young adolescents at Lane, Sixth Street, and Howard Elementary Schools are quite different. The teachers at each school use different fifth grade organizational configurations. At Lane Elementary, each of the fifth grade teachers taught writing, but students switched teachers for reading, math, and science/social studies. At Sixth Street Elementary teachers worked in two-person teams, with one teacher responsible for social studies and language arts and a second for math and science. Howard Elementary was completely departmentalized and students were instructed by a different teacher for each content area. The fifth grade teachers at each school reported that they approached the transition to middle school as a team and used similar approaches to increase consistency for their students.

Fifth grade students from these feeder schools transitioned into Winthrop Middle School which adhered to the developmentally appropriate structural goals of the middle-school concept, including teaming, common planning time, student-teacher advisory meetings, and core integrated instructional time (Jackson & Davis, 2000). At Winthrop Middle teachers were grouped in teams of three to four, and each was responsible for a home base and a content area or two. Students in sixth grade at Winthrop Middle School were not allowed to participate in organized school-sponsored sports (e.g., formal sports teams). However, they did have limited opportunities to participate in school-sponsored activities like band, chorus, and some service organizations.

Administrators at Winthrop Middle designed a number of activities to facilitate the transition experience and open lines of communication with the elementary feeder schools. Fifth grade students participated in an extensive transition program comprised of three key components: visits by the guidance counselor to each fifth grade classroom, visits by fifth grade students to the middle school, and programs designed to acclimate parents to the middle school environment. In addition, the fifth and sixth-grade teachers also met to discuss strengths and weaknesses of the students in general, as well as to ascertain how they could facilitate a smooth transition experience.

Participants

All of the pre-transition teachers at the three feeder elementary schools were interviewed for this study: three at Lane Elementary, four at Sixth Street Elementary, and five at Howard Elementary. These 12 teachers were Caucasian females whose experiences in the classroom ranged from 3-25 years. None of the 12 teachers had middle-school teaching experience, and they all were certified to teach students in grades pre-K through five. Including all of the pre-transition teachers at each feeder school provided multiple perspectives on the transition preparation at each feeder school which helped maximized what could be learned (Stake, 1995).

Data Collection

Because of the authors' work on the larger transition project, as well as their involvement with the participating schools through their respective teacher preparation programs, they were quite familiar with the schools, administration, and teachers participating in this study. As a result they had access to various data sources including the teachers, their classrooms, students' cumulative

folders, transition program information, and teacher meetings. For this study, three sources of data collected across one school year were used: interviews, observational field notes, and archival data. Interviews were conducted with the 12 teachers using a semi-structured approach. This process was used to "ensure that the same basic lines of inquiry were pursued with each person interviewed" (Patton, 2002, p. 343). Interview guides provided both a structure for addressing key topics and flexibility to explore aspects of the discussion more deeply during the interview (see APPENDIX A). Each hour-long interview was conducted and audio-taped by the first author. Transcriptions of the interviews were completed by a graduate assistant.

In addition, a one-hour transition meeting involving the fifth- and sixth-grade teachers was observed. The purpose of this meeting was for the teachers to communicate about their students, curricula, and practices. During the meeting extensive, descriptive, objective field notes were recorded by the first author. Immediately following the meeting, the field notes were rewritten, and interpretations of events were noted. Lastly, the authors collected demographic and archival data on the transition program (handouts, flyers, meeting notes), the participants and the populations in each feeder school and Winthrop Middle School.

Data Analysis

Typological analysis was used to analyze the data for this study (Hatch, 2002; LeCompte & Preissle, 1993). This approach was appropriate because teacher interviews were the primary data source, the interview questions were semi-structured, and the research purpose was to understand "the perspectives of individuals around particular topics" (Hatch, 2002, p. 152). Using the tenets of the middle school philosophy as a guide (Jackson & Davis, 2000; NMSA, 2003), the following typologies were identified prior to analysis: organizational/logistics, beliefs and practices regarding instruction for young adolescents, efforts to facilitate transition, student attributes in transition experience, perceptions of middle school. Data from the 12 interviews were sorted into three groups representing each feeder school. Beginning with the teachers from Lane Elementary School, each interview transcript was read once and coded according to typology. Subsequent readings were completed to identify and highlight key words and phrases within the typology. These words and phrases, along with demographic data, archival data, and field notes, were used to construct a vignette representative of the transition experiences at Lane Elementary. The interview, field notes, demographic data, and archival records were analyzed a final time for triangulation within the typology (Patton, 2002).

These data analysis procedures were repeated for the two remaining feeder schools, Sixth Street and Howard. The results of the data analysis are reported in three separate vignettes constructed for Lane, Sixth Street, and Howard Elementary (see Table 1). Once the vignettes were constructed, the researchers read and identified emerging patterns in the typologies across the feeder schools. These patterns are reported in the discussion (see APPENDIX B).

Pre-transition Vignettes

Lane Elementary: Collaboration and Communication for a Successful Transition

The fifth grade team at Lane Elementary used a semi-departmentalized approach so as to focus on building a sense of community while still preparing students for the transition to middle school. Because the fifth grade classrooms were close in proximity to each other, changing classes was relatively easy for students. Instructionally, each teacher was responsible for writing; however, the students changing classes for reading, social studies/science, and math. These classes met in 75-minute blocks they called periods. Typically, students rotated as a homeroom, with the exception of those who served by special educators or intervention programs. One teacher noted, "(I've) never had complaints about it [departmentalizing]. I think the kids hear, if expectations are the same in every room, they live up to that and know that is what is expected because it's expected in the room before." In all, the teachers believed that the students adjusted well to this arrangement.

The teachers at Lane described themselves as a team that met weekly to discuss student behaviors and other school-related business. They approached instruction with similar philosophies of teaching: setting high expectations, nurturing students, and providing opportunities for interaction. As one teacher stated, "If you expect [the students] to do well, behave well, and get along with peers, then they will live up to your expectations…if you hold those really high expectations, then they will live up to that." They repeatedly identified the importance of nurturing and caring for students through the use of reassurance, praise, and contact. Instructionally, each of the teachers reported using a variety of strategies including cooperative learning, drill and practice, independent work, and interactive, hands-on activities.

At Lane, the fifth grade team members extended their collaborative efforts to their work with parents. One teacher summarized their parent communication by stating, "We send home progress reports weekly that all three teachers fill out, and write notes/comments on, so communication is getting home from all three of us…and our behavior plan is the same in all three rooms and it travels with [the students] in their agendas [a tracking system for students' homework, behavior, and communication between home and school]." The team's behavior plan is based on four themes in character education: respect, responsibility, honesty, and thoughtfulness. Consistency in communicating behavior expectations extended to the students. As one teacher explained, "Our plan is a strip in their agenda that goes with them and travels around, so when they come back, I try to touch base on what happened the rest of the day."

In preparing students for the transition, one teacher suggested that the organizational structure of her grade level, as well as the emphasis on binders, were two key factors in their success. She noted, "Academically, I think that departmentalizing helps because they get used to dealing with different teacher personalities. In the past we departmentalized because a lot of discussions from parents who've had children go through [fifth grade] said the hardest thing in middle school is that it isn't just one teacher, it is 5 or 6!" Binders, required in the middle school, also received a heavy focus in fifth grade at Lane. For example, one teacher commented, "We do keep a binder here the way it's expected to be kept in middle school with the dividers…we really stress all the time, 'All binders out! What paper are you holding? Where does it go?' That's how it starts off at the beginning of the year, so by the end of the year, we're able to say, 'I'm handing you a science paper' and they all grab their binders."

Although the teachers at Lane believed that they did their part to prepare students for middle school, they noted that the students who make the transition successfully are markedly different from those who struggle. Young adolescents who transitioned with ease were organized, confident, and "on top of their games." In contrast, students who struggled with the transition lacked confidence and parental support, were unorganized, and had difficulty moving from one teacher to the other. Those who struggled with different teacher personalities or needed more help got lost in the shuffle. One teacher reflected, "In middle school, in the regular classroom, their ratio is thirty to one. It's almost 'sink or swim' compared to the amount of support that they get in the elementary school." The transition program at Winthrop Middle, particularly the visit to the school, was perceived as beneficial in facilitating a smooth transition. One teacher noted, "We go over and they get to walk around the building, they get to visit a few connections classes and meet the principal and the assistant principal…they had so many questions before the trip and then after, it was a breeze. That [trip] helps more than they will ever know. They see it's just a building."

Sixth Street: Preparation through Independence

The four fifth-grade teachers at Sixth Street Elementary were organized into two-person teams. Both teachers in the pair taught reading and language arts with the students from each classroom regrouped and combined homogeneously. One in the pair was responsible for mathematics instruction and the other science and social studies. Again, students were ability grouped for these subjects. Although the teachers liked the arrangement, a new administrator was preparing the teachers to return to self-contained instruction in subsequent years. The teachers understood the dilemma, "With this age group, it [changing classes] is very confusing. They have a real hard time getting from one place to another in a very short period of time so we find them later wandering the halls." Interestingly, although the students were taught on a two-person team, the teachers did not mention that this was done to facilitate the transition to middle school, instead it was to decrease planning load.

In preparing their students to transition into middle school, the teachers at Sixth Street focused on reducing the "terror of the middle school," providing students with a sense of control through organizational skills, connecting learning to the outside world, and developing a sense of student responsibility. One teacher felt that a "part of [her] job is to help them [students] see that they're a part of something bigger." They also described how they increased student responsibility. As one teacher explained, "I put my agenda up at the beginning of the week, and they have it up the whole week; they know what their homework is…I feel like that helps them schedule their time if they need to do that. I expect them to be responsible for their own work."

Instructionally, the teachers used a number of strategies to help her students make the transition into the middle school. They believed in giving students much independent work, including note-taking and identifying key concepts on their own. Additionally, increasing student responsibility shaped their notions of preparing students for the transition. As one teacher explained, "I put my agenda up at the beginning of the week, and they have it up the whole week; they know what their homework is…I feel like that helps them schedule their time if they need to do that. I expect them to be responsible for their own work."

The teachers at Sixth Street had clear notions of who managed the transition well. They cited students who were socially confident students and able to process and use the organizational skills taught in fifth grade as successfully transitioning into middle school. As one teacher elaborated, "They are the ones that I think have less trepidation…they're more ready, and they may be more maturity." Students who struggled with the transition to middle school were those who lacked organizational skills, self-esteem, maturity, and confidence. "It's not so much the academics, as the social adjustment and the [school] organizational adjustment. I think that for some of these kids, they've never had to keep track of anything," she continued. Furthermore, social pressures from peers were perceived to inhibit a smooth transition. One teacher replied, "When you have kids who kind of have little cliques outside of school…those kind of relationships make the transition difficult because they don't let themselves pay attention to what they're supposed to be doing. They're more worried about 'who's my friend' and 'where am I going to be.'" The Sixth Street teachers noted that opportunities for students to visit Winthrop Middle and the counselor's sessions prior to the transition were particularly beneficial to her students.

Howard Elementary: Teamwork in a Junior High Model

The fifth grade teachers at Howard Elementary represent the most experienced team in the three feeder schools with four of the five teachers having 15+ years of teaching experience. The teachers at Howard strove to create nurturing classrooms that fostered student responsibility and connections to the real world. They described how fifth graders needed nurturing and encouragement; and "should not be little soldiers" who were not allowed opportunities to make mistakes or take risks. One teacher stated, "[I believe] in nurturing them and mothering them and in helping them along that we also need to give them some responsibility…but it is okay to be human."

The five fifth grade teachers at Howard Elementary used a departmentalized approach to instruction, and they cited this format as necessary in preparing students for the transition to middle school. The language arts teacher attributed the team's success to being departmentalized because she "really focuses in on language arts and writing. I don't have to worry about social studies, science, and math." Each of the teachers was responsible for one content area (social studies, science, math, language arts, reading). Each teacher moved to the students, who stayed in their homeroom classroom throughout the day. The homeroom classes were homogeneously organized at the beginning of the school year by academic ability. The fifth grade teachers worked hard at maintaining open communication among themselves by meeting weekly to discuss students and instructional plans. They also presented a united front with the parents. As one teacher reflected, "We really stay on top of students…we have the [weekly] grade sheets… you highlight your subject, their name, their grades, and then you make comments." Finally, the teachers at Howard worked together to create the grade-level rules, and they enforced them as a team.

To prepare students for the transition to middle school, they credited the fifth grade team's departmentalized efforts first and foremost. They also suggested that organization was a key skill that young adolescents must have to be successful in the middle school. Students needed to "be reminded over and over…you need to really help them to become organized…because

expectations are different." The team noted how their grading policies became stricter toward the end of the year and they tried to encourage more student independence. "We don't excuse some things that maybe we'd excused in the very beginning because we're trying to make them more self-sufficient." They also set the stage for the transition with referrals about how things would be done in middle school. "It's a different type of situation, and we constantly tell them, 'Now in middle school, your teachers love you and care about you, but they cannot be right behind every student'...Over there if you don't do your homework, you're going to get a zero." Finally, one teacher suggested that, because middle school did not typically have a family atmosphere, she tried to create that with her students in fifth grade. "I like to have a good relationship with my students. I like to be friendly with them…we have to be able to laugh. And I think it's very important socially that we feel like—and I know in middle school and high school this is not possible-but we're still a family."

According to the teachers at Howard Elementary, the students who were successful in middle school were those who functioned well moving from one teacher to the next and those who were organized. In addition, they believed that a little apprehension was a good thing because successful students had confidence to enter a new situation. On the other hand, they perceived students who lacked work ethic, expressed self-doubt, and had unstable home lives as at risk for a difficult transition. One teacher noted that students were often their own worst enemies in middle school. They also praised visits to the middle school as facilitating the transition: "They [the students] just had a lot of opportunities so that they could go and feel like they weren't going to a new environment, but they were going somewhere where they felt comfortable."

Discussion

While each feeder school was different in terms of their organizational approach, the experiences of the fifth grade teachers, and their approach to the middle school transition, several themes emerged across the data set. The first theme was the extent to which the pre-transition teachers' practices were developmentally appropriate. The second theme was a clear, negative distinction that each pre-transition teacher made between elementary school and middle school. Finally, the third theme described how teachers perceived the transition to middle school as an event that required extensive preparation.

Inconsistency with Developmentally Appropriate Practices

To some degree, the teachers at each feeder school demonstrated knowledge of the precarious nature of young adolescents. Consistent with the literature, the teachers noted the delicate and tenuous nature of early adolescence (Jackson & Davis, 2000; Rice & Dolgin, 1999). In their own words they described students in fifth grade as in a transitional developmental stage between childhood and adulthood.

> *Teacher at Lane*: I think they're growing up, but they still need the hugs and pats on the backs, and "It's okay."
> *Teacher at Sixth Street*: Children, especially fifth graders, need to be nurtured. And they're not adults, they need to be reminded when they're absent, you know, "Please turn in your work." We're trying to help the young person develop into an adult…eventually,

> but you can't expect it overnight…And I think fifth grade is a very transitional break, because, they're leaving…so they're going through a lot and a lot of them… especially the girls you know they mature faster.
> *Teacher at Howard*: I think that fifth graders are kind of in a transition time, physiologically as well as school wise…I think it is sort of the time where they begin to grow up and have to take more responsibility for themselves and their belongings and their learning.

While the teachers espoused knowledge of the characteristics of young adolescents, this did not consistently translate into the classroom practices they described. In fact many of their practices conflicted with the notion of building student-teacher relationships. For example, teachers at each school spoke to the importance of positive reinforcement, creating a sense of family closeness, positive student-teacher relationships, and nurturing climates as critical components of classrooms for young adolescents (Davis, Davis, Smith, & Capa, 2003; Jackson & Davis, 2000; Murdock, 1999; Murdock & Miller, 2003). In contrast, none of the fifth grade teachers in this study taught in a traditional, self-contained elementary classroom, or on teams designed to enhance planning, curriculum integration, or building relationships among the students (Jackson & Davis, 2000). In fact, teachers at Lane and Howard Elementary described their organization as 'departmentalized,' although the teachers described themselves as a "fifth grade team." Interview and archival data suggest that the work on teams at each feeder school was superficial in nature, did not include a common planning time, and focused on behavior management and parent communication. The teachers rationalized the use of departmentalized structures as necessary for preparing students for the middle-school structural design that they thought students would experience, however, in reality, Winthrop Middle School used 3-4 person instructional teams. In other words, Winthrop Middle School's approach, not those of the elementary feed schools, aligned with the middle school tenets that emphasize the importance of teaming structures, rather than departmentalized approaches, as most appropriate for educating young adolescents (Barber & Olsen, 2004; Flowers, Mertens, & Mulhall, 2000; Jackson & Davis, 2000; NMSA, 2003).

Similar inconsistencies were revealed in teachers' descriptions of their instructional practices. Teachers across the feeder schools recognized the importance of cooperative learning, interactive activities, and helping students make real world connections—instructional methods cited in the literature as particularly appropriate for young adolescents (Eccles et al., 1993; Jackson & Davis, 2000; NMSA, 2003). However, in their attempts to prepare students for middle school, teachers relied on practices that conflicted with these recommended instructional methods. For example, teachers stressed the importance of increasing the amount of independent seatwork fifth graders did. They spoke to increasing the amount of rote, note-taking activities students completed. Practices of homogeneous grouping or tracking were used in conjunction with departmentalized practices at each feeder school for math and reading instruction, and at Howard, in all content areas. Field notes suggested that these practices were commonplace during the fifth and sixth grade teacher meeting. When used in excess, each of these instructional methods represented developmental mismatch for young adolescents and did not serve to build relationships or a community of learners (Eccles et al., 1993; Jackson & Davis, 2000). Furthermore, differentiated instruction and integrated lessons were not mentioned by any of teachers, however, both are instructional methods recommended for use with young adolescents (Jackson & Davis, 2000, NMSA, 2003).

In terms of their understanding of young adolescents, particularly in terms of their need to build relationships and appropriate instructional practices, the first theme highlighted the conflict between these pre-transition teachers' beliefs and the practices. While their beliefs reflected knowledge of young adolescents' developmental needs, their efforts to "ready" students for anticipated middle-school practices typically correlated with the use of didactic and inappropriate practices. In other words, pre-transition teachers use of preconceived and incorrect notions of what they thought middle school was like to prepare students for middle school created a developmentally inappropriate instructional environment. These inconsistencies may be symbolic of the pressure felt by all teachers to sacrifice what they know is best for children at their present developmental level in order to expose them to the practices they think may be experienced in the future.

Elementary vs. Middle School: Environmental Differences

Misunderstandings and misperceptions of the characteristics of a developmentally appropriate middle school environment, and specifically the environment at Winthrop Middle School, emerged as a second theme. Each of the pre-transition teachers described negative differences in elementary and middle school environments in terms of parental involvement and academic rigor. For example, the pre-transition teachers emphasized their understanding and valuing of the importance of parental involvement in young adolescents academic lives—a key recommendation for appropriately educating young adolescents (Jackson & Davis, 2000; NMSA, 2003). One teacher who noted the marked difference in parental communication from elementary to middle school stated that some parents fault the elementary school for getting them used to weekly and daily communication. She said, "They (parents) get really spoiled by us giving them a weekly report and then they go to middle school. And it's like [the parents] want to see how they're doing weekly because by the time progress reports come, it's almost time for report cards." These negative perceptions of the middle-school environment are indicative of a lack of understanding of the middle-school environment at Winthrop. For example, field notes from the fifth and sixth grade teacher meeting suggest that the middle-school teachers use agendas for daily communication with parents and make additional efforts to communicate with parents as a teaching team. Furthermore, parents are engaged in the transition process through orientations, pot luck dinners, and open house meetings at the middle school.

Pre-transition teachers also made a distinction between elementary and middle school environments in terms of the academics. One teacher worried about an academic lull in sixth grade, which is consistent with critiques that the middle years lack rigor (Yecke, 2005). She noted, "I have heard that academically it's not as hard in sixth grade and I think it's to deal with that transition…so I mean, do we lose a year in education? … Is that really necessary…if it's just a social transition, does that really take a year?" On the other hand, another teacher worried that middle-school teachers do not have "family" or solid relationships with their students and parents as they do in elementary school. She feared young adolescents were being "told to get over it, grow up, write it in your agenda, get it done, read your book, the answer's in the book." She described the elementary school as "such a protective environment. There's always someone looking and watching, and you don't hear that from middle school."

Each teacher had some negative perceptions and misconceptions about the environment into which they were sending their students. These notions were pervasive despite the fifth/sixth grade teacher transition meeting and were representative of their lack of understanding about the characteristics of Winthrop Middle. All of the teachers in this study hold an elementary teaching certificate and none had experience in the middle school environment. This may explain some of the misconceptions, however, they are a cause for concern on two levels. First, are the negative perceptions overtly or subtly conveyed to their elementary students in the pre-transition year? Second, are these negative perceptions and misconceptions the primary sources for which they make their decisions about how to prepare students for the middle school transition?

Preparing for the Transition

Each teacher described preparing their students for middle school as an important responsibility, and they made efforts to prepare their students using departmentalized grade organization, procedures for student organization such as agendas and binders, and use of didactic instructional strategies. The tendency of each teacher was to focus on tangible, straight-forward, and easily-addressed skills, rather than on the academic social, and emotional tenets of a developmentally appropriate instructional environment for young adolescents (Jackson & Davis, 2000; NMSA, 2003). In their efforts to prepare students, they resorted to strategies such as increased teacher control and whole task organization. These are environmental mismatches for young adolescents. One might predict that excessive attention to these task-oriented skills, as opposed to building positive peer relationships and opportunities for decision making, would have negative outcomes for students transitioning to middle school (Anderman & Midgley, 1997; Eccles, et al., 1993).

The teachers all acknowledged that some students struggle with the transition to middle school, regardless of their efforts to prepare them. Each teacher suggested that little could be done to assist these students who are at-risk for a challenging transition. Again, tangible strategies were employed to help prepare all students: organizational strategies, increases in responsibility, but no specific strategies were noted for assisting potential strugglers and proactively addressing student deficiencies. This was evidenced at the transition meeting which was more about "bashing" the students who were about to enter middle school for their academic weaknesses, social nature, behavior, and work ethic, rather than proactive measures to assist the students.

Conclusions

Understanding the beliefs and practices of pre-transition teachers is essential, given that a poor middle school transition may negatively affect students' motivation, interest, performance, and behavior across the transition (Eccles, et al., 1993; Parker & Neuharth-Pritchett, 2008). In fact, there is much to be learned from the teachers highlighted in this study. They are implementing structures and methods in their classrooms based on what they *perceive* to be the recommended practices in middle schools and what they *think* their students need to facilitate a smooth transition to Winthrop Middle School. This is the case even when these practices conflict with their beliefs about young adolescents' needs and the actual environment at Winthrop Middle School. This may be representative of practices occurring in many pre-transition, elementary classrooms. The pre-transition teachers in this study are so pressured with preparing for what is to come that they sacrifice doing what they know is best for children at their present levels.

Again, one might argue that many teachers face this same dilemma daily. Finally, while opportunities were in place for communication across school contexts in this study, they were not used for maximum benefit. Instead teachers chose to focus on student deficiencies and logistics. These learnings suggest that teacher educators, school administrators, and classroom teachers refocus on the present needs of their students, revisit staff development for the purposes of making connections across grade levels, and rededicate quality time to communicating across grade and school contexts. Furthermore, the authors hope that teacher educators use this study as a springboard for designing empirical studies that investigate the practices of pre-transition teachers as they prepare young adolescents for the transition to middle school.

When considering the findings of this study, it is important to note the limitations that exist. First, the authors recognize that the investigation of 12 teachers at three feeder schools in one school district has limited generalizability. In addition, the limited time for data collection (one school year) may mean that the teacher practices reported here are an atypical rather than the norm. Finally, the presence of the authors in the participating schools as part of the larger transition project and as teacher educators in an elementary teacher preparation program may have unduly influenced (positively or negatively) the teacher interviews and observational data. For example, the teachers may have felt very comfortable with the authors given their visible presence in the schools thus leading to more honest interview and observational data. On the other hand, familiarity with the authors may have inhibited the teachers' sharing of practices that may not be seen as appropriate or best practices. Despite these limitations, the authors assert that this research illustrates the variety, complexity, and isolation within which pre-transition teachers prepare their students for middle school. This work deepens our understanding of pre-transition teachers' perspectives and practices about middle-school transition and early adolescence, and it opens the door for further investigations on this line of inquiry. Finally, the authors assert that the vignettes of pre-transition teachers may resonate with all teachers who struggle with preparing students for the upcoming school year while still meeting their students' present academic, social, and emotional needs.

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APPENDIX A: Interview Protocol

1) Tell me a about yourself and your teaching background.
2) Tell me about your philosophies or beliefs in regards to teaching fifth graders.
3) Tell me about school's beliefs or team's beliefs in regards to teaching fifth graders.
4) How do you facilitate the transition to middle school?
    a. Academically
    b. Socially
    c. Behaviorally
5) Tell me about students who move smoothly into the middle school culture.
6) Tell me about students who struggle with the move to the middle school.
7) Describe the transition program your students experienced this past year.
8) Tell me about your perceptions of what happens in sixth grade.
9) Is there anything else that you would like to add about transitioning fifth graders to middle school

APPENDIX B: THEMES ACROSS VIGNETTES

Theme 1: Inconsistencies in Understanding Developmental Needs of Young Adolescents

- Precarious balance between childhood and adulthood
- Importance of positive environment, sense of family/close relationships
- Use of departmentalized instruction
    - Used to prepare for middle school
    - No curriculum integration
    - Team-building among students
    - Common planning time
- Instructional practices
    - Cooperative learning
    - Real world connections
    - Relied on
        - Independent work
        - Note taking
        - Tracking/homogeneous grouping

Theme 2: Elementary vs. Middle School: Environmental Differences

- Perceptions
    - Less parental involvement
    - Less academic rigor

Theme 3: Preparing for the Transition

- Responsibility of pre-transition teacher
- Strategies

- Departmentalization
- Organization (agendas and binders)
- Didactic instructional practices

Table 1.

Summary of Vignettes

	Lane	Sixth Street	Howard
Number of teachers	3	4	5
Grade configuration	• Semi-departmentalized	• Two person teams; homogenously grouped	• Departmentalized, homogeneously grouped
Philosophy	• High expectations • Nurturing environment • Opportunities for interaction	• Reduce terror of middle school • Increase student responsibility	• Nurturing and encouragement • Take risks and make mistakes
Instruction	• Cooperative learning • Drill and practice • Independent work • Interactive activities	• Independent work • Note taking	• Content emphasis
Parent communication	• Weekly reports • Agendas • Consistent reporting of behavior expectations		• United front from all five teachers • Weekly grading sheets
Preparation for Transition	• Departmentalization • Binders • Trip to middle school	• Organizational skills • Connecting to outside world • Develop student responsibility	• Departmentalized instruction • Stricter grading policies • References to middle school
Students who struggle with transition	• Lack confidence • Limited parental support • Unorganized • Struggle with multiple teachers	• Fearful, lack confidence • Less mature • Unorganized • Struggle with social adjustment	• Unorganized • Struggle with multiple teachers • Poor work ethic • Unstable home life

Using the PointScribe Writing Program to Help Develop and Promote Handwriting among Special Needs Children

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Children with developmental and learning disabilities, such as cerebral palsy, Down syndrome, autism and attention deficit disorder, have been shown to have deficiencies with their Visual Motor Integration (VMI), and this is often reflected in minimal to a complete lack of handwriting skills. The PointScribe (PS) writing system is a total sensory approach integrated into a tablet PC that attempts to capture a child's visual attention when learning to write. This study used an advanced prototype version of the PS program that was earlier tested in a pilot study. The results from this study suggest that the PS writing program does significantly increase writing performance among children with special needs.

Many special needs children such as those with cerebral palsy, Down syndrome, autism and attention deficit disorder have been shown to have deficiencies with their Visual Motor Integration (VMI) when compared to their typical peers (Desai & Rege, 2005). This deficit is often associated with a severe inadequacy in handwriting skills. For example, DuBois, Klemm, Murchland, and Orzols (2007) performed a study which found that a majority of children with Down syndrome had difficulty with writing, particularly in the areas of functional writing skills such as organization, legibility, accuracy, and speed). Interestingly, this study revealed that boys had significantly more trouble than girls in these specific areas of writing. Over the past few decades, occupational therapists (OTs) along with educational researchers have investigated the effects of assistive technology as an intervention to these writing deficiencies among children with special needs. Educational researchers have also been interested in exploring secondary factors thought to contribute to poor motor skills, lack of motivation, and lack of attention.

Past studies have illustrated the effects and value of computer technology in helping specific populations of learning disabled children. For instance, Heimann, Nelson, Tjus, and Gillberg (1995) found a significant improvement in reading and communication skills in preschool children with autism through an interactive multimedia computer program. In addition to the autistic children, improvements were also found in children with a variety of learning disabilities as well as with their typical peers. The computer program incorporated on-screen animations and videographic material that provided immediate feedback in order to help maintain the visual attention of the child.

Another study examined the contribution of computer-based instruction on early reading skills in preschool children at high risk for learning disabilities (Mioduser, Tur-Kaspa, & Leitner, 2000). Their results indicated that the group that received the computer intervention significantly improved their phonological awareness, word recognition, and letter naming skills compared to their peers that did not receive the computerized reading intervention. Educational researchers also concluded that the use of a touch-screen computer coupled with sound was of optimal value when producing these results. Additionally, the computer interaction seemed to benefit not only these specific skills, but it also seemed to benefit the children's motivational and confidence levels.

Parette, Hourcade and Heiple (2000) also found other non-technical benefits to the importance of structured computer experiences for young children. Their compilation of past research showed that computers and appropriate software can enhance opportunities for inclusion by providing opportunities for children with disabilities to interact with their typical peers on group computer activities. This has been proven to be a great socialized activity where children with all types of backgrounds, disability or not, can learn together.

Not only have researchers found tangible benefits to computer assisted education for children with special needs, but the children themselves also seem to prefer the computer methods. Vaughn, Schumm and Gordon (1993) based their research on the fact that elementary school students rank using computers as one of the instructional activities they enjoy the most. Lahn (1996) found that preschool children preferred software programs with higher interaction requirements, especially programs that used animation, sound, and voice features when compared to more static programs from earlier generations. Children with disabilities seem to be very compliant and engaged when working with the computer programs. This not only makes learning fun for the children but also simplifies the tasks for the OTs and all of those involved with the learning technology.

The present study

The PointScribe (PS) writing program is an innovative technology that promotes a total sensory approach incorporating touch, sight, and hearing to help captivate a child's attention when learning to write, especially those with learning disabilities. The PS software was developed by computer science students at the United States Air Force Academy and has undergone recent renovations. The PS software uses a stylus tablet PC to allow for hands-on interaction by the student. A previous study with the initial version of the software showed significant results for the group receiving the PS intervention as they achieved significantly higher gain scores than the control group who did not receive the PS intervention (Yip, Katayama & Stewart, 2007). Although it was found that the children in the PS condition actually took longer to complete tasks than the control group, this can be attributed to capturing the children's attention and motivation for a longer period of time.

The purpose of the present study was to follow up the previous study with a more integrated version of PS. The newer version used in this study had more feedback options (e.g., positive and negative reinforcement feedback), more personalized options (e.g., themes, color schemes, music) and more writing templates (e.g., all capital letters, lower-case letters, numbers 0-9, shapes). The updated program also allowed the OTs to create their own shapes and save it to the library for future practice with an individual child. Because the results of the pilot study suggested that the PointScribe program may have distinct advantages over the paper-and-pencil method, the authors of this study chose not to exclude any child from the intervention in this study in order for them to gain all the potential benefits from the program (Yip, Katayama, & Stewart, 2007). Therefore, a comparison group was not used as part of the design of this study. A pre-and-posttest design was used to assess gain scores on both the hard copy writing tests as well as the computerized PS tests. The research team was interested in measures of accuracy, attention, and time from the pre-and-posttests for each student in the study. In essence, each child served as their own control. The authors of this study were interested in investigating if there would be increases on all three measures (accuracy, attention, time). Finally, the authors were interested in testing if there would be some gender differences between the gain scores.

Method

Participants

Sixty-seven special needs (Down syndrome, ADHD, developmental delay, and autism) preschool and elementary school children, ages 3 to 8 participated in this study. Administrative approval was obtained from the director of special education programs at each of the participating school districts and parental consent forms were signed before any child could take part in the study. In addition, for the purpose of this study each child had to have an Individual Education Program (IEP) and had to score below a 70% on PointScribe pretest to be included in the present study. Further, each child needed to have at least two hours of contact with an OT per week as prescribed in their IEPs. A total of 16 OTs from five different school districts participated in the study. Certain students' data were not included in the study because their pretest scores were too high; however they were still allowed to use the PointScribe program with their OTs to work on their psychomotor skills.

Each participant was given a code as a safeguard to protect anonymity as much as possible. A standardized coding process was used whereby participants were coded by the students' first and last initials, a 2-3 letter school code, and a 2 digit district code that corresponded to each school. For example, DY-KL-20 would indicate that "DY" was the students' initials, "KL" would represent the school, and "20" would indicate the school district. Only the occupational therapists (OTs) and the paraprofessionals working with the students had the computer login and password to access the PointScribe program and data, thereby providing an additional safeguard for student confidentiality.

Materials

Facilities. The testing facilities varied according within and between each school district. Some schools would utilize "resource rooms" while others utilized a "special needs classroom." However, the commonality between all the rooms was that they were separate from the regular classrooms.

PointScribe Software. The initial prototype of PointScribe was developed by computer science majors at the United States Air Force Academy. In the year leading up to the present study, the program had undergone several renovations by two computer software engineers: one was the original developer and is now a First Lieutenant in the United States Air Force, and the other was a volunteer commercial software expert. The version used in this particular study was beta version .92 and was written in Java script language. The program could only be used with a PC computer operating in Windows XP. The stylus tablet PC was essential for this program because the display surface also functioned as the writing surface. The PS program was easily personalized for each student in the program (see Appendix A). Within the program were various lessons that help the student practice lines, shapes, letters, and numbers. The OTs were able to personalize the lesson to each students' needs and abilities by adjusting the theme (e.g., baseball) the colors (e.g., black background with orange shapes), the tolerance of the shape (how wide the margin of error allowed), and the sound (e.g., "take me out to the ballgame"). When the student touched the stylus at the starting point, the music and animation were initiated. As long as the student stayed within the tolerance band and did not lift the pen from the screen, the music would continue playing. If the student successfully completed the task, they were rewarded with positive reinforcement sounds such as fireworks, applause, clapping, etc. However, if the student lifted their pen off the screen, stopped the exercise, went backwards with their pen, or went outside of the tolerance band, the music stopped playing, a negative yet constructive sound was played such as an "aaaw" or "try again" and the lesson went back to the beginning. Each stroke that the student made appeared on the screen until the lesson was completed or terminated, thus providing additional feedback for the student to "see" their work without the tolerance bands. During the practice sessions OTs were allowed to give their students as many repetitions as they deemed necessary as long as the students were willing to participate.

During the testing sessions, the theme and positive reinforcement were randomly selected. The tolerance band was standardized for all repetitions at four inches. Once the students' code was entered into the program for the testing session to begin, the OT was then given one repetition to demonstrate the shape for the student. Then the student was allowed one practice trial before the actual testing session began. During the testing session, the student was given five trials in which the student's accuracy, average time to complete each shape, and error type (i.e., going outside the boundaries, going backwards, or lifting the stylus off the screen) was recorded and stored on the computer. Subjective data such as attention rating by the OT, and each student was feeling the day of the test was handwritten into a study log that would later be collected by the researchers. The information was then coded as a Microsoft Excel document and emailed to the researchers for data compilation. Once all the data was gathered, it was formatted into SPSS version 14.0 for further analysis.

Tablet PC. A private grant through FalconWorks helped us with the purchase of 14 Toshiba Satellite R-10 and R-20 Tablet PCs for the participating schools. Due to the limited supply of the tablet PCs available, they were allocated according to the number of children in each school district and the need that each district had based on the input provided to us from the OTs. Prior to the study, the PointScribe software was loaded onto the computers and tested for proper functionality by the software developers and the researchers.

Pencil and Paper Test. A pencil and paper test was developed in conjunction with the OTs in order to best assess the handwriting progress of the students. The shapes and letters used in the tests were recommended by the inputs provided by the OTs. In total, there are eight different shapes and three letters of the alphabet, each consisting of five trials. The shapes included were: vertical lines, horizontal lines, diagonal lines, circles, triangles, squares, and crosses. The letters included were: "C", "L", and "M."

Scoring Rubric. The pencil and paper test was scored using the Test of Visual-Motor Skills-Revised Alternate Scoring Method (TVMS-R) (Gardner, 2004). Additionally researches composed an additional rubric for scoring the items that were not included in the TVMS-R (straight lines and letters) The TVMS-R is a common assessment tool used in public schools that provides researchers a way of assessing a participant's ability to "translate with his or her hand what he or she visually perceived" (Gardner, 2004, p. 24). The TVMS-R provides a numerical score to geometric designs based on eight classifications of errors including: (1) Closure (lines overextended or under extended); (2) Angles (rounded, dog-eared, degree change, greater or less than allowable, added, omitted); (3) Intersecting and/or overlapping individual lines (penetrate, under extend, unequal extensions); (4) Size of design or part of design (modified, smaller, larger, longer, shorter); (5) Rotation or reversal (design or part of design); (6) Line length (unequal, longer, shorter); (7) Over penetration, under penetration; (8) Modification of design (changes in shape, missing part[s], added part[s]).

Reliability for this test was calculated in two ways. The first utilized the Kuder-Richardson reliability formula and yielded a KR-20 score of .84. The second method calculated Cronbach's alpha of .90. Both measures are deemed to be dependable estimates of inter-rater reliability (Gravetter & Forzano, 2005). The rubric produced by researchers follows the design and the point scale of the TVMS-R (see Appendix B for rubric).

Design and Procedure

This study used a mixed-model design. Students were all given the same pre-test, provided the same PointScribe intervention, and then given the same post-test. Scores were compared from pre and post intervention thereby allowing for a within-subjects design to be utilized. Between-group comparisons were also used to detect differences between male and female participants.

Data Collection. The design of this study is similar to the initial PointScribe study. Prior to all testing and instruction of the students, several training workshops were conducted to educate the OTs on how to instruct the students using the PointScribe program and the tablet PCs. Once the

OTs were comfortable with the software and hardware, they were instructed to administer the pencil-and-paper pretest as well as the PointScribe pre-test. All pencil-and-paper pretest were delivered to the researchers either by mail or pickup for scoring. PointScribe pretest data were then transmitted to researchers via internet. For this transmission, some OTs were able to transmit directly from their respective school while others had to take the PC with them to a different internet connection to transmit the data due to school firewalls or lack of school internet connection. The authors discuss these and more limitations later in the discussion portion of this paper.

Once pre-testing was completed, the OTs were instructed to initiate the PointScribe intervention. The intervention period of approximately eight weeks consisted of each student using the PointScribe writing program approximately four times a week with their OT. At the conclusion of the intervention, all of the OTs were responsible for personally administering the pencil-and-paper as well as the PointScribe pre and posttests. The posttests were delivered to the researchers in the same manner as the pretests.

Results

All data were coded and entered into SPSS version 14.0 for analysis. A total of 67 data sets were entered (65 were complete sets). Of the sample 60% were male and 40% were female. The most common learning disabilities among the special needs participants were autism (16.4%) and developmental delays (14.9%) whereas hydrocephaly (1.5%) and primary communication disorders (3.0%) made up the least common disabilities among our sample. Table 1 presents the breakdown of the categories of disabilities among our sample.

Our first prediction was that there would be an increase in accuracy between the pre-and-posttests. Table 2 presents the ANOVA results of the gain scores between the PointScribe pre and posttests, F (1, 65) =5.165, p=.026. The posttest scores on PointScribe (M=41.56, SD=18.51) were significantly higher that the pretest scores (M=50.94, SD=20.31).Table 3 presents the dependent t-test results for the gain scores on the hard copy tests. Students also achieved significant gain scores on the hard copy tests as well, $t(67) = 16.387$, $p = .000$. Scores on the hard copy posttests (M=41.61, SD=20.05) when compared to their scores on the hard copy pretests (M=36.69, SD=18.33).

Our second prediction was that there would be an increase in attention rating from pretest to posttest. Table 4 shows the average attention gain on PointScribe from pre to posttest, $F(1,65) = 1.791$, $p= .185$. There was no significant increase between the two tests.

Gender Differences

The next hypothesis involved investigating performance differences between genders. The amount of practice time allotted to males (M = 12.93, SD = 2.77) vs females (M = 12.19, SD = 1.66) was not significantly different nor were other factors as shown in Table 4. However, there was a significant difference in the gain scores on the PS program. Among the sample, females obtained higher gain scores (M = 12.01, SD = 7.62) than the males (M = 7.43, SD = 8.40).

Correlations

In addition to the stated hypotheses concerning differences between tests, the authors were also interested in investigating a number of correlations among the variables. This is an important investigation because there is limited evidence in the literature about the motivation and attention factors and how they relate to performance outcomes among special needs children (Desai & Rege, 2005; Dubois et al, 2007). As the authors predicted, there was a significant positive correlation between attention ratings on the hard copy pretests and the scores on the hard copy pretest, $r(67)=.33$, $p=.00$. A significant positive correlation was observed between attention ratings on the hard copy posttest and the scores on the hard copy posttest, $r(65)=.34$, $p=.00$. On the PS tests, the authors also found support for our prediction of a significant positive correlation between pretest attention ratings and pretest scores, $r(67)=.59$, $p=.00$. There was a significant positive correlation between the PS posttest attention ratings and posttest scores, $r(67)=.52$, $p=.00$. Likewise, there was a significant positive correlation between posttest attention scores and overall -gain scores on the posttest, $r(67)=.42$, $p=.00$. There was a positive correlation between overall average attention gains on and overall -gain scores on the PointScribe program, $r(67)=.409$, $p=.00$.

Regarding the relationship between practice sessions, cumulative time spent practicing writing with the PS program and gain scores the study provided support for both predictions. The number of practice sessions was significantly correlated with gain scores on PS, $r(67)=.574$, $p=.00$. Cumulative practice time (in minutes) was also significantly correlated with gain scores on PS, $r(67)=.35$, $p=.004$. However, there was a negative correlation between average practice time per session and gain scores on PS, $r(67)= -.25$, $p=.04$. This was due to the great variation of time per session. Finally, although not statistically significant at the .05 level, a positive correlation was found between gain scores on PS and gain scores on hard the copy tests, $r(65)=.228$, $p=.068$. Overall, it appears that the more frequent students were exposed to the PS program, the greater their gain scores on the PS program.

Discussion

A main reason for performing this study was to build upon the previous pilot study using PS and continue to investigate its effectiveness when OTs are given the opportunity to modify and personalize the program to meet each students' writing needs. A few minor differences were made in this study compared to the pilot study (Yip, Katayama, & Stewart, 2007). The main difference in the present study from the pilot study was that each child was allowed to experience the benefits from the program. This decision was made with the knowledge that students in the pilot study did significantly improve their writing abilities with the PS program when compared to the control group. Therefore, the authors felt an ethical obligation to not withhold the benefit from any child in the present study. As a result, a comparison group was not used in this study. Additionally, the program underwent a few substantial modifications to make the program more customizable for each child. Throughout the study, the authors wanted to see if the improvements to the PS program would help with overall accuracy in writing. As the results

indicate, there were significant gains scores on both the hard copy and PS tests. The authors also investigated the effects of attention on between pre and posttests. Although there was an increase in attention, it was not statistically significant. The authors were also interested in looking specifically at performance and attention differences between males and females. Consistent with previously mentioned research (Dubois et al., 2004), the females seemed to outperform their male counterparts as evidenced by their gain scores being significantly higher than the males. Even though the average attention gain on PS and gains on the hard copy were also higher for females, they were not statistically significant. These results also confirm the results in the previous research (Hernandez, Field, Largie, Mora, Bornstein, & Waldman, 2006).

Limitations in the Present Study

As with any research, there were a number of limitations in this study. The first limitation was with the technology itself. The technical team in this study inevitably encountered a few bugs in the software that required software "patches" to remedy. The fix on these bugs were troublesome and required a fair amount of work and time to get all 14 computers running the way they were supposed to. Once the patches were installed, the program seemed to work fine.

Second, there was such a wide range of learning disabilities associated with the participants that the outcomes could be completely different for different disabilities. Although an investigation of the effects on each population would have been beneficial, there were not a significant amount of children in each special needs category to gain a true understanding of the effects on specific disability. The number of participants in this study was a fairly small number (n=65), especially when compared to the previous study which had over 100 participants. Therefore, as with many small-scale studies, this study could certainly benefit from a larger sample in terms of detecting statistically significant results between disability categories.

Third, the variation of time exposed to the program for each child varied substantially. This is natural however, because each child's IEP is also varied for their time in occupational therapy. Regarding the OTs involved in the study, a fourth limitation was that there appeared to be a considerable degree of variance among the therapists helping us with this study. Although much of this was beyond the control of the study, the authors did observe distinct differences across the sample. As a precursor, in order to minimize variation in therapist teaching techniques, standardized training sessions were held for all the therapists at the beginning of the eight week study. However, due to unforeseen circumstances, a few therapists were unable to attend the initial training and therefore had to rely on another therapist at their school to provide them with the training. This in itself could have led to small differences in protocol implementation.

After the study, it was noted by the authors that while some therapists were able to work more exclusively with the children on a weekly basis, others had to rely on paraprofessionals or classroom aides to work with the children. A third area in which the therapists varied was in their "comfort level" with technology. For some of the OTs, not only was it a "new" technology to

work with but a new pedagogy of teaching writing. According to the feedback received after the study, it appeared that while some OTs were quite comfortable using the stylus and tablet computers, other OTs were somewhat uncomfortable. Another limitation that was not controlled in the study was the physical setting in which the testing took place. For example, some schools had a special technology room or a special education room where the PS program was set up whereas other schools used the PS computers in the proximity of the classroom (e.g., adjoining room next to the classroom). Although these rooms varied from school to school, the common factor was that all the testing took place in rooms that were separate from the regular classroom where the students normally learn.

The authors of this study hope that these limitations can lead to future investigations on much larger participant pools having a common disorder. These investigations can potentially show if the PS program is more adept at helping certain children over others (e.g., visual attention disorders). Overall, a future study would benefit by teasing out the software bugs completely before implementation, increasing the sample size (to help detect differences between sub-samples), standardizing the time that each child has practicing PS, reduce OT variation by implementing a day-long formal training to help everyone become more comfortable with the software and hardware, and controlling the training and testing environments better.

In conclusion, there is considerable evidence in both this study and the pilot study that the PointScribe writing system is beneficial to children with learning disabilities in developing their handwriting abilities. Getting these children to have high attention scores and a sense of motivation to engage in the program is a success in itself. However, it is only the beginning steps, but if they do indeed enjoy and benefit from working with the PointScribe program, then the chances for them to build the foundations of writing are greatly improved. With additional feedback and improvements, this system can continue to help children with disabilities increase their learning motivation and writing skills.

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Table 1.

Breakdown of Primary Diagnoses

Primary Diagnosis	Frequency	Percent	Cumulative Percent
ADD/ADHD	6	9.0	9.0
Autism	11	16.4	25.4
Cerebral Palsy	3	4.5	29.9
Developmental Delay	10	14.9	44.8
Down Syndrome	6	9.0	53.7
Hearing Impairment	3	4.5	58.2
Hydrocephalus	1	1.5	59.7
Multiple Developmental Delay	3	4.5	64.2
Other (preschool, IEP pending)	8	11.9	76.1
Other Disability (un-specified)	3	4.5	80.6
Primary Communication Disorder	2	3.0	83.6
Speech & Language Disorder	3	4.5	88.1
Significant Limited Intellectual Capacity	4	6.0	94.0
Visual Attention Deficit	4	6.0	100.0
Total	67	100.0	

Table 2.

ANOVA Gain Scores on PointScribe Posttest

		Sum of Squares	df	Mean Square	F	Sig.
Gain Scores on PointScribe Posttest	Between Groups	338.469	1	338.469	5.165	.026
	Within Groups	4259.862	65	65.536		
	Total	4598.331	66			
Average Attention Gain on PointScribe	Between Groups	650.354	1	650.354	1.791	.185
	Within Groups	23597.47	65	363.037		
	Total	24247.761	66			

Table 3.

Attention Score Gain on Hard Copy Posttest

	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Pretest Score (Hard Copy)	16.387	66	.000	36.68806	32.2179	41.1582
Posttest Score (Hard Copy)	16.728	64	.000	41.60769	36.6386	46.5768

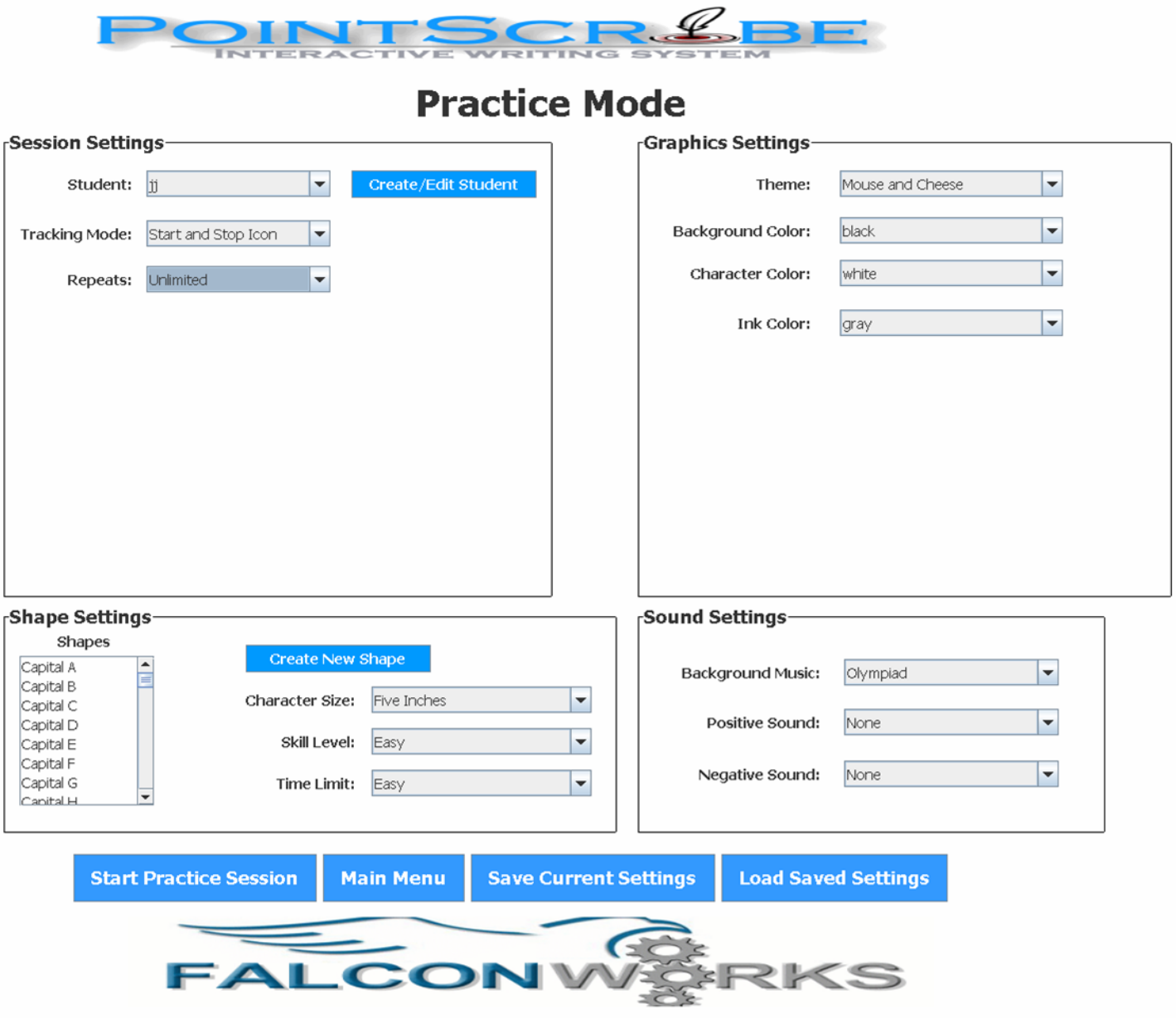
Table 4.

T-Test of Gender Differences

	t	df	Sig. (2-tailed)	Std. Error Difference
Gain scores on Hard Copy posttest	-.145	63	.885	1.85527
Average Attention Score Gain on Hard Copy Test	1.148	62	.255	3.29835
Gain Scores on PointScribe Posttest	-2.273	65	.026	2.01635
Average Attention Gain on PointScribe	-1.338	65	.185	4.74571

Appendix A

PointScribe Screenshot



Appendix B

Grading Rubric

Design: Straight Lines (Vertical, Horizontal, and Diagonal)

Score 3
No score 3 may be recorded for this design

Score 2
Lines are on the dotted lines for the majority of the pattern

Score 1
Lines are on the dotted lines for part of the design

Score 0
Lines are not on the dotted lines or only intersect the dotted lines throughout the pattern

Design: Letters (C, L, and M)

Score 3
Lines are on the dotted lines for the entire pattern, very few deviations can exist

Score 2
Lines are on the dotted lines for the majority of the pattern

Score 1
Lines are on the dotted lines for part of the design

Score 0
Lines are not on the dotted lines or only intersect the dotted lines throughout the pattern

Waging Peace through Forgiveness in Belfast, Northern Ireland IV: A Parent and Child Forgiveness Education Program

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This study appraised the effects of a parent-led forgiveness intervention on forgiveness for parents and their third grade children (ages 8-9) in Belfast, Northern Ireland. In this study, parents in the experimental group (n = 5) used a curriculum guide to teach forgiveness to their children, while the control parents (n = 5) participated in art activities with their children. Statistical analyses demonstrated a significant increase in interpersonal forgiveness of an offender for parents who taught forgiveness to their child compared with the control group parents. Findings and future directions are discussed.

We would like to extend our appreciation to Jon Hatch and Padraig Twomey of Peacelines in Belfast, Northern Ireland for their assistance in collecting data for this project.

In previous issues of this journal (Enright, Gassin, & Knutson, 2003; Enright, Knutson-Enright, Holter, Baskin, & Knutson, 2007), we proposed and tested a peace program aimed, in the short-run, at improving the mental health of children in Belfast, Northern Ireland. We found that children in grades 1 and 3 (primary 3 and 5) who participated in forgiveness education led by their classroom teacher experienced a statistically significant drop in anger compared to children in the control group. Furthermore, children in primary 5 reduced statistically significantly in psychological depression compared to children in a control group (Enright et al., 2007). The results with anger have been replicated in the United States in grades 1, 3, and 5 (Holter, Magnuson, Knutson-Enright, Enright, & Knutson, 2008).

We have been interested in a new approach to peace that places forgiveness deliberately as a priority throughout the community, within schools, places of worship, and homes. The point is to allow people to learn about and practice forgiveness so that deep resentments, which can lead to prolonged violence, are reduced and therefore the violence may eventually be reduced across the community. Our approach to peace is a "bottom-up" or grass-roots approach in which we assume the following:

1. Conflict between people is directly connected to conflict within people. Excessively angry people start wars. It is certain that anger alone is not the catalyst to war; the point is that anger is an often ignored part of the process.

2. One person's internal conflict, let us call it resentment, has a way of infecting others, creating resentment within them until many in a social group are suffering from the malady of excessive anger that is allowed to grow within and be expressed outward toward others.

3. Even if economic and social reconstructions are effective in altering the infrastructure of a society, the inner world of the human heart, when resentment remains, can prevent true peace from being realized within a society. In other words, conflicts between people, which can lead to renewed war, are likely.

4. Forgiveness is not a substitute for programs centered on justice, but instead are complements to them.

5. Forgiveness, practiced over years in schools, families, and places of worship should be able to reduce or even eliminate the internal resentments. This should allow people to accept rebuilt infrastructures and live together in peace. In other words, forgiveness as part of post-accord societies (those that have signed peace treaties) may be particularly effective.

6. To be effective, forgiveness programs must have a clear definition of the term forgiveness and not confuse it with somewhat related but distinct terms such as excusing.

7. To be effective, the forgiveness programs must be sustained over a period of years to allow people to learn and then to incorporate the practice of forgiveness into their daily lives and to pass the learning and practice to their children.

8. Forgiveness education cannot be isolated to a few willing participants, but instead needs to pervade a society if that society is to change toward peace where war was once the norm. In other words, the assumption is that forgiveness must become part of the community, not isolated and individualized, if it is to aid peace initiatives.

As one step in advancing the agenda of point 8 above, we thought it was time to extend forgiveness education within the home, to see if parents might be able to forgive as they teach their children, who are already receiving forgiveness education in the school. If the parents can learn to forgive while they are teachers of forgiveness to their children, this may lead to more peaceful and psychologically healthier homes as the leaders in those homes, the parents, reduce resentments, forgive, and model forgiveness for their children.

At the same time, we were interested in whether this added dosage of forgiveness education for children, above and beyond the school instruction, leads to even more gains in their ability to forgive. Obviously, the school is not the only influence in a child's life. Parents, in fact, are another important influence on children (Laible & Thompson, 2007), and when the family environment remains unchanged, even the best school-based program will have a difficult time

producing lasting psychological change for the children. Programs that involve parents show more promise than school programs alone (Horowitz & Garber, 2006). Since parents are major shapers of their children's values and healthy functioning in various life domains, including emotions and behaviors (Grusec & Davidov, 2007), a forgiveness education program delivered to children by their parents holds intriguing possibilities for lasting positive mental health and relationship change.

With these issues in mind, we trained parents to deliver a manualized forgiveness education intervention to their primary 5 (grade 3 in the United States) children and assessed its impact relative to an alternative treatment. In this brief report, even though we assessed other, secondary variables in the study, we focus on two primary hypotheses:

1. Parents who lead the forgiveness curriculum will show increased forgiveness compared with parents who lead the control condition.

2. Children who participate in the parent-led forgiveness curriculum will show increased forgiveness compared with children who participate in the control condition.

Method

Participants

Participants included 16 parents (8 randomized to the experimental, and 8 randomized to the control group) and their children in Primary 5 (P5; the U.S. equivalent of third grade) in Belfast for the 2008-2009 school year. Five families dropped during the course of the study, and the data for one parent/child pair were eliminated from analysis because of the parent's pattern of perseveration on some of the scales at post-test (for example, giving a rating of "2" for every item on a scale), leaving 5 experimental and 5 control families for delayed post-testing. Families were recruited from schools that have been participating in ongoing research and service projects through the University of Wisconsin – Madison.

Participants were blocked on child gender and school type. In the final sample, the experimental group consisted of 2 boys and 3 girls (all Catholic) and the control group was made up of 1 boy and 4 girls (4 Catholic and 1 Protestant). The children ranged in age from 8 to 9 years (*M* 8.3 years, *SD* .48), and parents ranged from 26 to 40 years (*M* 33.0 years, *SD* 5.31). Of the 10 parents, 9 (90%) were mothers and one (10%) was the father, 2 (20%) were married and 8 (80%) were single. All parents received a positive teacher recommendation on parents' literacy level (since books are an important part of the program and illiterate parents would not be able to read to their children) and no children had special academic needs (since children in special education or special literacy programs might respond differently to the intervention). All children involved in this study were receiving forgiveness education in the classroom from their P5 teacher in addition to this intervention.

Forgiveness Program Description

The *A Family Guide to Forgiveness Education* (FGFE; Knutson & Enright, 2008) curriculum is a fourteen-lesson manualized forgiveness education program designed for implementation at home by parents. Each lesson is meant to last about 45 minutes, and forgiveness is taught through story, family discussion, and activities meant to deepen understanding. For example, lesson one centers on the value of inherent worth, or the idea that all people have deep value that is an essential part of their nature. This worth cannot be earned or taken away, and it does not depend on abilities, attractiveness, health, group membership, wealth, or any external characteristic. After parents read the first three chapters of the book *Sarah, Plain and Tall* (MacLachlan, 1985), the parent and child engage in several discussion questions, such as, "What gives people deep worth?" Finally, the parent and child participate in an activity wherein the parent gives the child a stuffed toy. Together, the parent and child consider the stuffed toy in light of the topic of inherent worth. For example, they explore whether the toy has worth because of its fabric or appearance. After constructing a "house" for the toy, the parent and child explore whether the toy has more worth now that it has a house. Further questions relate the concept of deep worth directly to the child's experience.

Family Art Program Description

The placebo control condition, called the *Family Art Program* (FAP; Magnuson, 2008), is a fourteen- lesson manualized program consisting of shared art activities. The active control condition is meant to account for variables like parental attention, time spent with parents, shared activities, adult exposure, contact, teamwork, cooperation, parent preparation, parent effort, and parent training that could conceivably account for any positive impact from the forgiveness program. As an example, lesson four calls for parents and children to create a story book using pictures from magazines. After the parent and child look through magazines together and cut out pictures they like, they make up a story that goes with the pictures. The parent and child glue the pictures on construction paper and write their story around the pictures on each page. Finally, they create a cover for their story book, staple it together, and discuss their favorite part of the story.

Parent Training

Parents who participated in the study attended either a forgiveness education workshop or a family art workshop led by a doctoral student in educational psychology and a licensed marriage and family therapist. The workshops, which lasted approximately two hours, were held at local schools, either during the day or after the school day had been completed.

Instruments

Parents' forgiveness. The Enright Forgiveness Inventory (EFI; Subkoviak, et al., 2005), which has been validated in six languages, is the most frequently used measure of forgiveness in published experimental research, with consistently high reliability (Cronbach's α = .98-.99; Enright & Rique, 2000/2004). The EFI is made up of 60 items and contains three 20-item subscales assessing cognitive, affective, and behavioral domains of forgiveness toward an offender. The instrument begins with questions about an offense upon which the questions focus,

and concludes with five construct validity questions regarding forgiveness. In this sample, typical hurts reported by participants included relationship issues with boyfriends or family members (e.g., negative comments by the significant other). Each response is rated according to a six-point Likert scale, ranging from 1 (*strongly* disagree) to 6 (*strongly* agree). Total forgiveness scores range from 60-360, with higher scores denoting greater forgiveness.

Children's forgiveness. The Enright Forgiveness Inventory for Children (EFI-C) is based on the adult version of the EFI. The EFI-C consists of 30 questions that measure three domains (affect, behavior, and cognition); each domain contains a balance of five negative and five positive questions. The children in this sample typically reported interpersonal hurts from classmates or children in their neighborhood (e.g., a classmate called the participant a name on the playground). Responses to these questions are scored on a 4-point Likert scale: (1) *Yes*, (2) *A little bit yes*, (3) *A little bit no*, and (4) *No*. Thus, total scores on the EFI-C range from 30 (low forgiveness) to 120 (high forgiveness). Although this measure is somewhat new to the field, it has been used successfully with elementary school children in Northern Ireland with high reliability levels (Cronbach's α = .94 in Enright et al., 2007).

Other measures. Participants completed other instruments as well, such as measures for anger, depression, and anxiety. These measures, which were not the central variables of the study, were not statistically significant, so they will not be discussed in this brief report.

Procedure

A total of five schools were identified for participation through conversations with principals. Letters were sent home from these schools to parents in September. Parents of the families who consented to participate in the study attended a two-hour workshop in mid-October to receive training in using the curriculum to which they were assigned (the FGFE or the FAP). The graduate student researcher and a licensed marriage and family therapist delivered this training. Materials (books, supplies) were distributed to the parents at this time as well.

Active consent was obtained through parental consent and student assent forms delivered prior to data collection. The parent/child pairs were randomly assigned, using a table of random numbers, either to the experimental or the control group. Trained research assistants administered the instruments both before and after the program. Pre-test and delayed post-test (approximately one month following completion of the program) data were collected. Intervention fidelity was checked through weekly parental evaluations throughout the course of the program for each condition.

Results

Pre-test and delayed post-test (one month after the intervention ended) data were coded and entered by a member of the research team. Spreadsheets were spot-checked to ensure accurate transfer of the data. All analyses were completed using the statistical software package SPSS Version 17.

Reliability

Cronbach's alphas were computed for the dependent measures. Both scales demonstrated high internal reliability: Enright Forgiveness Inventory (EFI), α = .99; Enright Forgiveness Inventory for Children (EFI-C), α = .96.

Analysis

First, pretest means were calculated for the dependent variables in each condition for children and parents. A between-group analysis of the pretest means revealed no significant differences between parent or child groups on the variables at the outset of the study.

For children, both the pretest experimental (*M* = 89.4, *SD* = 33.9) and control (*M* = 89.6, *SD* = 19.9) mean for forgiveness represent a moderate forgiveness score. At the delayed posttest, the experimental children gained, on average, over 10 points in forgiveness (*M* 100.0, *SD* 10.7), while control children remained virtually the same (*M* 90.2, *SD* 18.6). In the Enright et al. (2007) study with P5 children in Belfast, the experimental group experienced a significant gain in mean forgiveness score, from 68.22 at pretest to 86.51 at delayed posttest. Thus, it is likely that the children have already done some development in forgiveness in the school setting, since the pretest means of both groups were higher than the posttest scores in Enright et al. (2007).

For parents, both the pretest experimental (*M* = 282.2, *SD* = 60.6) and control (*M* = 277.0, *SD* = 92.0) represent an above-average forgiveness score. At the delayed posttest, the experimental parents gained an average of 25 points in forgiveness (*M* 307.2, *SD* 76.1), while control parents actually decreased in forgiveness by 10 points (*M* 267.0, *SD* 92.1). A score of 307 is very high compared with previously published forgiveness interventions.

Since we were interested in individual change on each dependent variable, individual gain scores were computed for all participants following the calculation of pretest and delayed posttest scores. The directional hypotheses—that forgiveness participants would experience significant improvement in the dependent variables—call for a one-tailed analysis of each gain score. Thus, to examine group differences, we conducted a one-tailed t-test for each dependent variable. We found a significant between-group difference in parents' forgiveness scores, $t(8) = 1.9$, $p < .05$ (one-tailed), where parents who participated in the forgiveness condition experienced a significant improvement in their forgiveness level. The effect size for this difference ($d = 1.25$) was large by Cohen's (1988) standards. The between-group tests for children's forgiveness and other variables were not significant.

Case Study

For illustrative purposes, we will highlight parent-child pair 2 from the experimental group. Child 2's forgiveness score jumped an impressive 49 points from a low score of 54 to a moderate score of 103. Although child 2 showed no improvement in depressive symptoms (the child began the study in the 'normal' category), this child showed a substantial decline in anger. Parent 2 showed a 45 point increase in forgiveness from a moderately low score to an above-average score. Although parent 2 increased a bit in trait anger to a relatively high score, this parent decreased in depression into the minimal category. Parent 2 showed no improvement in anxiety.

Discussion

This parent-led forgiveness education program was designed to complement the forgiveness education program already occurring in the classrooms in Belfast. In most of the dependent variables, there was no significant change. The important exception was parents' forgiveness. The parents who taught the forgiveness curriculum to their children experienced a statistically significant gain in their interpersonal forgiveness scores compared to parents who taught the art curriculum.

Parents' forgiveness

Indeed, the most interesting finding of this study is the significant gain in forgiveness for the parents who taught the forgiveness program. During the implementation, the parents did not work on forgiving anyone. Thus, the statistically significant finding shows an intriguing effect: as the parents taught their children about forgiveness, the parent improved in forgiveness. This finding is consistent with social learning theories that maintain that teaching a certain subject is actually one of the best ways to learn it. In this "doing" model of learning, when one enacts content—rather than passively receiving it—one is more apt to internalize the content. This is unlikely to be a spurious finding, given the hypotheses and the fact that forgiveness was the central variable.

The normative data on the EFI show that the overall mean is 256.55 (Subkoviak et al., 1995). The experimental parents in this study moved from a mean of 282.2 at pretest to a mean of 307.2 at delayed posttest. Thus, these parents who were already more forgiving than average toward their offender moved to a very high level of forgiveness after teaching their children about forgiveness.

Implications for Peace

We noted earlier that the road to peace must necessarily pass through the human heart. This study showed that parents increase in forgiveness when they teach the concept to their children. This increase in forgiveness entails a decrease in negative thoughts, feelings, and behaviors toward a wrongdoer and an increase in positive thoughts, feelings and behaviors. As parents—the leaders in the household—decrease in their resentment towards hurtful others, we believe that a grassroots peace movement can emerge. As resentment decreases, hopefully so, too, will violence. Forgiveness education has made a positive impact in schools and, now, in the family as well. As forgiveness education stretches out into several domains (i.e., the school, family, and place of worship), we hope that the foundation for peace will be established.

Limitations

Sample size and characteristics. With a total sample size of 10, it was very difficult to detect differences between the groups. Furthermore, this group of parents (and children) is already at such a high level of functioning that an intervention such as this might not detect psychological differences between groups. To date, all published forgiveness intervention studies, whether with children or adults, had participants in need of psychological amelioration. The parents in this

study all volunteered for this study and probably did so because they had the interest, the energy, and the psychological coherence to begin and complete the intervention. This fact makes the parents' forgiveness finding all the more credible.

Complexity of the concepts. Perhaps some concepts are a bit too difficult for children at this age in Belfast. One parent commented, "It was too hard to keep my daughter's attention . . . it is a little too advanced for her age." Another parent suggested, "I would try to use more simple wording to make the child understand. I had to explain a lot of the meaning and wording." Yet another commented, "I would word the summary section a little more simply, making it easier to understand."

Suggestions for Further Research

The finding that teaching forgiveness to one's children can have a positive impact on one's own forgiveness of others seems to indicate that this type of work merits further attention. In designing a similar study, the following recommendations could prove helpful.

First, an analysis of the therapeutic mechanisms of change would be appropriate. It is clear from the amassing forgiveness research that interventions to promote forgiveness are effective. A key question still remains: Why? Researchers in this field would do well to begin to pick apart the change process to identify the mechanisms behind the gains in mental health. Perhaps the key mechanisms lie in two main areas: 1) the cognitive shift in the reframing process where the individual sees the offender in a new light; and 2) the accompanying reduction in resentment that, in turn, leads to improved mental health. Knowledge of these processes would allow interventions to be more concentrated and targeted toward key areas. Similarly, an investigation of the proper dosage level for the intervention would help refine the program and make it more effective.

Second, this research could possibly benefit from larger sample sizes and other research designs. One option is a single-case design, grouping participants by parent-child cohort. Rather than looking at large-scale group outcomes, this design tracks an individual unit and notes changes over time. Another option is a regression-discontinuity design, where all subjects complete pretests and those who score lowest on the target measures receive the intervention. The other half of the participants serve as the comparison group. Thus, this design, although quasi-experimental in nature, ensures that the intervention is delivered to those who need it most.

General Conclusion

This is the first known study to explore the effects of teaching forgiveness on the one who delivers the curriculum. We found that parents—although they simply taught forgiveness and related concepts to their children—increased significantly in their forgiveness scores. This finding has potential implications for therapy, specifically with families who might not visit a therapist's office. If one can improve in forgiveness (and potentially other forgiveness-related areas like depression, anger, or anxiety) by teaching a short forgiveness program to one's child(ren), this type of intervention could benefit parents who do not have the time, money, or interest in receiving professional help for past hurtful events. Certainly, this finding needs

corroboration in future research. Nevertheless, it is a promising new avenue of mental health promotion and the possible advancement of peace in communities.

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Fostering a Middle Eastern Research Culture

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The Middle East is both one of the world's fastest growing educational markets and, at the same time, the least researched. The reason for the area's growth (in tertiary institutions, in particular) has been the enormous wealth generated in some Middle Eastern countries paired with a traditional Islamic reverence for education and an understanding that those countries unwilling to educate their young will forever rely on foreign expertise. New wealth has also increased the educational aspirations of parents to have their children employed in higher prestige sectors. For these and other reasons, education has become a priority and has fostered the creation of stunning new campuses with world-class facilities.

However, what explains the lack of research in the region? There are several factors. Creating a research culture takes time and the emphasis in many of the Middle East's tertiary institutions has been on educating students for the workplace. For this reason, other than in the hard sciences, the hiring of full-time researchers has been minimal. Faculty in many institutions are required to take on longer teaching hours than their Western counterparts and are not necessarily recognized or rewarded for conducting research. Locally, few journals exist as forums for faculty to publish their findings. A lack of tenure in many institutions means staff turnover is high, so long-term educational development is not explored.

Although the fostering of a research culture is slowly changing as, for example, Middle Eastern universities embrace international accreditation standards, the current challenges make the three papers in this section all the more important. Together, they explore several issues related to education in the Middle East. Beatty, Hyland, Hyland & Kelly offer four perspectives on the teaching and learning of reading in the context of what is often described as the Arab oral tradition. They explain how multiple perspectives on the problems helps to foster a wide range of solutions.

Stephenson & Harold take a wider view of education, focusing on ways in which Action Research can be used as a vehicle to promote teachers' leadership and professional development. Particularly interesting is their assessment of the transformation of teachers through involvement in the process. In the third paper, Fitze and Glasgow explore collaborative and non-collaborative approaches to pre-writing serves to explain some of the cultural dimensions of learning in the Middle East among Arab students and suggest ways in which learners might best be best served.

As part of the fostering of a Middle East research culture, I hope you will, after reading these papers, take the opportunity to play your own part in fostering a Middle Eastern research culture by sharing your own ideas and perspectives with the researchers.

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Comparing the Effect of Collaborative and Non-Collaborative Pre-Writing Activities on First Drafts

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This study compared the effect of three types of pre-writing planning activities on subsequent drafts: in the group setting, students collaboratively planned their writing in small face-to-face groups; in the chat setting, students collaboratively planned in small computer-chat groups; and in the individual setting, students planned individually. The participants were 60 low-intermediate female Arab English as a foreign language (EFL) students at Dubai Women's College in the United Arab Emirates. The drafts written after the three different pre-writing activities were compared in terms of time taken to write, length, number of ideas, and quality of argumentation. Latent Semantic Analysis was also used to assess the degree to which ideas were shared in drafts following the three pre-writing settings as a measure of pre-writing collaboration. Significant differences were found for all of the measures. The group setting led to the greatest amount of collaboration, and seemed to have the most positive effects on the drafts. The study concludes with a discussion of the advantages and disadvantages of each pre-writing setting.

Our experience teaching English as a subsequent language (ESL) students has made us question: What can we do to best help our students best prepare for their writing tasks? Writing is a complex skill that requires students to draw upon many forms of knowledge. In order to write an essay, students must draw upon not only their knowledge of how to write in English–for example, English grammar, vocabulary, and rhetorical structures–but also upon ideas related to the topic at hand. The latter type of knowledge is the focus of the present study. This study examined how well different types of pre-writing activities helped students generate ideas in preparation for writing.

Good background knowledge is an essential feature of good writing in both a first or second language. Research shows that the quality of writing produced is directly related to the amount of background knowledge that a writer possesses (Davis & Winek, 1989; DeGroff, 1987; Young, 1991). Background knowledge is often gained through reading (Eskey, 1988; Reid, 1993); however, depending on the topic, background knowledge can also come from direct experience. Whether dealing with a topic students have researched, or with topics about which students have background knowledge based on life experience, pre-writing activities are helpful for activating background knowledge in preparation for writing (Reid, 1993).

Research suggests that in comparison with skilled writers, unskilled L2 writers spend less time consulting their background knowledge and planning their writing–or in other words, pre-writing (Bereiter & Scardamalia, 1987; Raimes, 1985). However, the pre-writing stage of the writing process is important because during this stage, students have the opportunity to generate ideas about content and structure (Hyland, 2003). In particular, collaborative pre-writing conferences are widely accepted as a beneficial activity for ESL writing students (Reid, 1993). Collaboration during the pre-writing stage of the writing process is important because ESL writers generally have a limited vocabulary, and have difficulty expressing their ideas clearly, so can benefit from being given the

opportunity to pool and discuss ideas together in preparation for writing (Pendergast & Hayne, 1999; Reid, 1993, Storch, 2005).

The effect of various types of pre-writing activities on subsequent drafts have been described in the literature, and comparisons have been made between collaborative and non-collaborative activities. For example, Storch (2005) and Shi (1998) compared collaborative versus non-collaborative pre-writing settings. Storch found that Asian students of English in Australia pre-writing in pairs wrote better texts in terms of complexity, accuracy and task fulfillment, and were more positive about the experience than their counterparts who chose to work individually. Shi (1998) found no significant difference in the writing, holistically scored, following teacher-led, peer-talk (i.e., group), and no discussion (i.e., individual) pre-writing settings, however, the drafts written after peer-talk discussion produced a greater variety of verbs.

Researchers have also compared computer-based chat pre-writing discussions with face-to-face pre-writing discussions. For instance, Fitze (2006) found no difference in the length, lexical complexity, or semantic complexity of drafts written after face-to-face versus chat pre-writing discussions. However, he found that the students were better able to use the ideas generated during the face-to-face discussions in their subsequent writing (Fitze, 2008). In other studies, Braine (1997, 2001) and Ghaleb (1993) both reported higher scores of writing quality after electronic pre-writing conferencing; however, Sullivan and Pratt (1996) reported higher scores after face-to-face pre-writing discussions.

Our rationale for doing this study is a response to the very limited amount of research in this area, the conflicting results in studies that have been done, and the fact that none of the studies that have investigated computer chat pre-writing activities have compared it with a non-collaborative pre-writing setting. In addition, several potentially revealing dependent variables have not been investigated. For instance, does pre-writing setting have an influence on the amount of time it takes students to write their papers? Does pre-writing in a collaborative setting lead to sharing ideas as evidenced by the drafts? And finally, in which pre-writing setting do students generate the largest number of ideas?

As discussed, our review of the literature has led us to examine three pre-writing settings: 1) The *group* setting, in which students collaboratively plan their writing in small face-to-face groups; 2) the *chat* setting, in which students collaboratively plan in small computer-chat groups[1]; and 3) the *individual* setting, in which students plan individually. This study addresses four main research questions: 1) Do drafts written after the three different pre-writing activities differ in terms of the amount of time it took students to write, or length in number of words? 2) In comparison with the individual setting, do the collaborative settings (i.e., the group and chat settings) lead to sharing ideas when pre-writing and drafting, and in which setting is the largest number of unique ideas generated? 3) Which of the three pre-writing settings leads to the best quality argumentation in the writing, judged holistically? And finally, 4) what do field notes taken over the course of the study reveal about student's attitudes or behavior in the pre-writing settings, and does a qualitative look at the pre-writing sheets and drafts reveal any other differences between pre-writing settings?

[1] In the chat setting, students were all present together in the same classroom working on their own laptop computers. The chat function of Blackboard Vista™ was used to facilitate the computer-mediated communication.

Methodology and Procedures

This study used a quasi-experimental, counterbalanced, repeated-measures design. The study was quasi-experimental because intact class groups were used. As will be discussed further in the section of methodological assumptions and limitations, the counterbalanced repeated measured design was used to control for class group, week of the study, or topic as confounding variables in comparisons across pre-writing settings. A graphic representation of the design of the study can be found in Table 1.

This study took place at Dubai Women's College (DWC) in the United Arab Emirates (UAE) and ran over a period of three weeks in February 2008. The 60 students who took part were Higher Diploma Foundation (HDF) students in their first year at DWC. They were low-intermediate level students who had been streamed into the top three classes in the HDF program and had been studying there for the first two learning cycles (LC) of the term (September 1997 to January 1998). To ensure that the groups represented samples from the same population in terms of writing and language proficiency, the following data was compared before the study began: Common Educational Proficiency Assessment (CEPA) (NAPO, 2007) writing band at intake; and writing average and overall skills assessment scores at the end of the first two learning cycles (LC1– September 2007 to November, 2007; and LC2–November 2007 to January, 2008). Separate analyses of variance (ANOVAs) were run on each measure, and none of the tests reached statistical significance at $p < 0.05$ (two-tailed), which suggests that students in the three groups involved in the study were of equivalent overall language and writing proficiency.

The study took place during the students' normal writing class. Their classroom teacher was present at all times, and the classes were not in any way unusual for the students. The students were all familiar with the three pre-writing settings employed in this study. For example, during examinations, and occasionally in class, students are asked to pre-write individually. In addition, at DWC, students are often asked to work in small groups to generate ideas for their individual essays. Finally, chat is frequently used in the classroom as part of the students' project work, and occasionally for pre-writing, so students are familiar with computer chat both in informal and formal settings.

The writing tasks used in the study were based on the normal coursework writing requirement for those weeks. The three topics used for the three weeks of the study were, respectively: 1) *Contrast women now and in the past; 2) Contrast city life and village life;* and 3) *Contrast Dubai and Sharjah.* These topics were culturally appropriate and contextually familiar, and were new to the students, in the context of this writing class, at the beginning of each pre-writing session.

At the beginning of each class, students were given a written copy of the assigned topic, and were placed into the appropriate pre-writing setting. In the case of the collaborative settings, students were randomly placed into subgroups consisting of four or five students. They remained in these same subgroups for the duration of the study. Students in the group and individual settings were given lined sheets on which to record their ideas for writing, and instructed to fill in their own sheets for themselves because afterwards they would need to write individually without consulting their classmates. In the case of the chat setting, students were instructed to log into the appropriate chat room and begin their discussion. In all settings, students were instructed to come up with at least four to six good ideas for their essays. They were also instructed not to add anything to the pre-writing sheets after the time for pre-writing was finished.

On completion of the allotted pre-writing planning time (15 minutes), each student wrote her draft independently on her laptop using Microsoft Word™ and, when finished, submitted it by e-mail to the class teacher. Pre-writing sheets were also collected. No word count restrictions were given, but students were instructed to express at least 4–6 supporting ideas for their essays. Students had 90 minutes to complete their drafts; however, most finished writing in 60 minutes or less. In the group and individual settings, students referred to their own pre-writing sheet as they wrote, while in the chat setting, students referred to their own hard copy of the chat transcript.

Instrumentation

The first focus of research was to investigate whether the pre-writing setting had any effect on the amount of time it took students to write their drafts, or the length of drafts in words. The time it took students to write their drafts (in minutes) was calculated by subtracting the time that students were instructed to begin writing their drafts from the date modified information recorded by Microsoft Word™. The length, or total number of words used in the written drafts was calculated by checking the word count of each draft in Microsoft Word™. This information was used to compare these measures across the three pre-writing settings.

The second research question asked whether the collaborative settings would lead to sharing ideas when pre-writing and drafting, and which setting would the largest number of unique ideas. In order to get a measure of the degree to which ideas had been shared, Latent Semantic Analysis (LSA– Laundauer & Dumais, 1997) was used to compare the semantic relation of the drafts written after each pre-writing setting. The assumption here was that a high degree of semantic similarity between the drafts written after a given pre-writing setting reflects a high degree of collaboration while pre-writing. In other words, if it could be established that the drafts produced after, for example, the group pre-writing setting were more semantically similar to each other than the drafts produced after, say, the chat setting; this would be taken as evidence that more (or more effective) collaboration had taken place during the group pre-writing setting.

LSA is a corpus-based statistical model of word usage that allows researchers to make comparisons of semantic similarity between pieces of textual information. LSA was used in this study to assess the semantic similarity of drafts (see Yu, Cuadrado, Ceglowski, and Payne (2002), and Laundauer and Dumais (1997) for excellent qualitative overviews of LSA). For an example of how LSA has been used in the ESL literature, and a discussion of the validity and reliability of LSA when making comparisons between pre-writing and drafting stages of the writing process, see Fitze, 2008.

For the purposes of this study, the LSA tools on the Latent Semantic Analysis @ CU Boulder website was used to assess the semantic similarity of drafts (LSA @ CU Boulder, 2009). The semantic space: General Reading up to First Year College (300 factors) was used, and comparisons were made document to document. For a clearer explanation of these choices, see Fitze, 2008; Laundauer and Dumais, 1997; and the wealth of materials available on the LSA @ CU Boulder website.

To find out how semantically related the drafts written after the various pre-writing settings were; first, for the group and chat settings, LSA was used to compare the drafts written by each of the subgroups of students who did their pre-writing together. To compare these settings to the individual setting, the drafts written by the same so-called dummy subgroups of students were also compared

using LSA, even though in this pre-writing setting the students had not consulted with each other. The LSA analysis yielded a cosine for each draft comparison within each subgroup. For instance, since subgroup 1 in section 1 had four students, six comparisons were made: the draft written by student A was compared to the draft written by student B, then A was compared to C, A to D, B to C, B to D, and C to D. Next, in order to yield single number representing the interrelation of the drafts written by each subgroup, the average of these cosines was calculated. For example, the six cosine comparisons listed in the example above were summed and divided by six yielding a single number representing the average interrelation of the drafts for that subgroup. These averaged cosines were then used to make comparisons across conference settings.

The second part of this research question was to determine in which pre-writing setting students would generate the largest number of unique ideas. To investigate this, the language in the planning sheets and chat logs were first divided into t-units (Hunt, 1965; Vavra, 2000). Then a coding system was devised to code each t-unit in terms of its semantic content. In other words, each t-unit in each pre-writing sheet and chat log was assigned a code or codes that represented the idea or ideas under discussion in that t-unit. Please see the section on methodological assumptions and limitations for a discussion of how the coding instrument was devised. Finally, the number of unique codes (i.e., the number of different ideas or subtopics) generated by each subgroup of students in each pre-writing setting was tallied, and these sums were used to make comparisons across pre-writing settings.

The third research question focused on the quality of argumentation in the drafts judged holistically. Each draft was assessed using the Hamp-Lyons (1986) banding scale, which is designed as a writing assessment scale for tertiary level ESL students. The profile scale allows raters to assess five different aspects of the writing: communicative quality, organization, argumentation, linguistic accuracy and linguistic appropriateness. The drafts were first assessed by two raters independently, and where raters disagreed by more than one band, the raters met to re-analyze the draft to an acceptable score. Where the raters disagreed by one band, the main researcher's score was retained. Although scores were assigned for all five points of the scale, only the argumentation measure was used to compare drafts across pre-writing settings. Rather than being a comparison of the quality of arguments in terms of, for instance, the correctness, or veracity of arguments, the argumentation measure was more a measure of how well arguments were presented and expanded.

Methodological Assumptions and Limitations

In this section, the internal and external validity of the study are discussed. This is followed by a description of how the coding instrument was devised. Since the only independent variable of interest in this study was pre-writing setting, it was necessary to control for any possible confounding variables as threats to internal validity. Since three intact class groups participated, it was necessary to eliminate any differences between the groups as a possible threat. This is why a repeated measures counterbalanced design was used. Since each group participated in each setting, it was only necessary to make comparisons *within* subjects, not *between* groups. Since no comparisons were made between groups, any possible difference between groups was effectively eliminated as a threat to internal validity. For the reasons just discussed, this design also controlled for topic, and week of the study as possible confounding variables. All comparisons across pre-writing settings contained the data for all three groups, writing about all three topics, in all three weeks of the study.

With regard to the external validity of this study, since 60 students participated, the results can likely be generalized to other female Arab students of English studying under similar conditions.

Moreover, to the extent that this population is similar to other ESL populations, the results may also be extended beyond the Arab ESL context.

As discussed in the section on instrumentation, a coding instrument was devised to count up the number of ideas put forward by each subgroup of students in each of the pre-writing settings. In fact, three coding sheets were prepared: one for each topic that students wrote about in this study. To prepare each coding sheet; first, all the pre-writing sheets, chat logs, and drafts related to a given topic were broken down into t-units. Then, each t-unit was examined to determine what subtopic or subtopics were being discussed. For instance, regarding the topic about comparing Dubai and Sharjah, a few examples of subtopics were: population, traffic, cost of living, education, and entertainment[2]. Each subtopic was specified by a word or short phrase (as in the examples just given), and assigned a number. As more and more of the data were examined, the list of codes was expanded. In the end, coding sheets containing codes for every subtopic discussed in relation to each topic was produced. All these data were then reviewed to ensure that codes had not been duplicated, and were correctly applied to each t-unit for each draft, pre-writing sheet, and chat log.

Data Analysis

In this section, analyses of the quantitative measures referred to in the first three research questions are presented. Results of the qualitative analysis outlined in the final research question are integrated into the next section on results and discussion. The first research question in this study concerned the features of students' written drafts. The dependent measures were: time taken to write, and length of drafts. A repeated-measures one-way analysis of variance (ANOVA) revealed a statistically significant difference in the time (in minutes) it took students to write their drafts after participating in the three different pre-writing settings, $F(2, 104) = 4.007$, $p = 0.021$ (two-tailed). Since Mauchly's test confirmed that the data met the assumption of sphericity ($p = 0.932$), pair-wise comparisons were made using Tukey's honestly significant difference (HSD) test (Field, 2005). The Tukey test revealed statistically significant differences at the $p < 0.05$ level between the group ($M = 40.96$, $SD = 13.69$) and individual ($M = 43.91$, $SD = 14.19$) settings, and the group and chat ($M = 44.15$, $SD = 11.40$) settings, but not between the chat and individual settings. As Figure 1 illustrates, compared with the individual and chat settings, the students took less time to write their essays after participating in the group pre-writing setting.

Effect sizes for these contrasts were also computed using Cohen's *d* (LeCroy & Krysik, 2007). The calculations reveal that a student who did their pre-writing in the group setting would finish writing before a student in the individual setting about 56% of the time, $d = 0.21$ (Coe, 2002; McGraw & Wong, 1992). Similarly, a student in the group setting would finish writing before a student in the chat setting about 57% of the time, $d = 0.25$.

A repeated measures ANOVA revealed no statistically significant difference in the length of the drafts in number of words $F(2, 104) = 0.846$, $p = 0.432$ (two-tailed) produced after the 3 pre-writing settings. In sum, students wrote drafts of equivalent length regardless of whether they did their pre-writing in the group ($M = 211.89$, $SD = 45.00$), chat ($M = 217.49$, $SD = 43.73$), or individual ($M = 208.94$, $SD = 52.00$) setting. Analysis of effect sizes for this measure reveals that group means did

[2] Since all the topics in this study asked students to contrast two things, the subtopics identified in the coding instruments were, in the language of comparison/contrast rhetoric: bases for comparison.

not differ by more than one-tenth of a standard deviation across pre-writing settings (i.e., $d < 0.10$) making it impossible to predict after which pre-writing setting students would tend to write longer drafts.

The second research question had two parts. The first part focused on investigating if the collaborative settings (i.e., the group and chat settings) would lead to sharing ideas. The second part questioned which setting would lead to the greatest number of unique ideas being generated. To investigate the first part of this research question, a repeated-measures ANOVA was run on the averaged cosine values for each subgroup across conference settings. The analysis revealed a statistically significant across pre-writing settings. F (2, 26) = 6.296, p = 0.033 (two-tailed). A plot of the means can be found in figure 2.

Pairwise comparisons using Tukey's HSD revealed a statistically significant difference at the $p < 0.05$ level between the individual (M = 0.696, SD = 0.084) and group (M = 0.792, SD = 0.058) settings (d =1.34) and the individual and chat (M = 0.753, SD = 0.055) settings (d = 0.802), but no difference between the group and chat settings (d = 0.690). In other words, drafts written after the collaborative pre-writing settings (i.e., the group and chat settings) were more related to each other than the drafts written after the individual setting. In fact, as revealed by the effect sizes, in comparison to drafts written after the individual pre-writing setting, drafts written after the group setting were about 83% more likely to be more related to each other, and drafts written after the chat setting, about 71% more likely. Although not statistically significant, based on the effect size, drafts written after the group setting were about 69% more likely to be more related to each other than drafts written after the chat setting.

The second part of this research question focused on which pre-writing setting would lead to the greatest number of ideas being generated. The repeated measures ANOVA on the number of ideas generated by each subgroup of students across pre-writing settings revealed a statistically significant difference, F (2, 26) = 24.887, $p < 0.001$ (two-tailed). The overall means for the 3 pre-writing settings are presented in figure 3.

All of the pair-wise comparisons using Tukey's HSD test yielded statistically significant results at the $p < 0.01$ level. In other words, students pre-writing independently (M = 12.429, SD = 2.102) produced the largest number of unique ideas, students working in the chat setting (M = 8.786, SD = 3.355) produced significantly less unique ideas, while students pre-writing in the group setting (M = 5.857, SD = 1.460) produced the smallest number of unique ideas. Analysis of effect sizes reveals that compared to the group setting, students pre-writing in the chat setting were about 78% more likely to produce more ideas (d = 1.13), and students in the individual setting were about 98% more likely to produce more ideas (d = 3.63). Finally, students in the individual setting were about 82% more likely to produce more ideas than students in the chat setting (d = 1.30).

The final research question dealt with how well arguments were presented in the drafts after the 3 pre-writing settings. The means and standard deviations for the chat, group, and individual settings were as follows: M = 5.15, SD = 0.818; M = 5.45, SD = 0.722; M = 5.34, SD = 0.783; respectively. The repeated measures ANOVA on the argumentation measure revealed a statistically significant difference across pre-writing settings, F(2, 104) = 3.900, p = 0.023 (two-tailed). Tukey's HSD revealed a statistically significant difference between the chat setting and the group setting at the $p < 0.01$ level (two-tailed), but not between the individual and group settings; nor between the individual and chat settings. The mean scores for argumentation are depicted in Figure 4.

The ANOVA along with estimates of effect size reveal that the quality of arguments presented in the drafts were related to the pre-writing setting: a student who did their pre-writing in the group setting would present their arguments better than a student who pre-wrote in the chat setting about 61% of the time, $d = 0.39$. As for the statistically non-significant results, effect size comparisons for the chat and individual ($d = 0.24$), and individual and group settings ($d = 0.15$) revealed that students in the individual setting would outperform students in the chat setting about 57% of the time, and students in the group setting would outperform students in the individual setting about 54% of the time.

Results and Discussion

In this section, results are interpreted in relation to each of the research questions. Analysis revealed that compared to the individual and chat settings, students completed their drafts statistically significantly faster after participating in the group pre-writing setting. The finding of no statistically significant difference in the length of drafts suggests that this was not because students wrote less in this setting. As will be discussed further in the discussion of the final research question, the collaboration that took place during the group pre-writing setting seemed to have a positive effect on preparing the students to write, which likely aided them in completing their drafts somewhat faster than they did in the other settings.

Although analysis of the time it took students to write their drafts yielded a statistically significant difference across pre-writing setting, it should be noted that the effect size was quite small. This suggests that pre-writing setting only accounts for a rather small amount of the variability in the time it took students to write their drafts. Besides pre-writing setting, another important factor was the length of the draft. In fact, the correlation between the length of the draft and the time taken to write (for all three settings combined) was $r(171) = 0.36$, which is significant at $p < 0.01$ (one-tailed), and accounts for almost 13% of the variability ($r^2 = 0.1296$). In addition, the degree to which ideas were expanded into sentences at the pre-writing stage may have also contributed to the writing time. For instance, if students were able to create pre-formed chunks of language during the pre-writing stage, it may have saved them time writing during the drafting stage. Last but not least, the overall quality of the writing, and the writing proficiency of students may have also accounted for some of the variability in time taken to write. These are areas in need of further research.

Analysis of the variables in the second research question revealed that when students collaborated in the group and chat settings, the drafts written afterwards were more related to each other than when these students did not have a chance to collaborate (i.e., in the individual setting). Although somewhat unsurprising, this result confirms that both the group and chat settings enabled students to collaborate in preparation for writing. However, although not statistically significant, examination of the means reveals that drafts written by groups of students after pre-writing in the group setting were more semantically related to each other than drafts composed after the chat setting.

This difference between the group and chat setting is brought out more clearly in the analysis of the second part of this research question which showed a statistically significant difference between all three settings. Students produced the largest number of unique ideas in the individual setting, followed by the chat setting, and the smallest number of unique ideas in the group setting. It seems that following the individual setting, since students had not had the chance to communicate with each other about their ideas, they chose subtopics that were unique to their own perspectives on the topic. In contrast, following the group pre-writing setting, students tended to limit their essays to the

subtopics that they had focused on as a group. The chat setting was intermediate in this respect. Apparently, although the students collaborated in the chat setting, this collaboration did not tend to limit the scope of ideas that students were willing to use in their subsequent drafts as much as it did following the group setting. It seems that although collaboration occurs in the chat setting, this collaboration does not tend to lead to *consensus* as frequently as it does in the face-to-face group setting.

With respect to the third research question, analysis of the quality of argumentation measure revealed a statistically significant difference: Student presented their ideas better following pre-writing in the group setting than the chat setting. This finding is in line with Sullivan and Pratt (1996) who compared group pre-writing setting with chat pre-writing setting and found that the holistic scores for drafts produced after the group setting were slightly higher. Interestingly, there was no statistically significant difference between how well students presented their ideas following the individual and group settings. Several possible reasons for this will be discussed below.

With regard to the final research question, observations and field notes revealed that in the group pre-writing setting, most of the students enjoyed the experience of spending 15 minutes together, and were quite focused on the task in hand. Groups generally worked quite well together to consolidate ideas. The discussions took place mostly in English, but Arabic was sometimes used to explain a point or an idea in finer detail. Students generally had no trouble using the full 15 minutes to share their ideas and background knowledge. In addition, it was noted that towards the end of the 15 minutes group planning time, the attention of the students turned towards correcting the spelling, and discussing the vocabulary and sentence structure of the language on their planning sheets.

As mentioned, when students did their pre-writing in the group setting, ideas were put forward, discussed, and then accepted or rejected by group consensus. This process tended to lead to several consequences. First, it would seem that the process of coming to a consensus helped students gain confidence to use the ideas considered appropriate by the group. This, in addition to the fact that groups quite often turned to a discussion of how these ideas could effectively presented in terms of specific vocabulary and sentence structures probably contributed to students' ability to complete their essays in the least amount of time. For instance, analysis of the pre-writing sheets revealed that this process frequently resulted in pre-formed chunks of language that students could simply insert into their drafts. In addition, it seems quite plausible that the higher scores for argumentation in this setting were a consequence of this same process: Even before beginning their drafts, students were armed with well-vetted ideas, and pre-formed chunks of language that they could use to develop their arguments.

In contrast, in the chat setting, students seemed to find it more difficult to manage the group interaction. Although students seemed to be enjoying themselves, analysis of the chat transcripts revealed that some groups had difficulty staying on task. Moreover, students tended to produce a disjointed list of ideas without much expansion. However, in one case, students were able to use the chat setting to reach consensus. Whether or not students reached a consensus seemed to depend on whether a student took a leadership role. For instance, in one transcript, it can clearly be seen that towards the end of the session, one of the group members took charge of the conversation, asking her colleagues to wait, and carefully consolidating the ideas that had been discussed in preparation for the writing task.

However, even when groups reached consensus as described above, the overall process was quite different from the group setting. As previously discussed, collaboration in the chat setting did not typically lead to consensus about which subtopics students would use in their drafts. In addition, no discussion about spelling, vocabulary or sentence structure was apparent in the chat transcripts. Although students generated a fairly large number of ideas in the chat pre-writing setting, the fact that the drafts written following this setting received the lowest scores for argumentation probably indicates that at least in some cases, the way in which ideas were discussed may have created more confusion than clarity about ideas in the minds of the student writers. This probably helps to explain why students took the longest amount of time to write their drafts following this setting.

Finally, it was observed that students encountered some difficulties working alone in the individual pre-writing setting. Even though the students were asked to plan alone, a small number of students were tempted to try to talk to other students and look at each others' planning sheets to glean some ideas. These students seemed to lack ideas and inspiration when planning alone. On the other hand, other students seemed to finish pre-writing in the individual setting very quickly. However, in both cases, students seemed quite impatient to begin writing their drafts, and had difficult time concentrating on pre-writing for the full 15 minutes.

As discussed, in this setting students produced the largest number of unique ideas, and there was no difference in the quality of argumentation between this setting and the group setting. However, these results require some clarification in order not to be misleading. The finding that students produced the largest number of ideas–in the sense that they each tended to go their own way in terms of the ideas they used in their drafts–was not always a good thing. Many of the drafts produced after this setting contained irrelevancies, or factually questionable statements. Apparently, since students did not have the opportunity to collaborate, they had no chance to get feedback on the accuracy or relevance of their ideas before writing. In this sense, the finding of no difference in argumentative quality between the drafts written after this setting and the group setting could be quite misleading. However, this was the case because the argumentative quality measure did not take the correctness, or veracity of arguments into account. As discussed in the section on instrumentation, the argumentation measure was only concerned with how well arguments were presented and expanded.

In conclusion, a summary of the findings of our study is presented in table 3 below.

We agree with Celce-Murcia & Olshtain (2000) when they write: "Since different writers prefer different types of planning, it is best to create an instructional procedure in which all students try out different ways and choose what they feel is most appropriate for them." (p. 158) However, as we have found, the choice of pre-writing setting has some fairly predictable consequences on what students do when they are pre-writing, and the results of this activity on their drafts. As a result, we feel that choice of pre-writing setting should also be informed by studies such as this one, and should match the teacher's instructional objectives.

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Table 1.

Design of the Study

	Section 1	**Section 2**	**Section 3**
Week 1	Chat	Individual	Small Group
Week 2	Small Group	Chat	Individual
Week 3	Individual	Small Group	Chat

Table 2.

Summary of Findings

Setting	Advantages	Disadvantages
Group	• Good for sharing ideas • Good discussions on vocabulary and spelling • Consolidated ideas: Ideas were accepted or rejected at this stage • Student best prepared with fully-formed language and ideas to use in writing • Ideas well expressed and expanded in drafts	• Shy students may feel uncomfortable in this setting • Imbalance in participation: dominant students over passive students • Students could choose to rely solely on others' ideas
Chat	• Fun to use: Students fully engaged and participating • Produced many ideas • Instant written record of discussion	• Overlapping threaded discourse may have caused confusion • Ideas not vetted or expanded much • Students not well-prepared with pre-formed arguments for writing • Did not tend to lead to well-expressed arguments in drafts
Individual	• Shy students may feel more comfortable working alone • Student able to generate ideas • Ideas in subsequent drafts fairly well expressed and expanded	• Some students struggled to find ideas • Some students tried to copy from others • Not prepared to spend a long time thinking • Ideas not often vetted at the pre-writing or drafting stages • Ideas in drafts occasionally irrelevant or factually questionable

Figure 1.

Time Taken to Write Drafts

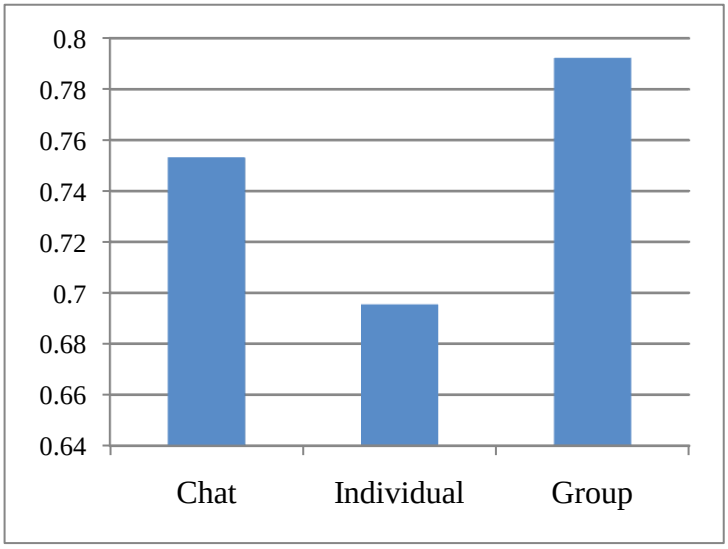


Figure 2.

*Interrelation of **D**rafts*

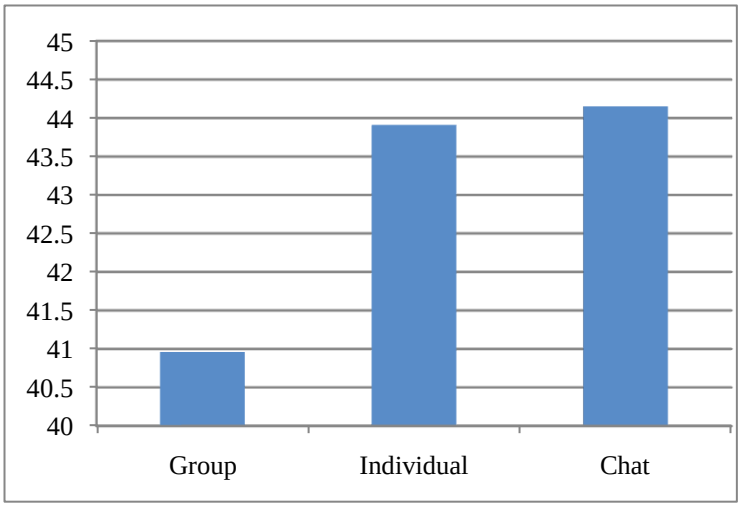


Figure 3.

Number of Unique Ideas in Drafts

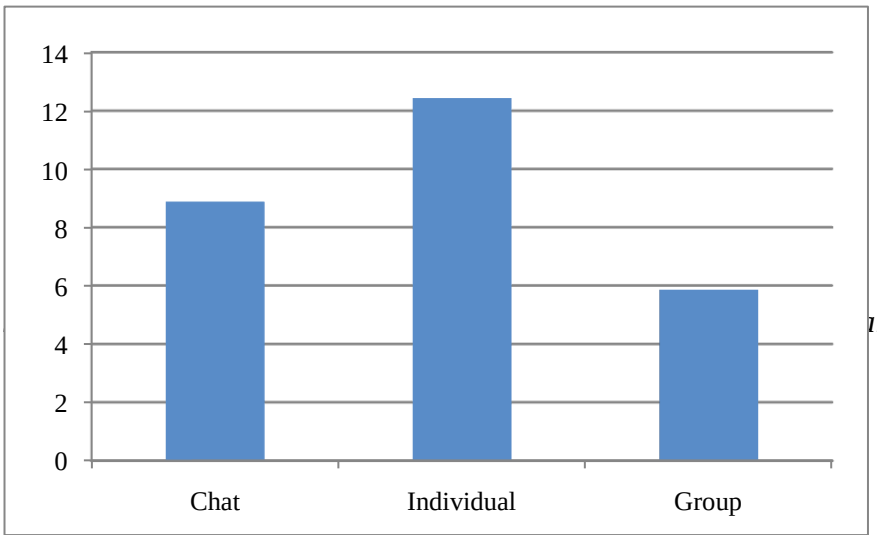
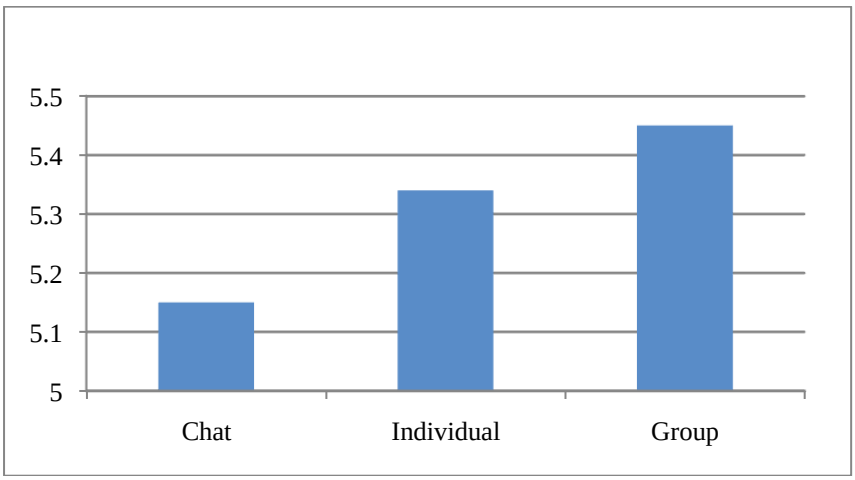


Figure 4.

Quality of Argumentation



The Impact of Action Research On Teacher Leadership and Professional Learning

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This paper discusses the impact of Action Research as a methodology and tool for teacher and leadership professional learning in a context of educational reform in the United Arab Emirates (UAE). The strengths and challenges of its use in the government sector, private sector and graduate educational contexts are described and analyzed. The process of Action Research was complex and multilayered and included various aspects of change such as reflection, collaboration, adaptation, site based problem solving, communication, logistics and individual and collective learning. The impact of Action Research clearly proves its value through the documentation of best practice and simultaneously it works to improve educational practices (Kember, 2002). It recognizes that Action Research is a powerful tool for addressing specific themes in practice, and attitudes and dispositions in the education profession.

The UAE are embarking on a wide-ranging reform of their education system that aims to move classroom practice from a predominantly teacher-directed and exam-driven system to a more learner-centered one based on varied methodologies and integrated with modern technology. Through implementation of tailor-made professional development programs, the Zayed Professional Education Centre (ZPEC) at Zayed University is charged with helping teachers and educational leaders towards this goal.

This paper describes and evaluates three professional learning projects in the UAE and draws on Action Research and other professional development (PD) models. The programs used context-specific frameworks based on the principle of cascading situated learning and implementation arising from an initial program in collaboration with the UAE Ministry of Education K-12 schools. The researchers' ongoing experiences with best practice PD models have led to a focus on a context-specific approach or model the strength of which lies in the belief that the most effective professional learning is collaborative in nature, grounded in specific professional concerns and should be based as much as possible on site. The resulting model supports the idea that change is complex and long-term in nature. Relatively little evidence exists, particularly in the Middle East, of the actual processes involved in a sustained program based on this model. Furthermore, relatively little information exists on collaborative research between educational researchers and teachers using such approaches.

The process of Action Research was complex and multilayered and included various aspects of change such as reflection, collaboration, adaptation, site based problem solving, communication, logistics and individual and collective learning. This paper discusses the impact of Action Research as a methodology and tool for teacher and leadership professional learning in a context of educational reform in the UAE. It also discusses the outcomes of these projects and the successes and challenges that arose.
The following questions framed our experiences and guided our thinking about what was happening during the learning process and its evaluation:

1. What was actually happening during the professional development programs?

2. How were the different participants engaging with the programs and the learning associated with it?
3. How were the ZU faculty team engaging with the programs and the learning associated with it?
4. What next steps were required?

A reflexive approach formed a key part of our own thinking and learning. As we developed our model, using this approach, the following additional sub-questions guided our thoughts, analysis and interpretations:

A. How does leadership affect learning?
B. How does communication affect learning?
C. How does the nature of each professional development program affect learning? (This is what drove the changes).

Action Research as a Model for Teacher Professional Learning

A range of continuing professional development models have been suggested in the literature on teacher professional development and learning including training, award-bearing, deficit, cascade, standards-based, coaching/mentoring, communities of practice (CoPs), action research and transformative (see Kennedy, 2005). These models are neither exhaustive nor exclusive. In this paper, Action Research is used as a model for teacher professional learning because it is permits the inclusion of a variety of models and strategies and enables the development of CoPs, mentoring and coaching networks, cascade strategies, transformation and more traditional training models. Given that it has been common for over twenty years, there are several definitions in the literature. However, for the purposes of this paper Action Research is:

Any systematic inquiry conducted by teacher researchers to gather information about the ways that their particular school operates, how they teach, and how well their students learn. The information is gathered with the goals of gaining insight, developing reflective practice, effecting positive changes in the school environment and on educational practices in general, and improving student outcomes. (Mills, 2003, p.4)

Although it is claimed that the kind of collaboration found in a community of practice is not a necessary prerequisite for any action research model, proponents of this approach to professional learning (Coghlan and Brannick, 2004; McNiff and Whitehead, 2002) tend to suggest that it has a greater impact on practice when it is shared in CoPs or inquiry. Within the safer environment of a community of practice teachers who at first may reject a new idea may yet assimilate that idea and make it their own (Scherer, 2009). Similarly Nieto (2009, p.8) suggests beginning teachers create their own communities and states "When teachers develop allies, they … learn." We would argue that her advice applies to all teachers engaged in professional learning.

There has been increased interest in recent years in the concept of CoPs (Huebner, 2009; Wenger, 1998) and the school as a learning community (Du Four and Eaker, 1998) and these notions appear to offer new perspectives on how teacher professional learning might become more effective. A community of practice is referred to as a group of individuals with different roles and experience engaged in common practice (Brown and Duguid, 2000). Individuals become involved in CoPs, which embody certain beliefs and behaviors to be acquired (Lave and Wenger, 1991). Learning, from this point of view, requires developing the disposition, demeanor and outlook of the practitioners, rather than merely acquiring information (Brown and Duguid, 2000). As newcomers move from the periphery of a community of practice to its centre, they

become enculturated. That is, the more active and engaged they are with the group's culture, the more they can assume the role of so-called expert (Lave and Wenger, 1991).

The Projects

ZPEC is closely involved in supporting individual and collective learning of teachers and administrators in local schools, and has moved to a Development/Improvement model of teacher professional development (Harold and Stephenson, 2005), which engages teachers in problem solving and thinking about learning, inquiry and self assessment, curriculum design and helping activities such as mentoring and coaching. Such an approach supports the provision of continuous and cumulative professional learning experiences over time, is responsive to teachers as developing adult learners and aims to transform teachers' conceptual understandings of teaching and student learning. In our model we have deliberately made collaboration an essential component because we believe learning occurs in a social context. At the heart of the matter is the work and experiences of educational leaders and teachers, and much more needs to be known about what constitutes effective teacher learning in the professional development context. With this in mind, the three different projects sought to describe and evaluate the evolution over time of our professional development model.

Methodology

The methodology used involved two stages. The projects reported on use a qualitative framework where themes were identified and analyzed drawing on semi-structured interviews, documents, observations and focus groups.

The second stage involved in-depth analysis of the three professional learning programs by a retrospective thematic analysis of data over the last five years.

A Government Sector Project

The development of our model for the Ministry of Education (MOE) through ZPEC was the result of a fruitful partnership that evolved from an initial more traditional university-based Action Research course for fifty MOE Curriculum Supervisors across all curriculum areas. However, as the focus was overly theoretical the participants did not complete actual Action Research projects. There were also challenges related to language, translation, and expectations that led to some concerns about the overall quality which were followed by a request from the MOE for an extension to the program Upon evaluation of the program, faculty agreed that the program be continued using an improved approach.

The original group (except for the English Supervisors) continued the program with some new content and applications. An education graduate was employed as the translator and worked in a team with the faculty to prepare the materials. The extension program was limited to weekly sessions over ten weeks and the focus was on development and implementation of a small Action Research project based on the real problems and challenges occurring in their professional work with teachers. In this phase faculty experts were still involved with introducing and prescribing material, which was then translated for the participants. Participants were asked to plan and implement their projects in small groups according to their subject specialization. The faculty and graduate assistant responded to questions and assisted them in this work. Following initial planning sessions the participants spent four weeks gathering data and the final sessions

included data analysis, report writing and presentation of findings. All groups completed an Action Research project. However, as in the first phase, some practical and logistical issues became apparent.

Upon the completion of Phase Two the teaching team were asked by a senior MOE staff member to repeat the program in a full day workshop with 75 English Supervisors to assist them in the use of Action Research and classroom based inquiry for their professional practice.

The faculty team were somewhat surprised to be faced with some initial unexpected challenges in the new group including varied levels of knowledge, skills and experience related to Action Research; dissatisfaction with lack of previous practical application of an Action Research model; and some confusion about different research paradigms. Analysis of these issues indicated that more than one day would be needed to satisfy participant requirements so the faculty team suggested two further full day workshops following the initial development of the Action Research project and instruments, that would allow for data analysis and presentation of the completed projects. Phase Two content seemed appropriate and was retained. However this time the participants were provided with ongoing supervision and support as they planned and implemented their projects. This was done via meetings, phone calls and email and was made possible as everyone spoke English. This ongoing dialogue was supported by additional faculty with expertise in English language teaching.

During the semester more than seventy English Supervisors participated in the program where they completed and presented 20 Action Research projects. Their reports were edited and presented to the MOE.

Building on their experiences in the first two phases the faculty were now more focused on a specific professional learning model for teachers. This third phase now incorporated the following professional development and learning principles:

- The projects were grounded in the practical realities of participants' work and drew on participants' needs and interests.
- A team-based approach to planning and implementation of projects was adopted.
- The focus was on small, *manageable* and achievable projects.

During the following semester the English Supervisors used a similar model to assist more than 2000 teachers in the UAE to develop their own Action Research projects in the schools, impacting on several thousand students.

Evaluation of the Phase Three program indicated that, as with Phase Two, there were high levels of satisfaction with the completion of specific projects and a growth in confidence among the Supervisors that enabled them to try the Action Research approach in their professional work. The faculty team too, were satisfied with the positive outcomes that endorsed the improved professional learning model and fostered better practice in the classrooms.

Soon after the completion of Phase Three, ZPEC was asked to conduct a similar program with Arabic-speaking curriculum supervisors from several emirates. Although the third phase had been successful, the faculty team could foresee that some of the original issues regarding translation would again be problematic. Based on the learning from the previous programs, the faculty argued for a new approach which involved:

- co-construction of the program by ZU faculty experts, the MOE and a team of bilingual Lead Supervisors (chosen from those who had already completed successful Action Research projects).
- lead Supervisors translating key documents and presenting information and facilitating the planning and implementation of Action Research projects with each responsible for two small teams of 4-6 supervisors.

Following the same time frame as the previous phase, Phase Four also used the same ongoing support system as before which was made possible by the bilingual skills of the Lead Supervisors. Once more all projects were completed and the final presentations were attended by senior members of the MOE who expressed great satisfaction with the outcomes. The participants continued to follow up the Action Research approach in their schools across the emirates. Overall, a total of more than 3,000 individuals have benefited from the program.

Private School Project

A professional development program was requested by a local private Indian school with separate campuses for male (3,000) and female students (5,000) The school was staffed by predominantly expatriate faculty (400 +) on short term contracts. The researchers (Stephenson and McNally, 2006) had been invited to participate as trainers in the planning of this school-based approach to make changes in teaching and learning strategies.

The Principal required that the program was to be connected to the school learning goals. The professional learning model encouraged the development of CoPs with opportunities for teachers to work, plan and think together.

The initial professional development sessions were co-constructed by faculty, school teachers and administrators in such a way that the outcomes of the total program could be clearly stated and measured to give direction to the improvement efforts. The school settled on cooperative learning and integrating technology as the two themes for professional development. in this paper we report on the work of teachers implementing cooperative learning strategies as a vehicle for improved teaching and student learning.

Activities were designed around a central tenet that all professional development should be designed to improve students' learning outcomes. The program examined the nature of learning and learners, key theories that underpin the learning process, and the role the teacher plays in motivating students to learn. It explored a range of cooperative learning strategies that teachers could use with their students. In particular the program addressed classroom interaction and questioning, grouping for instruction, critical thinking and problem solving and creating a positive classroom learning environment that encourages student-centered learning to flourish and be successful.

A number of cooperative learning workshops, and on-site visits (teacher observations and meetings) were held to support teachers in the field. The trainers acted as critical friends, working with teachers questioning assumptions and interpretations, but also supporting and collaborating. Participants were introduced to the concept of a professional development cycle where the responsibility for change shifted from the trainers to the teachers themselves as they developed CoPs engaged in Action Research. As part of the professional development cycle they were encouraged to adopt a community of practice component where selected

teachers from the school were invited to participate as critical friends. In effect, they replaced the trainers and began to take responsibility for their own and their peers' professional development. The model's strength lies in the belief that the most effective professional development is collaborative in nature and should be based as much as possible on-site. The model also supports the idea that change is long-term in nature and takes time.

Presenting and modeling a more student-centered, cooperative learning approach to teaching and learning underpinned the whole program and the support process proposed by the trainers. Having negotiated the framework for the program, we introduced cooperative learning through groups, modeled it, looked at lesson plan exemplars developed by teachers and set up a process where participants could plan, teach, and evaluate their implementation of the strategies through Action Research.

Participants were also introduced to the key principles of a professional learning community and how they, as adult learners, could take control of how teachers and administrators could work together to build their learning community. We worked out with teachers and administrators how the process of observation, reflection and feedback could best be achieved for each individual teacher. We then participated in modeling the observation and feedback process with two groups of interested teachers with the aim of then handing the ongoing development of the learning community to the members themselves.

Phase Two involved the delivery of cooperative learning action planning workshops for four groups of 35 teachers (Grades 5-8 teachers of Science, Math, English and Social Sciences) with the purpose of encouraging a collegial and collaborative approach to peer coaching.

Following the completion of the initial action planning workshops the principal gave workshops to the teachers on writing lesson plans. Workshops on lesson planning were delivered by university faculty who were then later invited to evaluate over 100 lesson plans that aimed to incorporate cooperative learning strategies. The lesson plans themselves indicated that teachers were trying to incorporate the principles of cooperative learning.

As a result of this evaluation, an alternate approach to further workshop sessions was suggested and program participants were invited to join a cooperative learning team. It was a voluntary process and the basis of the grouping was subject based, linked to a year level, shared classes, interests and/or friendships.

The senior leadership at the school responded positively to university faculty suggestions for Phase Three and implemented the following:

- consideration be made in terms of time or organizational support to assist teachers to observe each other in classrooms.
- the role of eight nominated coaches in each subject area could focus more on facilitating and supporting designated groups as lead teacher rather than "coach as expert".
- cooperative teams could be as small as two and as large as five or six.
- initial observation visits could be restricted to one-on-one or two-on-one visits but subsequently opened up to all. Nominated coaches might take the lead here.

Phase Three involved the observation of eight teachers from the Middle School teaching cooperative lessons to Grade 5-8 Classes (4 girls' and 4 boys' classes) as they implemented the previously planned strategies for

cooperative learning. Supervisors from the Middle School identified competent key teachers. Senior administration set up and facilitated the observation process. Their role was important to the observation and feedback process and they were effective and supportive of teachers and the role of researchers in the process. The university faculty were able to debrief with both groups following each set of observations.

The observed teachers demonstrated a high level of competency with using the cooperative learning strategy in their classrooms and it reflected the level of shared planning and teaching using this strategy in the Middle School. This was evident in observing the students working in groups as well as observing the teachers' role. The university faculty observed a high level of engagement of students in the learning process. Observations of cooperative group activities confirmed that students had learned a great deal about working cooperatively in groups. Not only did they show they could take on designated group roles (e.g., leader, recorder, timekeeper) but that they practiced the full range of group learning skills as they worked. This suggested that they had had considerable exposure to group processes and were able to work well to achieve group outcomes.

The university faculty observed that learning outcomes did not often make the cooperative (social) learning outcomes explicit. Furthermore, demonstration lessons sometimes resulted in teachers attempting to overachieve and include too many activities/resources in a 35 minute lesson. There was a sense that some teachers were rushing activities and not allowing sufficient time for more in-depth discussion /reflection by students in groups and in feedback to the teacher. Creating some opportunities for more individual work would provide more of a balance between group and individual outcomes. The university faculty also suggested that teachers consider getting feedback from the groups at the end of the lesson.

A shortcoming in this third phase was the amount of time that had elapsed between the lesson observation and the feedback conference. What took place was useful but would have been improved by greater immediacy to the presentation date. However, the fact that teachers had made their own written reflections helped the process.

Phase Four involved those eight teachers from the Middle School (previously observed by the university faculty in a train-the-trainer role) observing other teachers and providing constructive feedback on the lessons observed. In this second round of observations, one of the university faculty and the key teacher jointly observed another teacher using a cooperative teaching strategy and then all three debriefed and evaluated the process.

The Principal and Supervisors continued to foster the further development of the CoPs as the teachers observed each other and held monthly meetings to discuss successes and challenges of implementation. By the end of the following year all 140 teachers had observed each others' classes.

A Graduate Education Project

Responding to Zayed University's mandate for leadership development, the College of Education introduced a graduate program for a Master of Educational Leadership from which two cohorts have now graduated.

A key component of the leadership program was a course on Action Research where students developed a comprehensive understanding of the characteristics of the method and its value as a tool for leadership

practice. Following the completion a range of tasks designed to strengthen their understanding of Action Research, the final task was the development of a proposal for a specific project based in their work site. A wide range of projects were undertaken where participants investigated specific problems and developed their understanding of leadership skills. Projects included a variety of topics such as:

- assisting a principal develop her communication skills,
- investigating colleagues perceptions of effective leadership,
- helping teachers development time management skills,
- developing a learning organization approach in the workplace,

The projects were conducted under supervision by experienced university faculty for two semesters of the academic year. A key component of the projects was ongoing reflection about the impact of the project on the specific participants together with analysis of the impact on the researchers' leadership knowledge, skills and practice. Participants were encouraged to keep a regular journal log about their experiences and leadership learning and to include this as an appendix to their report. Although the path of Action Research was complex and often problematic as the participants worked through methodological and logistical issues, all program participants successfully completed their research projects and went on to successfully graduate from the program.

Action Research and Change

Across the three programs the process of Action Research was complex and multilayered and included various aspects of change such as reflection, collaboration, adaptation, site based problem solving, communication, logistics and individual and collective learning.

Reflection

Throughout each of the projects participants were regularly asked to reflect on the process of Action Research. This could be informal where participants and the course teacher or project supervisor discussed issues in an unstructured format, or formal such as in the journals of the graduates. The reflection process is a critical part of Action Research as it allows the researcher to develop critical perspectives and awareness of what is happening in the process, both to the participants and to the researcher's own learning and practice. In essence it is a dialogic process either internal, as the researcher reflects on and interrogates the data, or external with other colleagues (e.g., the graduate discussions with academic supervisors). The development of this professional tool is an important process that leads to independence of leadership and research practice in the workplace. Another advantage of reflection is that it gives a voice to the researcher as an active participant in the research and also to aspects of the research process that may otherwise go unheard or unexamined.

Collaboration

In the government and private school projects collaboration was essential as the scope of the proposed changes was large. An advantage of collaboration and teamwork is that it allows uncertainty, anxiety and fear of change to be diminished as the group works toward project development and completion. In the government project there was also limited time and resources so small group teamwork and collaboration made the implementation of projects and their supervision much more manageable and realistic and

additionally, Ministry Supervisors were more likely to feel comfortable about taking responsibility for Action Research in their specific schools. Allowing for collaboration in the development and implementation of projects is also culturally appropriate as group activity and supported achievement is an important part of Arabic culture.

Similarly using a collaborative approach in the private school was critical to maintain the integrity of the cooperative learning project as the teachers' use of a collaborative approach, allowed their professional learning to run parallel to the classroom methods they were trying to develop. When motivated, competent individuals work together as a team toward shared goals, albeit with different perspectives, they are often a more powerful force in problem solving than an individual (Kruger and Mieszkowski, 1998; Michaelson, Watson and Black, 1989). As the private school program progressed, participants reported that they were more willing and more interested in working together in pairs, and teams and towards the end of the second year, several active CoPs had formed.

Although graduate policy emphasized individual responsibility, opportunities for collaboration in the graduate Action Research projects were available throughout the course, where, interacting as a community of practice, as they developed a critical understanding of Action Research. However these did not really extend into the individual projects. The participants did take a collaborative approach with their site-based projects but logistical difficulties impacted on the supervision teams that were originally planned.

Site based Problem Solving

All three projects were site based which allowed for immediate addressing of needs as participants dealt with real educational and leadership issues in their work contexts in a manner that was consistent with best practice professional learning models. For the government and private school projects, dealing with issues on-site led to understanding that the program was negotiated. This aspect was less evident with the M.Ed projects as the researchers were working individually on specific workplace problems rather than within project teams and some of the graduates did not have a current worksite and had to negotiate these at a new site.

The key advantages of site-based problem solving lie in the opportunities for authentic research, shared decision-making, ownership of the problem and leadership. In addition, there is more likely to be follow-up. Decisions about sustainability lie with participants on-site as through the Action Research process they become the experts.

Adaptation and Issues of Flexibility

As the programs developed, especially for the government and private school projects, there was a realization that both participants and program deliverers needed to be flexible and have a higher tolerance for ambiguity to adapt to emerging situations. In the Masters program each cohort had to modify their projects to adapt to their local contexts and personal and community needs.

For example, in the first phase of the government project, the traditional course delivery simply did not work well because of the influence of language and translation factors and so in Phase Two the faculty team adapted the program to fit more closely to the participants' needs. More group and collaborative work based on real professional problems, along with more effective translation were introduced so that learnings were

relevant and shared more effectively. The focus on shared learning grounded in real professional issues continued in Phases Three and Four and there was also an emphasis on co-construction of the Action Research projects by the faculty team and the participants, together with ongoing supervision and support between workshop sessions. This resulted in a high level of interest and engagement by participants. The level of participant confidence developed throughout the program was also important as it enabled participants to take their learnings into the schools to impact on teachers` work.

From the outset of the private sector program the Principal, the Heads of the two campuses and the grade-level Supervisors were strongly supportive of the goals of the project and as it progressed their engagement and willingness to go beyond their typical teaching duties became more obvious as Supervisors and teachers put in extra hours to hold meetings and complete observations as a part of their continued commitment.

Individual and Collective Learning

University faculty developed each project with the stakeholders' needs in mind which aligned with the program leaders' espoused values and principles of collaboration and sharing. Although initially it appeared that some participants wanted templates for how to do things rather than working through tasks together, the value in the CoP model and the benefits gained from opening classroom doors and sharing lessons and ideas together became more apparent and they indicated that they could now see how useful such professional learning was in facilitating individual and collective learning and effective school improvement. The professional development program provided opportunities for teachers to raise previously unspoken issues (such as grade inflation to please parents) collectively in meetings and work toward improving the teaching, learning and assessment as they engaged in Action Research together.

Logistics

Some logistical challenges mainly related to travel and time were also evident. In both the government program and graduate program many of the participants had to travel from some distance to the Ministry training centre or university and their workload requirements sometimes conflicted with the sessions so that attendance was varied. This led to differences in people's understanding of the program requirements and expectations**.**

The government participants, the private school teachers and many of the graduate students were busy professionals carrying extensive workloads and responsibilities so it was crucial for the professional learning to be manageable and professionally valuable within this framework. In the government and graduate programs the following factors enabled the teams to stay focused and the projects to remain manageable and achievable. Participants were asked to:

- narrow their focus on realistic topics that were grounded in real problems and issues in their professional workplace.
- undertake team projects so that the research workload was shared and thus less onerous.
- set specific timelines with clearly understood deadlines.
- utilize ongoing supervision and support between the main workshop days.

These parameters and a similar support system of supervision and guidance was provided by faculty teams for the private sector school.

Communication

Communication issues provided a variety of challenges across the Action Research programs. An obvious one was the fact that the English-speaking faculty team were working in a different cultural and linguistic context. The translation of content was a demanding and challenging task (e.g., finding a suitable translator for classes and the time-consuming nature of presentation in English followed by translation to Arabic).

Communication about content was less of a challenge in the private school context where English was the medium of instruction, but the issue here was providing opportunities for teachers to air frustrations about difficulties in moving towards school improvement without losing motivation for the new project. The process of airing concerns is an integral part in the change process (Fullan, 1993). If this is not permitted, it has a negative impact on morale. This is supported by Frank (1985) who notes that individuals cease to share their ideas with management and turn to alternate means to express themselves (Kreps, 1990). The importance of voicing concerns was clearly understood by the supervisors and the principal. They were aware that some teachers were fearful of change and yet were to ready to allow such discussion considering it a normal part of the change process.

In the graduate program the language of instruction was English but the challenge here was communication of new ideas at a senior academic level. The reading material used complex and sophisticated language and the faculty teachers had to think carefully about appropriate strategies to assist the graduates' understanding.

Conclusion

Through participation in collaborative Action Research the participants in the three different programs were transformed. This paper has highlighted the complex, collaborative and co-constructed nature of the process of professional learning. Proof of the value of the Action Research model was evident in the outcome of this process where Supervisors, teachers and graduate students developed greater knowledge, skills and confidence in their content area instructional approaches, in their attitudes toward their students, in their content areas, and in themselves as teachers of children or as leaders in educational change. They had become change agents for better leadership, teaching, learning and added value for the young Emiratis who will soon take on leadership roles in this nation. The three projects discussed in this paper illustrate how teachers can move beyond their traditional roles to assume leadership roles contributing to the knowledge base on teaching and learning. Their collaboration to understand their local contexts fostered a culture of positive change (Fullan, 2000) in their organizations to enhance their own learning and that of their students.

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Toward a Culture of Reading: Four Perspectives

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This article discusses four paths toward the development of a culture of reading, from the perspectives of a teacher educator, a librarian, an educational technologist, and a curriculum developer. Together, these individuals explore common problems and solutions in moving Arab students toward a reading culture. Particular reference is given to the United Arab Emirates and the authors' host institution, The Higher Colleges of Technology.

The fostering of a reading culture among students as a pleasurable and useful activity is a challenge in both the United Arab Emirates (UAE) and the Arab world in general. Part of the problem proceeds from a common belief that Arabs share an oral, rather than a written culture (see, Alrabaa, 2008; Sowayan, 2003). Denny (1989) places an oral culture within the context of Qur'ānic study:

> Orality and literacy have coexisted throughout Islamic history, but the orality of Muslims is not quite the same as the orality of primary oral societies never influenced by writing and texts. Muslim orality is, to a remarkable degree, liturgical, residing in the conviction that authentic life is made possible only in relation to sacred words. Muslim orality is also a discipline of memory: not a creative process, but a conserving and transmitting process. (Denny, 1989, p.13)

What Denny did not explain was whether a young Muslim's principal exposure to reading through the Qur'ān is likely to define his or her attitudes toward reading. Some may argue that it does, and to a negative degree, but this would ignore a long history of great among the Arab peoples that, only in recent years has diminished; a common indictment of Arab literary efforts is the UNESCO report that noted that more books were translated into Spanish in 2002 than were translated into Arabic in the past 1,000 years. Recent measures of Arab readership, literacy, and literary output in the same report are similarly discouraging, partly because of what Isomura (2004) sees as the impact of a basic cultural ignorance that result from a lack of love of learning:

> The notion of "cultural literacy" refers to the need for cultural awareness, both of one's own culture and of other cultures. Surveys concerning the general knowledge of today's high-school students have revealed disturbing levels of cultural ignorance in fields

> ranging from geography to music and literature. It is necessary to educate for the development of cultural literacy: it is not only necessary to teach students to read and write; it is also necessary to transmit cultural values and understanding." Isomura, 2004, p. 67)

This article examines four paths toward the development of a culture of reading, from the perspectives of a teacher educator, a librarian, an educational technologist, and a curriculum developer. The exploration of common problems and solutions helps point the directions in moving Arab students toward a reading culture.

A Teacher Educator's Perspective

There is an urgent need to invest in reading initiatives in the Arab world. Outdated curricula and methodologies, reliance on rote learning, and too few qualified teachers pose a threat to the establishment of a reading culture in the region. In response to a demand by government authorities to significantly improve educational practices in the United Arab Emirates (UAE), and simultaneously Emiratize and professionalize the teaching profession (Mograby, 1999; UAE Ministry of Education and Youth, 2000; Clarke & Otaky, 2006), the development of Vision 2030, a plan to reform education in the UAE by encouraging effective teaching methods was developed. Within this recognition of the need for reform in UAE schools and classrooms, one issue of concern to educators and teacher educators is the need for a reading culture. However, as many Emirati government school classrooms still echo with teachers shouting and instilling fear, promoting accuracy of choral reading to the detriment of developing a love of reading, Emirati students read little beyond their schoolbooks and prefer to watch television (Taha-Thomure, 2003).

Transformational Teacher Education pedagogy in promoting a reading culture in primary school classrooms

A recent initiative for change in the promotion of a reading culture in primary schools involved the shaping and contextualizing of a teacher education reading methodology course (EDUC 250) at the Higher Colleges of Technology (HCT) Bachelor of Education (B.Ed.) program. Curricular and pedagogic changes were made to address the question "What do student teachers need to know about reading to teach it effectively in the context of language learning in UAE schools?" Moving from understanding reading as a multifaceted, complex phenomenon to practical application of concepts and methodologies, the increased capacity of trainee Emirati teachers to teach reading successfully was seen as a catalyst for addressing negative attitudes towards reading in Emirati schools.

Within this, the potential influence of teacher education on developing reading teaching styles was explored, particularly explicit performance modeling of reading approaches and implicit modeling of positive attitudes towards reading. Based on course evaluations, teaching practice reports and observations, modeled constructivist reading lessons in college were found to be a major influence on shaping what students did in the English as a Foreign Language (EFL) classroom and the reading culture they promoted. Using statistical software NUDIST* inductive coding, effective elements noted by student teachers in focus group discussions, included:

- Shared Reading
- Reader's Theatre
- Electronic books
- Storysacks
- Vodcasts/Videos
- Reading Aloud
- Modeling of Pre-, while- and post- reading stages
- Questioning techniques
- Total Physical Response (TPR) activities
- Modeling of Puppets and Props
- Using intonation, rhythm and pitch while reading
- Role play
- Drop Everything and Read (D.E.A.R.)
- Library week events, including guest authors, reading workshops, panel discussions, and school visits
- Use of resources: musical instruments; Post-it Notes; PowerPoint presentations

Teaching Practice reports revealed that many of these modeled interactive strategies were trialed by student teachers during their teaching practice placements, demonstrating that many student teachers taught as they had been taught to teach. For example, student teachers on Teaching Practice Placements reported that the lively and attractive features of Storysacks further engaged EFL learners in the storylines and sustained their interest for longer periods of time:

My students were so interested in the storysacks of *The Hungry Caterpillar* by Eric Carle, that when the lesson ended, they asked if I could read it again with them (Focus Group interviews, 2007, p. 1)

Significantly, the Emirati student teachers highlighted the powerful influence of modeling positive beliefs and attitudes towards reading and motivating EFL students to read for pleasure, as modeled by their own teacher educator.

> We've taken all the approaches… that can or cannot be implemented in Emirati classrooms …. Now we know which is good and what is not good for young EFL learners... Also our view of reading teaching is different from our teachers. I mean they thought only about comprehension, pronunciation and grammar. We want students to develop a love of reading and not be afraid to make mistakes. (Focus Group Discussion, Group 1: 2007, p. 1)

Student teachers further expressed a desire to become agents of change, by setting themselves apart from their former teachers, moving to more child-centered approaches, instilling a love of reading among EFL children and creating a positive reading culture:

> From our past experiences, some reading techniques in EFL classrooms were not really promoting the love of reading, so now as future teachers we really want to promote the love of reading so that students will have the desire to read for pleasure in a reading

> friendly environment ... we know what we have to do to improve this situation. (ibid, p. 6)

Connections were also made between modeled reading strategies observed in the college classroom with examples of best practice modeled in Private English Schools.

The evidence from student teacher responses indicates that effective teacher education pedagogy, particularly performance modeling of reading approaches and behaviors can indeed influence styles of reading teaching and better prepare student teachers with the skills and strategies necessary to teach reading in UAE classrooms.

Future Initiatives

While the student teachers view themselves as agents of change within a traditional system of primary school education, referring to what Smith (2000, p. 12) terms "the folklore about student teachers 'changing' the schools", whether or not they will actually effect change in the teaching of reading will need further research. However, an initial follow-up study on the impact of the HCT B.Ed. program in schools conducted by Clarke, Hamston and Love (2007) found graduate teachers having a positive influence on their school communities and initiating change in the form of professional development for colleagues in the role of storytelling, integrating English with other subjects, and establishing processes for sharing curriculum materials.

Research literature indicates that the provision of systematic support for new teachers can increase the effectiveness of their performance in schools (Boreen, Johnson, Niday and Potts, 2000; Wong and Breaux, 2003), and that it is possible for beginning teachers to become change agents when they are supported by communities of teacher learners (Corrie, 2000). This means an extension of this research could involve assistance with professional development reading workshops, the establishment of links between the college classroom and graduate classrooms through involvement in special events in schools (e.g., book week) and the provision of access to a wealth of reading resources. Exploring ways in which Emirati student teachers and graduates learn to teach reading is a long-term job. Teacher education programs are the first step in a professional journey that requires the nourishing conditions to support the promotion of a reading culture through teacher development. It is, nevertheless, a journey that will never end because, no matter how effective we are as teacher educators, we can always improve.

A Librarian's Perspective

"Reading is boring."
"It is too difficult, it takes too long."
"Reading is what I do for College work not what I do for fun ... reading is hard work."
"I don't read; I don't like it."

These statements, made by Diploma Year One students at HCT, represent the challenges faced by librarians both in the UAE and around the world when trying to encourage reading. School librarians encourage reading for pleasure because they understand the correlation between improvements in reading and improvements in writing, grammar, and vocabulary (Krashen 2004,

as cited in Snowball, 2005). Academic librarians encourage reading to improve understanding of a range of issues and to develop the ability to argue a point and construct an academic argument. For librarians in the HCT cultural context of a women's campus, reading is even more important because it provides a wealth of experience on both an emotional and intellectual level, sometimes outside the confines of the traditional Emirati female experience.

For second language learners, extensive reading improves the ability to critically evaluate texts and helps to develop research skills. For these students, reading helps to provide experience in texts, the majority of which are written in English, where typically these second language learners are linguistically disadvantaged, especially when vague, sarcastic, or loaded terms are used (Stapleton, 2005). Therefore it is imperative that Emirati students develop reading skills to be able to engage in the written word so that they can make sense of the complex and rapidly evolving social, political and economic environment of the Middle East.

One of the greatest challenges facing librarians in the task of developing a reading culture in the UAE is the lack of exposure to books and little access to libraries. Public and school library systems are still in development and there is little exposure to books and reading or literacy programs spearheaded by a national public library system. Many Emirati students have never visited a library other than a school library, and many come from schools that featured small and often inadequate collections. An academic college library is often the first library experience for most of these students. Therefore librarians in academic settings need to redefine their ideas about spaces, activities, collections and readers to ensure they are providing a positive atmosphere for a reading culture to develop.

Defining HCT readers

To help provide the kind of libraries, services and collections UAE students need to develop a reading culture, it is important to understand stakeholder groups and, more importantly, how stakeholder groups define themselves. During Library Week, April 2008, the library in collaboration with the Education Department at Abu Dhabi Women's College (ADWC) conducted focus groups with Diploma Year One students. The focus group participants were asked if they read, why or why not, and how they could encourage reading among their families and peers. Ninety-nine per cent of Diploma students defined themselves as non-readers. However after further questioning it was found that those who defined themselves as 'non-readers' read print and online materials (magazines, web sites, social networking sites) that they believed were not sanctioned as authentic reading material by teachers or librarians. Therefore non-readers need to be redefined as 'reluctant readers' who do read, but who do not possess the desire or motivation to read particular types of texts. These findings match those of the United Kingdom (UK) National Literacy Trust questionnaire, which surveyed 1,600 UK students in 2007 (Gorman, 2008). Both this survey and the focus group results revealed that the image of a reader and the types of materials that constitute reading creates barriers for students. As Gorman (2008) suggests, the definition of "… what reading means needs an extreme makeover" (p. 21).

Reading needs to be repackaged as a way to learn new things and as an entertaining activity, rather than a way to pass an exam, or to practice English skills, or to improve scholastically. Those who define themselves as non-readers should be encouraged to see that connecting with

the written word in all its forms is part of what it is to be a reader. From a librarian's perspective in the UAE, we need to redefine academic libraries in the UAE so that scholastic endeavors can sometimes be defined as the byproducts of the joy of reading. We need to create a culture where reading is making meaning out of any text, whether it exists in print or online, in a library or in a mall, still or moving, surrounded by imagery or sound, and where people can read for no other reason than enjoyment.

All Reading is Good Reading

In a culture where students have not grown up with the concept of a local public library system, bright and welcoming school or college libraries, or even a variety of bookshops, a library is often seen as an intimidating building with blocks of academic books. In a November 2008 HCT Library survey, conducted with Diploma Foundations English students, one student described her school library as, "… a classroom with a few old books, and one computer we had to book. When it was my turn I had already finished my project so I didn't need to go there." In the absence of widely accessible libraries in the UAE, it is important that college libraries do not assume their role is that of a research institution. These libraries must consider a dual role when considering services and collections, not only to cater for academic endeavors, but to also encourage those reluctant readers to see entering the world of books as part of their leisure activities.

Krashen (1993) discusses the importance of popular fiction for young readers: "Perhaps the most powerful way of encouraging children to read is by exposing them to light reading, a kind of reading that schools pretend does not exist … I suspect that light reading is the way that nearly all of us learned to read" (as cited in Crawford, 2004, pp. 47-48). Crawford suggests that comics are an "… invaluable tool for motivating reluctant readers" (Crawford, 2004, p. 47). Gorman (2008) also contends that the cover art of graphic novels and popular fiction pulls in those who would otherwise not engage in books. At the ADWC library, graphic novels have proved to be a popular hook into reading because the illustrations provide valuable contextual clues to the meaning of the written narrative and are not viewed as traditional graded readers or seen as school work.

Librarians catering to reluctant readers also need to look beyond what would be traditionally called leisure reading. Often students see fiction, particularly graded readers, as assigned reading, which equals assigned work. Often students are requested to produce reading portfolios of graded readers, even if these readers are of no interest to them. This can defeat the purpose of encouraging students to read for pleasure. Academic and school libraries need to build collections that include non-fiction material of all types–from books about music, jewelry, weddings, or movie stars–anything that is going to be the interest areas and true escape paths that entice reluctant readers. For second language learners, non-fiction usually comes in digestible chunks, is non-linear, and is media rich. It is ideal for readers who find completing a whole book intimidating as non-fiction can often be read in sections or chapters without loss of meaning.

Collections should not only look at type, but also range of content, within the confines of cultural norms and social responsibility. We need to look beyond the traditional forms of literature at emerging trends to cater for Arab youth interests. For example, studies in western libraries have

shown that a new type of literature, urban literature, attracts reluctant readers who have grown up with Music Television (MTV) and the rise of hip hop culture (Morris, Hughes-Hassell, Agosto, and Cottman, 2006; Meloni, 2007). Urban literature, which addresses the street culture glamorized in hip hop music videos, has special appeal with young Arab males aged between 14 and 25, a large audience that rarely reads for pleasure. Urban literature provides another hook into books by creating opportunities for reading a totally new and non-curriculum based literature.

The Library as Flexible Social Spaces

Although leisure reading has reportedly declined in most western countries, mega-bookstores like *Borders* and *Barnes & Noble* flourish because they heavily invest in services, resources and facilities that promote leisure reading. "Significantly, mega-bookstores don't just sell books and multimedia products; they teach people new ways to read and interact with printed material" (Trager, 2005). Mega-bookstores succeed as contemporary sponsors of literacy where traditional libraries fail because they do not restrict readers in how or what they read, and do not prescribe to the theory that reading must be a serious activity. In the UAE cultural context, Emirati readers have not been brought up under the strict regime of traditional library spaces, and therefore are more likely to feel comfortable in a contemporary space. Mega-bookstores "… promote a sensual, social reading experience because they are keenly aware that virtually all unplanned purchases—and many planned ones too—come as result of the shopper seeing, touching, smelling or tasting something that promises pleasure, if not total fulfillment" (Underhill, 1999, as cited in Trager, 2005).

As is the case with mega-bookstores, libraries must entice readers using all the senses. Some libraries have embraced the idea of libraries as social spaces by providing cafés, casual seating and flexible spaces for group gatherings. If reading is seen as a social experience, it will become an interlinked natural ritual (Brown, 1980, as cited in Trager, 2005). Flexibility is the key to good library design in the UAE. Libraries' dual role as places of research as well as places to discover and encourage reading must reflect in the design of workable flexible spaces, with zones for quiet reading and reflection, academic research, social networking and information exchange, technology access areas and, most importantly, zones that promote books and the love of reading.

Merging Arabic Culture into a Reading Culture

Much has been made of the oral traditions of the region being a predicating factor in the challenges of developing a reading culture (Shannon, 2003). However, by embracing these traditions, the library can promote storytelling, reading circles and discussions from shared books, poetry and other sources as part of the reading experience. It is also important that reading takes place in the first language and include books related to Arabic stories, traditions and cultures.

In many HCT libraries, story time or reading aloud sessions are encouraged, often with student mentors reading to more inexperienced readers. Social interaction with reading is important in this cultural context, because learning often takes place in a social context. Libraries have

exciting opportunities to merge traditional customs of social networking with new media, using social networking technologies to promote discussion about books and reading. The ADWC library has used wikis, blogs, and websites such as *LibraryThing* to engage students in books and reading. Future initiatives include the *One Book One Campus* concept, which encourages everyone on campus to read and discuss a book in both physical and virtual meetings spaces (see, http://www.firstyearreading.fsu.edu/).

A reading culture must be considered part of Arab culture, not just a western cultural influence. A colleague reported a student querying whether reading bedtime stories to children was something that happens in western movies, but not necessarily in real life. We need to transform Arabic people into reading celebrities, perhaps by marketing reading using Arabic role models, especially those who appeal to the younger generation. By using themes, personalities, and real life Arabic situations, we can encourage a grassroots reading culture, which will merge new reading traditions with old, to create a truly authentic Arabic reading culture.

An Educational Technologist's Perspective

The students that we teach today have grown up with technology, surrounded with mp3 players, mobile phones, and computers. By the time students reach college, they will have sent countless emails and text messages. They will have spent 5,000 hours of their lives reading, but over 10,000 hours playing video games (Prensky, 2001). With the advent of mobile technology, students have instant and continuous access to the internet. Electronic devices, the internet, email, and instant messaging are an integral part of their lives now and has changed the way that students read and use language.

Since 2002, Web 2.0 has emerged as the name for a more user-centered web. It aims to enhance creativity, information sharing, collaboration and functionality of the web (see http://en.wikipedia.org/wiki/Web_2.0). With the advent of this technology, website visitors now can easily contribute to the creation of web pages, formerly an exclusive privilege of website owners. Wikis, blogs, discussion forums, and social networking are popular forms of Web 2.0 sites which HCT students visit regularly. Wikipedia is among the most prominent examples of a Web 2.0 website. It was launched in 2001 and is currently the largest and most popular general reference work on the internet (Tancer, 2007). There are more than 2,000 articles being added each day by its community of users. These activities encourage reading and writing as users read articles of interest, comment on, discuss, and edit them.

Student reading and writing has been similarly encouraged by the growth of blogging and there has been a dramatic increase in the number of blogs that have appeared on a variety of topics and interests. There are now more than seventy million blogs with approximately 17 posts being made to them every second (Seaver, 2007). Reading and writing is at the core of this technology when users read about the different issues and items and then leave their opinions as comments for others to read and comment on. Discussion forums are another popular Web 2.0 technology where their very existence is dependent on a community of users who are prepared to write posts and leave replies to others' questions and opinions.

Most Emirati students at HCT have used Wikipedia, blogs and discussion forums. A focus group comprising of UAE female students from HCT's B.Ed. in Information Technology program looked at how their reading was affected by new technology. All students indicated that they would use their laptops for reading more than they would use books. When asked what they were reading, initially academic and course related material was mentioned. However, students also read blogs and websites about items of interest to them. Most students had contributed to the creation of pages on the Wikipedia site, as an education assignment.

The Meaning of Reading in the Digital Age

As student scores on standardized reading tests have declined or stagnated, some argue that hours spent reading on the internet diminishes literacy, lowers attention spans, and destroys a common culture that exists only through the reading of books (Rich, 2008). But, in comparing the effects of reading online and reading books and magazines, it has been found that in the online setting, students who spend a lot of time reading cover a lot more content but at a more superficial level than their counterparts reading traditional materials (Bauerlein, 2008).

Traditional books have a pre-determined beginning, middle and end, where readers focus on one author's vision for a sustained period. On the internet, readers can visit many sites quickly, composing their own beginnings, middles and ends (Rich, 2008). As students read web text mainly as headlines, captions and short excerpts, then it is being experienced primarily as information and entertainment, and is not conducive to sustained engagement in writings of greater length (Giola & Iyengar, 2008). This may be attributed to the fact that reading web text is slower than reading similar paper text (Johnson, 2008). This leads to a realization that the internet is not a replacement for the "… profoundly imaginative and interpretative act of reading" (Giola & Iyengar, 2008, p. 1). While these initial findings, if shown to be representative of web readers in general, do not paint the brightest of pictures for the future of spelling, grammar, vocabulary growth, and contextual learning, a new reading culture is created that can be advantageous to a broader range of students.

Reading E-books

The growth of e-books on a variety of topics and the devices to display them shows that technology is making literature itself more accessible. E-books are provided to students today as an alternative to regular textbooks. The convenience of features such as searching, note-taking, and bookmarking make them attractive alternatives to regular textbooks. However, e-books are most useful for research and study. Only 10% of participants in a recent study on e-book usage trends reported reading an e-book for leisure, while 78% and 56% respectively used e-books for research and study (Springer, 2008). This trend can be explained when looking at the advantages of using e-books over regular books. E-books are easy to find, and relevant content can be searched more easily, especially using keywords, while a large number of books can be carried on a mobile device with ease. All of these factors are important for students and researchers. However, when looking at reading for pleasure, reading on a screen is relatively difficult and using an e-book reader or mobile device in place of a book comes second to the traditional experience of holding a book on your hands while flicking through the pages. It seems that e-

books are most suited to situations where users need to locate specific information and, as such, e-books should be seen as complementary to print books (Springer, 2008).

The previously mentioned focus group reported using e-books frequently when doing coursework research. This was in line with the results of the Springer survey (ibid). When asked about the advantages of e-books over traditional books, students cited convenience in searching, and the number of books you could save on your laptop as the biggest advantages. Some disadvantages included the fact that reading on a screen is not as comfortable as reading a book and that it is slower to get the meaning of a paragraph in an e-book. When asked about reading for pleasure, none of the students had read an e-book for pleasure but had read library books instead.

There is scope for great advances in e-book technology that is likely to make them more attractive to users. E-books' displays need longer battery life and better digital paper to reduce user eye strain. Additionally, the range of curricula resources can be improved to appeal to a wider student audience. Reading for pleasure can also be accommodated by ensuring that there is no difference between the titles available in the bookshop and for e-book readers. The success of e-books is also dependent on freely available texts without the need to purchase expensive licenses or subscribe to e-book providers. However, it must be remembered that putting e-books and e-book readers in students' hands is not the aim of this process; it is only a stepping stone towards the goal of assisting students gain and regularly practice the skills of 21st century literacy in today's information environment.

A Curriculum Development Perspective

One barrier to the teaching and learning of reading is a lack of locally-relevant or otherwise appropriate materials that appeal to teachers and students. This is particularly an issue in terms of professional curriculum development by commercial publishers who provide schools with language textbooks, story and non-fiction books, and graded readers. Before looking at the specific needs of the UAE and how publishers do or do not address them, it is useful to review the curriculum development process to identify factors that help and hinder the creation of locally-developed materials, particularly from the perspective of a commercial publisher.

Both individual teachers and major international publishers go through several of the same steps in creating learning materials: needs assessment, clarifying the objectives and educational strategies, identifying the support necessary for teachers to get the most out of the materials, and implementing the materials with a feedback loop so that they can be improved in future.

Needs Assessment

A publisher first looks at a market and decides if gaps in the curriculum lead to certain teacher or learner needs not being met. These gaps may appear when there is no other publisher addressing a particular market's needs, or are not addressing them in a particularly effective way. New market needs arise when a publisher recognizes changes in a market, for example, through a major change in a national educational policy encouraging the teaching of English at an earlier

age. But publishers also identify market needs if other publishers' textbooks have, over time, become dated and irrelevant.

Many teachers respond to perceptions of a lack of suitable materials when their students fail to meet expectations. Teachers then adapt and create their own materials through trial and error and these sometimes form the basis of professionally published materials; teachers have a role in contacting publishers to make them aware of gaps in the curriculum and any shortcomings of textbooks they may be using. A publisher may not act on teacher feedback immediately, but such feedback can help to make publishers aware of the issues involved and may even lead to the teacher in question being hired as a consultant or writer on a new publishing project.

Objectives of New Materials

The objectives of any new materials need to be clarified. The *British National Strategies Standards* for primary children, for example, emphasize the reading skills of predicting, questioning, clarifying, imagining, and summarizing. "To varying extents, these skills draw upon linguistic and cognitive resources. In concert they can be used to ensure that children are able to build coherent mental models of the texts they read" (_____. 2009, np; see http://nationalstrategies.standards.dcsf.gov.uk). Different objectives are identified according to the age and abilities of students.

An important, and surprisingly recent consideration in reading objectives, is promoting the *enjoyment* of reading; this recognizes the fact that learners who enjoy what they read will read more. Other objectives include pre-, during- and post-reading objectives ranging from learning how to read a variety of texts for different purposes and in different ways to assessing one's reading and setting goals for improvement.

Educational Approach

Approaches to reading have been slow to change. Richards (2001) identifies the major methods as having the greatest dominance in this chronology:

- Grammar Translation Method (1800 – 1900)
- Direct Method (1890 – 1930)
- Structural Method (1930 – 1960)
- Reading Method (1920 – 1950)
- Audio-lingual Method (1950 – 1970)
- Situational Method (1950 – 1970)
- Communicative Method (1970 – present)

The communicative method looks set to continue as the dominant approach in language learning, despite enduring controversy (see Swan 1985; Bax 2003; Harmer 2003). Other approaches are often developed and shifts of emphasis, such as phonics or whole language movements, influence the creation of new materials. Too often, however, publishers pay scant attention to educational strategies, instead relying on conservative and outdated methodologies.

Support

Publishers have long provided support in the form of teacher books and big books for primary students, but are now increasingly expected to provide additional support such as in the form of CDs, CD-ROMs, test banks, photocopyable masters, and interactive websites. Such resources help to address the needs of remedial learners and those with different learning styles.

Feedback

The development of any new learning materials benefits from a feedback loop that invites stakeholders to comment and contribute. Publishers' websites make this both possible and easy by inviting comment and answering questions.

The UAE Context

UAE students form a cohesive group, bound by ethnicity, traditions, language, religion and, to some degree, socio-economic status. Their cohesiveness, in some ways, forms a barrier against the learning of new languages as they function perfectly well in Arabic, or in a mixed code of Arabic and English.

In terms of language learning, a starting point for many language textbooks in a uni-lingual context such as the UAE, is an awareness of contrastive linguistics. Contrastive linguistics help to identify typical problems a learner is likely to face based on the differences between the students' target language and first language.

In the case of the UAE, there needs to be more systematic work done in the critical differences between Arabic and English; although there are a few useful references dating back one or two decades, there is a lack of ongoing and comprehensive consideration of the differences; an ERIC search for the keywords *Arabic* and *contrastive linguistics* showed the most recent article to be one done on the Arabic particle *fa* (see Saeed & Fareh, 2006), with relatively little preceding it.

Informal needs assessments of UAE students have, from time to time, expressed the idea that they are not part of a reading culture. A proper needs assessment should determine not only why this is so, but also the reading needs of students and graduates at different levels so appropriate learning materials can be tailored to the objective of creating a reading culture. Reading materials also need to take into consideration the social and religious traditions of the UAE, ensuring that no offense is given while still introducing students to the wider world.

In terms of approach, materials aimed at teaching students in the UAE need to consider differences in learning styles between students elsewhere who traditionally see English as a language of opportunity and UAE students whose socio-economic status and wealth of opportunities within the UAE may make them less motivated in learning a second language. Conversely, the widespread access to technology among many Emirati students (for example, most HCT students are issued laptops and campuses are technology rich) means that they easily have access to online support where it is offered by publishers.

The Economics of Book Publishing

Publishing a new textbook is an expensive process and is never entered into lightly. It has to fit with a publisher's business plan and the first questions asked are about the size of the market and, therefore, the expected return, and secondly, whether any of the publisher's existing textbooks might be adopted or adapted. Markets differ. Some countries, with small populations, are willing to pay more for their textbooks while other markets, such as China, are so large that even a smaller return per book can make for a significant profit. As the economic stakes are invariably high, projects without financial incentives are not explored.

The population base of the UAE is relatively small which makes it unattractive to publishers hoping for large returns. Although Arabic is nominally a pan-Middle Eastern language, it has enough dialectical differences to be mutually unintelligible among some populations. The dialect of the UAE and neighboring states referred to as Gulf Arabic. This makes a contrastive analysis of the local language both narrower and more necessary.

Foregoing any detailed needs analysis, textbook publishers typically put forward their established titles or, in some cases, modify them for the local market. Modifications often include changing the photographs in a language textbook to local scenes and ethnicities. This can be done on a superficial level without changing the text. In other cases, the text is revised or censored to take into consideration local sensibilities. For example, activities thought to be unsuitable for young locals might be rewritten. These might include eating forbidden foods like pork, celebrating certain religious events like Christmas, and dressing and acting inappropriately, such descriptions of young women wearing bikinis and mingling with young men at the beach.

In a more general sense, a localized textbook should take into consideration the vocabulary necessary for a student to discuss the local environment in a meaningful way. Words such as *camel* and *palm tree* are relatively low-frequency in most English primers, but would be essential for the education of young Emiratis.

In some cases, the UAE has taken the lead in publishing, such as through the *Kalima* (Arabic for *word*) project, which aims to translate 100 English classics works of fiction and non-fiction each year into Arabic (see http://www.kalima.ae/new/index_en.php). The dedication to, and extensive funding of, the educational system by UAE authorities suggests that any real needs in the creation of new learning materials can and will be taken into careful consideration and operationalized.

Conclusion

The move toward a reading culture among Emirati students in the UAE is not likely to be an easy one. However, analyzing and approaching the issues from a variety of perspectives can help in offering a variety of innovative solutions that, together, may make a difference over the course of a generation. Perhaps the single most important behavioral change in creating a culture of reading would be for the current generation to translate their own exposure to reading from the above initiatives into habits of reading to their children for pleasure and encouraging their children to read on their own.

Few countries in the world have experienced the development seen in the UAE over the past 30 years; it remains to be seen how that development helps foster a literate and literary population that promotes the educational values that will sustain future generations.

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Research in Brief:

Graduate Research Methods: Comparing Approaches to Learning and Evaluation

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One of the most dreaded experiences for many graduate students in education is the research methods and statistics course. Here information builds from week to week, so mastery early in the semester affects subsequent knowledge acquisition and application of complex content (Briggs, 2007; De Luca, Twale, & Herrelko, 2005). Realizing this dilemma as evidenced in their low teaching evaluations, De Luca, Twale, and Herrelko provided students with reflective exercises to remove some of the pressure, increase students' engagement, and hold students more accountable for their own learning. Through action research, I extended their framework in my master's level research methods classes to determine the benefits of student self perceptions of learning against the benefits to students who must rely on quiz scores to determine their progress. Furthermore, I wanted to compare how the final semester grades and my course evaluations differed across these two groups and a comparison group. I was curious as to whether my evaluations would be affected by the approach I took.

In his social learning theory, Bandura (1986) posited that as one's degree of self-efficacy or confidence increases, levels of one's interpersonal behavior also increases. Opportunities to practice what is contained in the coursework could ideally help increase student self-efficacy as would opportunities to explore how they "felt" about what they are learning. Learner centered approaches (Paulsen & Feldman, 2005) that build this confidence have included critical thinking (Zuber-Skerritt, 1992), active learning (Sivan, et al., 2000), and self-reflection as well as active instructor engagement in student learning Clegg, Tan, & Saeidi, 2002; De Luca, Twale, & Herrelko, 2005; Ovando, 2001; Rock, 2000). Do these varying approaches affect students evaluation of teachers?

In his meta-analysis, Johnson (2003) summarized studies that strongly and positively correlated course grades with faculty evaluations. When students struggled in a course and subsequently earned a low grade than they expected, they tended to blame the instructor. Furthermore, Johnson's research showed that students taking a particularly challenging course compared their experiences to other courses in their program as well as with other courses and instructors taken simultaneously and had a tendency to downgrade faculty. Marsh and Roche (2000) found that student interest in the subject matter may have an effect on performance as well as how students evaluate the instructor. Centra (2003) found that a focus on learning versus a focus on the instructor's teaching yielded different results than found in previous studies. Faculty teaching smaller classes (under 15) faired better on their evaluations than faculty teaching large classes (McKeachie, 1996). While Centra found that grades had little effect on faculty evaluations, there was a positive relationship between course difficulty, pace, and workload and faculty evaluation results. For instance, if the research methods course

proved more challenging than other courses in terms of difficulty, pace, and workload, then, faculty teaching evaluations would likely be lower as would be the case if students feel less prepared for a challenging course like research methods and if the class is large (McKeachie, 1996). I posed the following research questions: (a) What differences existed between two classes of graduate research methods, one using self-perceptive, self-reflective techniques and one using graded weekly quizzes to measure student learning? and (b) What differences existed between final grades and student evaluations of the instructor across these two classes and a comparison research methods class that employed neither approach?

Method

Using action research in this ex post facto design, I studied students in a School of Education taking a graduate research methods course. In this convenience sampling, all classes were three face-to-face, evening, master's level courses, at a mid-sized, religious research university in the Midwest. Participants either used (a) self-perceptive/self-reflective techniques (n=26), (b) graded weekly quizzes (n=29), or (c) neither [comparison group] (n=22) during the semester they took the course. In the first two groups, students knew they were being studied which may have increased the chance of a halo effect in that they are likely to feel better as a result of the attention and thus report differently. Testing via quizzes may have posed a threat to validity given that some students who scored low on initial quizzes may have applied themselves more to achieve higher scores on subsequent quizzes.

Each participant in the first two groups received a 20-item multiple choice research methods pre test the first night of the semester to measure prior knowledge. To assess students throughout the course, I used either: (a) plot graphs that allowed students to self-reflect and monitor self-perceptions of their learning five times during the semester or (b) a graded ten-item multiple choice quiz at the end of each of the 14 classes to help students keep track of knowledge acquisition. On the plot graph, students noted in which quadrant they assessed their level of knowledge comprehension for that evening class: Along the X axis students determined their degree of *content mastery* by marking a specific point, coordinating it with a specific point on the Y axis that denoted their degree of certainty as to how to *apply that content* material just presented to them. Each student then described what that placement meant on the graph in terms of a reflective self-perception of their learning. It gave me an approximate indication of how students perceived their degree of mastery and application of course concepts. I encouraged students to reflect on *their learning* as opposed to focusing on *my teaching.* I also took note of student demeanor in class such as how they reacted before doing their plot graph as well as what they talked about, how they prepared, crammed, and asked questions before the quiz classes (Fox, Martin, & Green, 2007). At the end of the semester, I administered the same 20- item post test to both groups. Scores on these were not used toward students' final course grades nor were the self-perception graphs.

I used paired *t* tests to determine the differences between pre and post test scores. I used independent *t* tests to compare post test scores between the first two groups of students.

For the first class, I compiled their plot graphs to visually show patterns of how students self-reflected individually as well as during a particular evening class. I then used content analysis for data conversion of students' written comments explaining their plot points. For the second class, I constructed graphs of the weekly quiz grades to show if students were doing better or worse as a group and as individuals. I then converted each student's final course grades to A = 4.0; A- = 3.75; B+ = 3.25, etc., for all three classes. I used a one-way ANOVA to calculate differences between course grades in these classes. I also considered my faculty evaluations of teaching scores for the three classes. Because I had class averages for all three groups and individual student data for only two groups, I could only compared means.

Results

Within both classes there was a significant difference between pre and post test scores for the self-reflective group (t = -5.072; $p < .001$) and the quizzed group (t=-8.048; $p < .001$). There was no difference between the two groups on either their pre or post scores. Mean scores were M=10.81 and M=11.07 for the pre test respectively and M=13.23 and M=14.21 for the post test respectively. The plot graph pattern for the self-reflective research methods class showed that only three students accurately matched their perceptions of learning to the results of the pre and post tests; two students overestimated their mastery; and the rest of the class, although improving their scores over the semester, doubted their mastery. Final course grade distributions indicated no differences between the three classes ($F(2, 70) = .64$, $p > .05$). The self-reflective class averaged M=3.58, the quizzed group averaged M=3.41, and the comparison group averaged M=3.48. The course evaluations showed a mean of 4.16 from the self-perception class and 3.69 and 3.68 from the other two classes.

Discussion

While I see mastery as demonstrated on the post test, students' ability to apply the material cast doubt as to whether the self-reflective group actually comprehended it enough to apply it. The self-reflective approach, however, had a very positive effect on my teaching evaluations (DeLuca, Twale, & Herrelko, 2005; Kreber & Cranton, 2000). In addition, students' reflection compelled them to respond immediately to the material (Leamnson, 2000) and take control of what they thought they learned and had yet to learn in order to succeed. On the other hand, the weekly quizzes encouraged students to prepare more for the class as their actual knowledge acquisition was being assessed, not their perception of it. By the same token, the immediacy of each weekly quiz could have hindered student's ability to recognize how and where to apply the material because they focused on their grade rather than perhaps learning the material. When I introduced quizzes I knew that tensions would likely increase, but I did not consider what effect it could have on my teaching evaluations (Paulsen & Feldman, 2005).

In terms of immediacy, the group being quizzed knew how they were doing each week because they were able to see the range of scores and place themselves accordingly as well as have a better approximation of a portion of their final grade. The self-reflective

group operated by how they evaluated their own work not in its relationship to others in their class or to their final grade.

Student tensions associated with the research methods course as well as test taking may explain why they might transfer their fears and anxiety onto me during evaluations rendering them lower (Johnson, 2003; Paulsen & Feldman, 2005). When students use the plot graphs, I am forced to be more engaged with them but that same level of "engagement" was never equaled with the weekly quizzes. Judging from the grade distribution and evaluation outcome, students may have felt similarly (De Luca, Twale, & Herrelko, 2005; England, 1996). This action research project showed me that I might attempt a hybrid approach that increases student learning and self-efficacy by employing ungraded weekly quizzes and plot graphs or some other self-reflective technique in order to address student learning. In so doing, it may also have a positive effect on my teaching evaluations.

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