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THE TRANSITION OF MIDDLE SCHOOL STUDENTS INTO HIGH SCHOOL

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ABSTRACT

Research demonstrates that there is often a drop in academic achievement associated with the transition from middle school to high school and that students respond to challenging academic coursework in ways that positively affect their school performance. In this action research, student grades in the sixth through eleventh grade at an independent private school were analyzed for any change in academic performance as they transition from middle school to high school. In addition, teacher surveys assessed the perceived level of academic rigor and support. Grade data suggest that a drop in academic performance between middle school and high school had occurred Teacher perception data suggested a high perceived level of academic rigor and support throughout middle school and high school.

This study examined the transition of middle school students into high school at an independent private school in a metropolitan area of a southern plains state. The action research focused upon two issues: 1) if middle school students experienced achievement loss in their transition to high school and 2) if middle school grades were a valid indicator of academic performance in high school. The first part of the study focused upon the students' performances and the second part upon the teacher perceptions. Student records were accessed for thirty-nine students from sixth through eleventh grade years for core subjects of math, science, English, and history classes. Aggregate middle school grades were calculated and compared to the aggregate high school grades. Average grades of the thirty-nine students were calculated for each of the six grades levels studied. Fifteen paired sample *t*-tests were conducted to compare the means of each grade level studied. Then, twenty-five teachers with the middle and high schools responded to a forty item Likert scale instrument developed to assess their perceptions of the academic rigor and support offered the students enrolled in the private school setting. The instrument was adapted from the "*Breaking Ranks in Middle Leadership Module"* (Sizer & Meier, 2006). Results included a significant difference between the aggregate middle school scores and the high school scores while the teachers tended to report that rigor and support did exist for the students at this particular school.

Aggregate middle school grades were calculated and compared to the aggregate high school grades.

Average grades of the thirty-nine students were calculated for each of the six grades levels studied. Fifteen paired sample *t*-tests were conducted to compare the means of each grade level studied. Then, twenty-five teachers with the middle and high schools responded to a forty item Likert scale instrument developed to assess their perceptions of the academic rigor and support offered the students enrolled in the private school setting. The instrument was adapted from the "*Breaking Ranks in Middle Leadership Module"* (Sizer & Meier, 2006). Results included a significant difference between the aggregate middle school scores and the high school scores while the teachers tended to report that rigor and support did exist for the students at this particular school.

Take a moment to think about a student's first day of high school. They are confronted with new teachers, bigger buildings, and difficult classes along with the various emotions that go along with their new experiences. Emotions like anxiety, anticipation, fear, and freedom. That first day of high school was one of the many educational transitions a student has to make throughout their education. Rice (2001) defined an academic transition as simply "a point at which students move from one segment of the education process to another" (p. 372).

American students make a myriad of transitions in their educational careers. They transition classes, grades, schools, and levels of education. All of these transitions occur as students enter high school. It is not surprising then that previous research has shown students experience a decrease in achievement when they transition from middle school to high school (Alspaugh, 1998). This achievement loss is not limited to just the transition to high school but also the transition to middle school and the transition to college (Akos & Galassi, 2004). Because this academic drop in performance has been found to occur throughout a student's educational career, it is important that administrators and teachers identify and address the factors that contribute to achievement loss during transitions. They should also implement practices and procedures that lower the transitional hurdles placed in front of students.

The researcher in this investigation was a seventh grade science teacher at the school, an independent pre-kindergarten through twelfth grade private school, located in Oklahoma City, Oklahoma. The research grew out of two questions: (1) Was the middle school program at The School adequately preparing students for The School's high school program and beyond? (2) Was the school creating a seamless transition for its students between middle school and high school? The school was a college preparatory school and the vast majority of students the school graduates had gone on to a four-year college. There has been a great deal of focus on how prepared the school's graduate is for college, but little focus on how prepared a middle school student is for high school. This action research was a step towards assessing if middle school students are being given the tools they need to succeed in high school.

Morgan and Hertzog (2001) have shown that a challenging and supportive middle school experience as crucial for students to make a smooth transition to high school. Because of this finding, part of the scope of this research was to look at the academic rigor and academic support provided the students at the school's middle school and high school. The research also focused on how students at The perform academically once they leave middle school. Because this is an action research project, the goal of the research was to take what was learned from this study and implement specific actions that can make The School a more successful place for children to learn and grow. The specific focus was threefold. One, determine if a drop occurred in academic achievement in the transition from middle school to high school. Two, assess teachers' perceived level of academic rigor and academic support in the middle and high school levels. Three, statistically analyze the academic performance between middle school and high school.

Participants

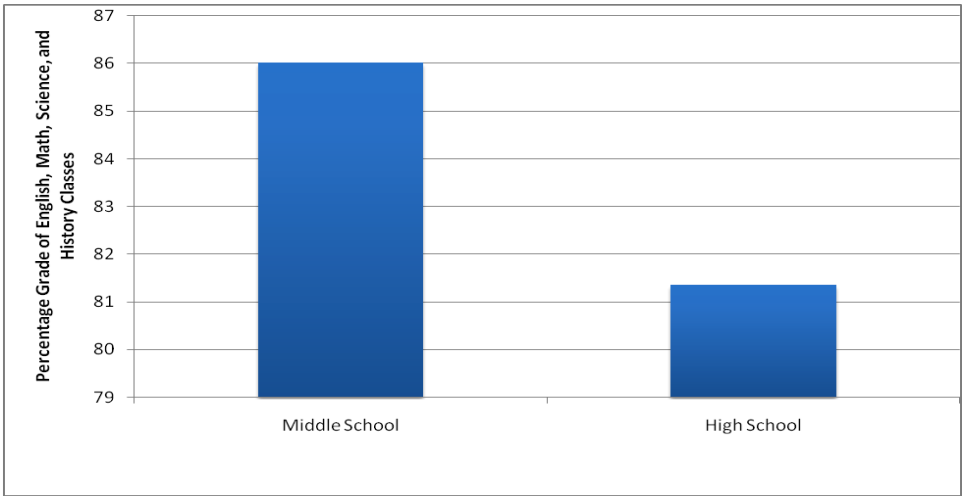
All students for the first part of this study came from one independent private school in a southern plains state. The sample included aggregate grades for 39 students from their sixth through eleventh grade years. Final grades (which were an average of the student's three trimesters) were collected from math, science, English, and history classes. These grades were then compiled into two groups. Group one was academic grades for sixth through eighth grade, which composed the aggregate middle school grades. Group two was the academic grades for the ninth through eleventh grade and composed the aggregate high school grades. A paired samples t-test was then conducted to compare the means of the student grades in middle school and high school. Additionally, average grades for the 39 students were calculated for each of the six grades levels studied. Fifteen paired samples t-tests were then conducted to compare the means of each grade level studied.

Instrumentation

The second part of the study was a series of questions concerning academic rigor and support, posed to 25 middle and high school teachers at the independent private school. The teachers' surveyed range in age, teaching experience, subject taught, and gender. Surveys were distributed to 50 middle school and high school teachers.

The instrument used was an academic rigor and support survey adapted from Breaking Ranks in the Middle Leadership Module from the National Association of Secondary School Principals (Sizer & Meier, 2006). The survey was designed to help school principals assess the level of rigor and support in their individual schools. A 40 item, five point Likert-format questionnaire was used to assess teachers' opinions of the school's academic rigor and academic support.

Figure 1
Mean Grades for Middle School and High School Students



Results

A paired samples t-test was conducted to compare aggregate student grades in middle school and high school. There was a significant difference (t=9.66, df=38, p=0.000) in the aggregate middle school scores (M=86.03, SD=5.81) and high school scores (M=81.35, SD=5.04). These results suggested that students receive higher grades in middle school. (See Figure #1) A five point Likert-format questionnaire concerning academic rigor and support was given to fifty teacher participants. Twenty-five questionnaires were returned, providing a 50% response rate. Twenty of the forty questions dealt with academic rigor at the school while the remaining 20 questions dealt with academic support for students. The assessment was designed so that the more positive the response to the statement the higher the value the statement received. Results on the academic rigor and support questionnaire generally had a mode of 4 (Agree) or 5 (Strongly Agree). The lowest scoring questions were 12, 15, 24, 34, 35, and 37 which all had a mode of 3. (see Figure #2)

Implications

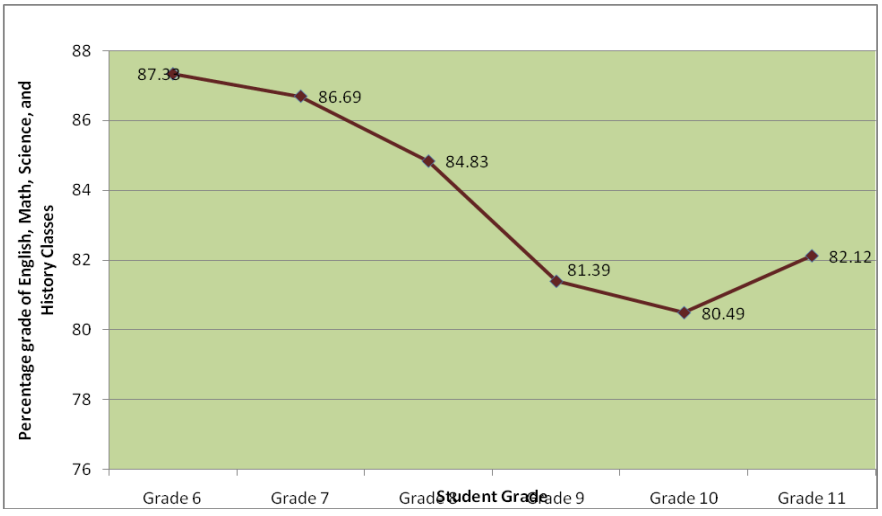
Results from this study indicate that there was a drop in academic performance as students entered high school. The data showed that this drop in performance is not limited to the ninth grade or specifically to the transition from middle school to high school. The drop in performance continued on through students' sophomore and junior year. This distribution was important because if the drop in academic performance

was due to the transition period alone, performance would be expected to rebound as they continued through high school. Since this was not the case, there must be other factors beyond the middle school to high school transition that played a part in the grade distributions. More evidence for this conclusion was the findings that there was a statistically significant difference in academic grades between each and every grade in middle school when compared to high school.

There are a number of possibilities for this difference between middle and high school grades. High school could be a more rigorous academic environment. However, the teacher survey did not find that to be the case. Throughout the middle school and high school, teachers' perceptions of the school's rigor were homogenous. Both groups felt that overall there was a rigorous and challenging curriculum. This was reflected in responses on their academic rigor and support survey. The survey found that the school had established a rigorous core curriculum, a strong mathematics program, a strong science program, taught writing at all grade levels and across multiple disciplines, and focused on more in-depth coverage of subject areas.

The survey also found that the levels of academic support were satisfactory. The school provided additional academic support to assure course requirements. The small personal learning environments at the school were conducive to supporting the students learning. The school encouraged students to serve as academic support resources for other students. Additionally, faculty members regularly met with one another about expectations for students.

Figure 2
Average Grades for Middle and High School Students



The transition program at the school implemented many of the strategies that have been found to help students makes a smooth transition. Information about the school's high school program begins in the middle school. Students are provided information by touring the upper division for a day during eighth grade. During this day, students shadow high school students and have a question and answer period about the freshman year experience. During the end of the year student/parent/teacher conference, information is provided about high school. Eighth grade teachers also provide subject specific guidance about high school requirements and courses. For example, in science, teacher and student discuss course selections like whether to take Introduction to Physical Science or go straight on to Biology. At the beginning of the year, entering freshman have an extensive orientation that allows friendship-building activities. Each entering freshman is paired with an upperclassman that acts as a mentor and an information source. Entering freshman are also paired with a faculty advisor to help them through the freshman experience. Early on in the school year the school discusses the honor code, rules and discipline policies.

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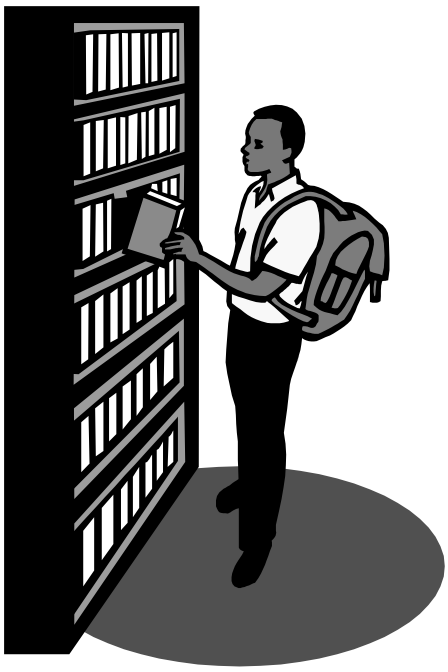

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GRADUATE STUDENTS' PERCEPTIONS OF TEACHER EFFECTIVENESS

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ABSTRACT
Instructional improvement begins with an increased awareness of the research concerning the methods, sources, and tools utilized to enhance the individual's skill level and instructional repertoire. The most extensive research source of instructional improvement comes from the students themselves, who sit day to day in classrooms and can be considered to be on the "front lines." Characteristics of teaching effectiveness, when identified and explored, can be modeled by instructors seeking improvement..In this study, the author explored the themes of students' written comments through a content analysis regarding the strengths of faculty teaching in the graduate school of a private university in South Texas. The author intended to a) identify the characteristics of highly rated graduate-level faculty and b) describe the characteristics of these highly rated faculty members. Results indicated that graduate students described highly rated instructors as open to hearing students and encouraging discussion/interaction, knowledgeable, enthusiastic, experienced in the field, prepared/organized, helpful, understanding, and understandable.

Determining what the best college teachers do to receive high student ratings can aid experienced faculty and new teachers in modifying and improving instruction (Bain, 2004). Investigation of exemplary teachers and teaching characteristics has become increasingly popular, as institutions of higher education place more emphasis on the scholarship of teaching.

Student opinion through feedback can serve as an important tool for the individual instructor, provided he or she is open, willing, and motivated to hear what students have to say and makes the appropriate changes. It is fairly safe to assume that most teachers desire to be good at their occupation (Centra, 1990). However, few schools provide the tools and resources needed to improve individual instruction (Wilson, 1987). Instructors are assumed to have the ability and resources to improve their own instruction.

Students' written comments can provide important information when combined with quantitative items on student rating forms; however, few studies have explored qualitative student feedback as a tool for improving instruction in graduate education (Panasuk & LeBaron, 2000). In this type of research, students are able to describe and elaborate freely on the instructor and the course. Open-ended responses permit instructors to understand what students regard as important components of instruction (Sheehan & DuPrey, 1999). Many instructors say they get more information from those written comments than they do from the scaled items that are typically found on student

evaluation forms (Lewis, 2001). For example, researchers Kemp and O'Keefe (2003) reported that the majority of the faculty at their university said they regularly read the open-ended portions of the evaluation forms to identify strengths and weaknesses in their teaching. As Panasuk and LeBaron (2000) emphasize, "Student feedback converted into teaching improvement increases instructors' effectiveness" (p. 356).

A plethora of researchers have attempted to identify characteristics that constitute the effective or exemplary instructor from students' perceptions (Aubrecht, 1979; 1981; Brown & Tomlin, 1996; Costin, Grenough, & Menges, 1971; Das & El-Sabban, 1996; Dowell & Neal, 1982; Feldman, 1976; McKeachie, 1979; Sheehan & DuPrey, 1999; Smith, 1994; Waters, Kemp, & Pucci, 1998). It is evident that no consistent and agreed upon definition of good teaching has been established in the research. However, a content analysis of the research indicates agreement on a variety of characteristics. First, a student-centered approach that encompasses care/concern and respect for students is most frequently cited in the literature as a characteristic possessed by exemplary teachers. Second, knowledge of and enthusiasm for the subject matter are indicated as being of equal importance. Presentation and classroom management skills such as engaging student interest, clarity of explanation, organization/preparation of the course and topics, varying of teaching methods, and the use of humor arrive in third place. Fourth, approachability, availability, and accessibility, coupled with friendliness and helpfulness describe the ideal teacher. Fifth, exemplary professors give responsive feedback to students in a timely manner, encourage discussion/interaction, and promote a challenging learning environment.

While exemplary teaching may be regarded as an art form, then the art of teaching, like all other arts, can be studied; it can be observed, analyzed, described, and modeled. As Axelrod explains, "An artist at teaching can improve – he can move from worst to better as artist – and studying the art should help his development" (p. 17). So it was the rationale of this inquiry to study the artists recognized by students as producing exceptional artistry. According to Palmer (1998), teaching holds a mirror to the soul; what emerges in the classroom is a projection of the condition of the instructor's soul onto the students. In this case, the study of outstanding instructors may also be a study of their souls, their inner lives. Discussing the improvement of teaching, Palmer states, "If I am willing to look in that mirror and not run from what I see, I have a chance to gain self-knowledge – and knowing myself is as crucial to good teaching as knowing my students and my subject" (p. 2). Perhaps the results of this study can serve as a catalyst for instructors to begin asking questions about themselves and their teaching – to start the process of inner work.

Method

A qualitative approach was used to explore the perceptions and experiences of graduate students through their written comments solicited from end-of-semester teacher evaluation forms concerning the instructional strengths of faculty teaching in the graduate school. Qualitative methods generally consist of three kinds of data collection: 1) in-depth open-ended interviews, 2) direct observation, and 3) written documents (Patton, 1990). A qualitative approach was used in this study to analyze written documents for a variety of reasons: 1) open-ended responses permit one to understand the world as seen by the respondents (the students); 2) a qualitative design provides a depth of data collection not possible with a quantitative design; and 3) a qualitative design allows students to voice their own perceptions and experiences.

Participants

Participants included students who completed evaluation forms from Spring 2003 through the end of the Summer 2004 (7 consecutive semesters) and the faculty who emerged with the highest performance ratings (receiving an overall rating of 8.5 or higher on a 9.0 scale) from one university in South Texas. A total of 1,198 students responded anonymously with written comments to 90 courses receiving an overall instructor rating of 8.5 or higher. Since the identity of the student remained anonymous in the evaluation process, specific demographic data for this sample were unattainable. However, general data concerning the graduate student population are provided. Table 1 provides a breakdown of general student demographics regarding degree programs for the fall of 2004.General student data is also provided for gender, enrollment status, and ethnicity for the academic years of 2004-05. Due to incomplete data or unknown status, 94 students were not included in the following table. Table 2 demonstrates student gender, status, and ethnicity for the general graduate student population at this university. A total of 710 graduate students (masters and doctoral) were enrolled for the 2004 -05 academic year. Fifty six percent were female and 75 percent enrolled part-time. As a minority-serving institution, 42 percent of the graduate student population self identified as Hispanic.

A total of 90 courses taught by 35 different instructors (12 women and 23 men) were analyzed for content. Selection of faculty participants was based on the aggregate response rating from students to the question "What is your overall rating of this instructor?" . This question served as the criterion of teaching effectiveness. Overall performance ratings range from 1 = very poor to 9 = outstanding on the evaluation forms. Faculty members who received an overall performance rating of 8.5 or higher (ranking them in the 95th-99th percentiles) during the seven-semester time period were included in the study. Of the faculty who fit the above criteria, courses emerged with respective written student comment forms that were

Table 1
Graduate Student Demographics for Fall 2004 by Type of Degree Pursued

Type of Degree	# of Students	Percent
Masters	711	91.6
Ph.D.	65	8.4

Table 2.
Graduate Student Demographics for 2004-05: Gender, Enrollment Status, & Ethnicity

	White Non-Hispanic		Hispanic		Black Non-Hispanic		Non-Resident Alien		American Indian Alaskan Native		Asian / Pacific Islander		Grand Total All Students	
Gender	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**
Full Time	23	40	19	87	3	14	9	4	1	1	1	2	56	213
Part Time	105	108	40	111	8	12	4	9	1	4	2	8	95	252
Total Each Group	276		257		37		26		7		13		616	
% Ethnicity	44.8		41.7		6.0		4.2		1.1		2.1			

included in the analysis. The majority of instructors (89%) were employed full-time by the university. Instructors taught from one of three different schools: Humanities and Social Sciences; Science, Engineering, and Technology; and Business and Administration. The breakdown of instructor gender and employment status is provided in Table 3.

Thirty-five instructors taught in one of three schools: Humanities and Social Sciences; Business and Administration; and Science, Engineering, and Technology. In general, the graduate school offers 25 masters programs, 2 Ph.D. programs, and 11 joint degree programs. The majority (68 percent) of graduate degrees are offered through the School of Humanities and Social Sciences. the majority of faculty receiving high ratings (68.5 percent) taught in the Humanities, which is consistent with the number of graduate programs offered from this school.

Table 3
Instructor Demographics (N = 35)

Demographics	# of Faculty	Percent
Female	12	34.3
Male	23	65.7
Full-time	31	88.6
Part-time	4	11.4

Measuring Instruments

Archival student data from students' written responses to open-ended questions were gathered and analyzed for faculty members receiving superior ratings (8.5 or higher). Student evaluation forms at this university were distributed at the end-of-semester for distributed at the end-of-semester for graduate courses containing five or more students. Two university generated forms were utilized: 1) a quantitative form with Likert-scale items containing questions about the course and/and/or the instructor in addition to demographic items, and 2) a qualitative form with open-ended questions for students to respond with written comments concerning the strengths and weaknesses of the instructor and/or the course. The last item (#20) on the quantitative form, "What is your

overall rating of the instructor?" served as the criterion of teaching effectiveness. The completion of the forms required approximately 5-10 minutes and the use of a pencil. Student participation in the evaluation of the instructor was completely voluntary.

A content analysis of the qualitative data gathered from the archival student evaluation forms was conducted using QSR NUD*IST Vivo (Qualitative Solutions and Research Pty. Ltd., 1999) software to explore major themes and responses. Microsoft Excel for Windows 2000 was used to create a visual representation of specific themes from students' statements. Case examples and student quotations supplement statistical data.

Results and Discussion

Of the 90 courses analyzed, eight themes emerged that described the strengths of highly rated graduate-level professors. Figure 1 demonstrates the eight themes. Students cited the instructor's ability to encourage and facilitate open discussion and interaction most frequently. Instructors encouraged and welcomed students to participate verbally using standard techniques of lecture-discussion, question-answer, student groups, student presentations, or Internet forum discussions. Instructors provided an "open," "comfortable" environment in which students felt free to ask questions, make comments, and express doubts and concerns. To illustrate the importance of discussions, several students commented on their male instructor, stating:

Stimulated student thought and interaction. Good at responding to student Questions and statements.

Great group discussions. Incorporates real life situations with theories discussed in class. Kept class alive.

He pushed class participation which kept the class lively.

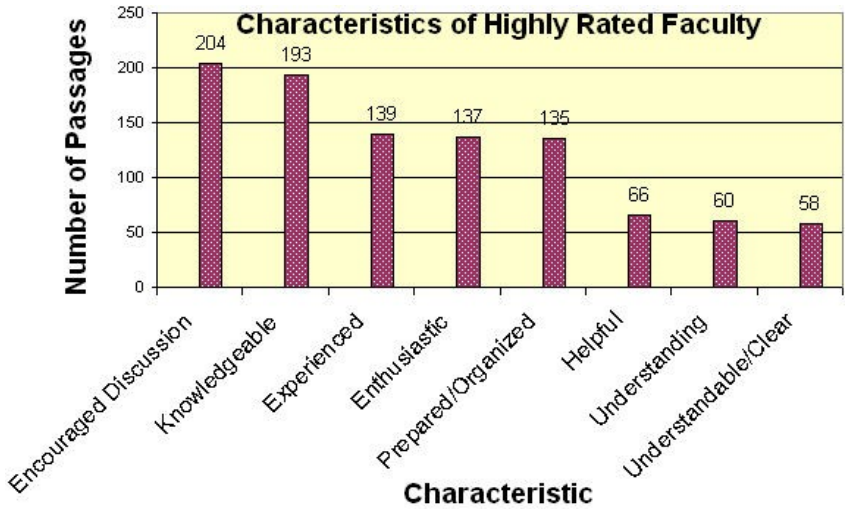
The instructor kept each class interesting and welcomed student comments.

Student interaction facilitated learning of the material, as several students described. To illustrate, one student commented on a class taught by a male instructor: "…learning is derived from the exchange of ideas and experiences, an invaluable asset." Feeling valued, accepted, or respected was a common theme cited when instructors encouraged open student feedback and interaction. This feeling influenced the development of an open, comfortable classroom environment. To summarize, encouragement of discussion was cited in 204 passages in 79 different courses. Words such as "interaction" and "participation" also described the instructor who encouraged discussion.

The instructor's knowledge of the subject matter was cited as the second most important instructional strength indicated from written comments in 193 passages from 76 different courses. Personal examples, stories, and use of current events served to clarify and elaborate subject matter. A student commented on a male instructor, for example, stating,

"*Instructor is extremely knowledgeable and well versed in subject matter pertaining to this course and adds current events which are appropriate for course enhancing the practicality of course.*"

Figure 1
Number of Passages Indicating Eight Characteristics of Highly Rated Faculty



Another student commented on a male instructor's knowledge, stating,

> "*The instructor is very knowledgeable and is able to relay that knowledge and apply it to various situations so that the student gets a good grasp on the information and its applications*."

Relaying personal stories served as "real-life" application and helped stimulate student interest. Story telling was often described in humorous way.

The instructor's experience in the field was the third most frequently cited theme in the data. Experience in one's field was described as an instructional strength in 139 passages from 46 different courses. Instructors used their "hands-on" experience to facilitate discussions and clarify meaning, allowing students to make connections to the subject matter. To illustrate, several students commented on the same female instructor's "*real world*" experience, explaining:

> *Real life experiences allow students to make connections with the subject matter.*
>
> *Shared her experiences as a ____ [profession deleted], parent, and grandmother. Able to make connections by her stories.*
>
> *(She) utilizes personal experiences to clarify meaning.*
>
> *The extraordinary depth and experience this professor brings to the class provides additional insight, amplification, and dimension to the materials*.

Students valued the sharing of professional and personal experiences. As one student commented on a male professor's instructional strengths, *"His personal and professional experience. Appreciated and enjoyed his ability to be 'human'."* Another student commented on a different male instructor,

"(He) shared personal experiences that enlightened me. Enjoy and appreciated his honesty" [SIC]. In summary, the instructor's experience was primarily described in terms of being real world and hands-on. Additionally, the ability to effectively and clearly relate the experience to students was equally as important as having the experience.

The fourth most frequently cited characteristic of highly rated instructors was their ability to demonstrate enthusiasm for the subject matter. Out of the 90 courses analyzed, students mentioned "*enthusiasm*" and "*enthusiastic*" as an instructional strength in 109 passages from 64 different courses. Synonyms that described a similar characteristic were "*dynamic*," "*energetic*," "*entertaining*," and "*exciting*." Themes of instructor enthusiasm (including synonyms) were cited in 137 passages from 88 different courses.

Enthusiasm was often discussed in terms of the instructor's observable love for teaching and for the subject matter. Further, students often cited oral presentation skills, such as the instructor's dynamism, energy, sense of humor, and ability to stimulate student interest and make class fun, as examples of the instructor's enthusiasm. For example, several students described a female instructor, stating:

Enthusiastic manner in which she presents the subject matter makes her the ultimate role model.

Enthusiastic and makes class interesting. Enjoy her stories and her sense of humor.

Enthusiastic and happy to be teaching. Makes classes interesting. Funny. Tells great stories.

She is a highly enthusiastic, energetic individual. She truly loves teaching and enjoys the student.

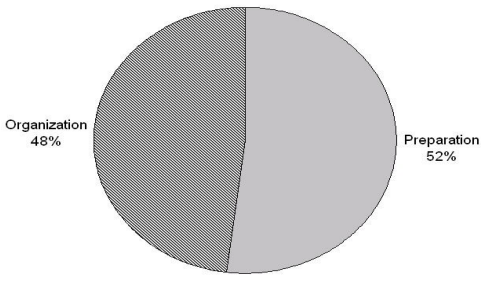
The instructors love for teaching and for the subject often carried over in what students described as "*contagious enthusiasm*." Regarding a male instructor, a student commented on his enthusiasm, stating, "We can tell he enjoys teaching and his positive and happy attitude is contagious."

The highly rated faculty member was consistently described as being prepared for and organized during class, which constitutes the fifth most frequently cited theme. Themes of preparation and organization were coded in 135 passages (64 for organization and 70 for preparation) from 74 different courses. Figure 2 provides a visual representation of the percentage of passages describing the instructor's preparation and organization as an instructional strength.

Preparation of the instructor as an instructional strength is addressed in the next few student quotes:

She prepared well and pulled together difficult material. I think it takes much planning to conduct a course on this subject.

Figure 2
Percent Indicating Preparation/Organization



She had taken the time to write extensive class notes and outlines and was always well prepared for the class.

Students often expressed instructor preparation/organization and concern for students in the sentence or train of thought. One student captured this sentiment, writing, "A very well prepared class. She cares about her students and if we actually learn." Similarly, another student wrote of a different female professor, "Is well prepared and extremely dedicated to the enrichment of students." The organized instructor was described as demonstrating clear objectives and structure on assignments, exams, and classroom activities. Students commented on lectures that flowed from one concept to the next allowing them to follow with ease.

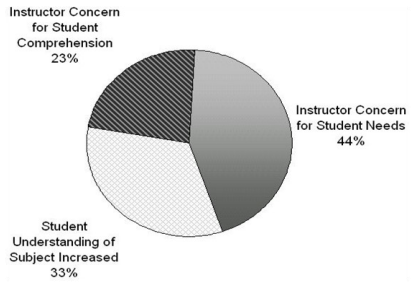
Students cited helpful instructors in 66 passages from 37 different courses, constituting the sixth most frequently cited theme in student comments. First and foremost, helpful instructors were described as being available in class and often met with students outside of regular hours for consultation and guidance to give individualized help or instruction or to discuss student concerns or problems. "Available" and "approachable" were words used to describe the helpful instructor. Describing this characteristic, students commented on different instructors, writing:

He made himself readily available during his office hours. He offered great assistance in helping me determine my future career…

Always makes himself available for assistance…Willing to explain problems and help students.

Always available for consultation. Accessible and user friendly.

Figure 3
Percent Indicating Three Main Subcategories Used to Describe Understanding



The way she handles students - you don't pull a power trip - very approachable.

Professor being available for questions and answers via email and telephone calls were a great strength for this class.

In summary, helpfulness was described in terms of the instructor's open approach to aiding students by providing adequate time for in person, online, and telephone consultations.

The seventh characteristic observed from students' comments concerned the theme of understanding, which can be divided into three categories: instructor's concern with students understanding of the material, instructor's understanding of student needs, and the understanding of subject matter gained by students. Overall, the word "understanding" was cited in 60 passages from 45 different courses. Figure 3 provides a breakdown of the three main subcategories in percentages.

In the most frequently cited category (44 percent), students mentioned the instructors' being understanding of their needs in terms flexibility with assignments and schedule conflicts. For example, a student commented on the workload given by a male instructor, writing,

"*He was very considerate and accommodating to the pressures and demands of a working grad student. Assignments were sufficiently challenging without being a burden*." Another student commented on an instructor's understanding, stating, "*He was also very considerate and understanding when it came to making special arrangements for students with unusual circumstances*." In the second category, students gained a better understanding of the subject matter through instruction, which made up 33 percent of the comments. The instructor's concern for student comprehension/understanding constitutes the third category. Instructors demonstrated care and concern for students by ensuring they understood the material.

In the most frequently cited category (44 percent), students mentioned the instructors' being understanding of their needs in terms flexibility with assignments and schedule conflicts. For example, a student commented on the workload given by a male instructor, writing, "*He was very considerate and accommodating to the pressures and demands of a working grad student. Assignments were sufficiently challenging without being a burden*." Another student commented on an instructor's understanding, stating, "*He was also very considerate and understanding when it came to making special arrangements for students with unusual circumstances*." In the second category, students gained a better understanding of the subject matter through instruction, which made up 33 percent of the comments. The instructor's concern for student comprehension/understanding constitutes the third category. Instructors demonstrated care and concern for students by ensuring they understood the material.

Students described the instructor as "*understandable*" in terms of clarity in 58 passages from 49 different courses, constituting the eighth theme. Understandable instructors had "*clear*" objectives and expectations, a clear presentation style, and a clear understanding of what they were teaching. Clarity was often described in terms of the instructor's knowledge, ability to explain, and classroom organization. To illustrate, students described the clear and understandable instructor, commenting:

> *Her explanations were clear and easily understood.*
> *The instructor communicates clearly and well.*
> *She clearly communicates her expectations regarding her students and the course.*
> *She is always willing to listen to students [SIC] questions during the lectures and gives clear answers. She is very patient if she has to explain something more than one time. She knows the information. When questions are asked she always has a response and if not sure, will let us know and find out this answer.*

Results of this study provide a foundation for understanding graduate students' perceptions of teacher effectiveness. Characteristics of highly rated faculty in this study complement previous research on this topic. What is unique is the order of characteristics, with students citing the instructor's ability to encourage discussion, interaction, and participation in class as the most important. More than likely, this characteristic demonstrates the unique nature of the graduate student who may be internally motivated, more mature, and less tolerant of traditional didactic courses (similar to many undergraduate formats). Further research is needed to provide more solid support for the efficacy of graduate

student feedback. The author provides several recommendations for future directions on inquiries on this nature. First, graduate student feedback, while important, should be coupled with a variety of sources to promote effective teaching (as noted in Cashin, 1988). Second, to promote teaching effectiveness, institutions of higher education should provide consultations to aid instructors concerning the results of their evaluations (useful consultation models are detailed by Wilson, 1986). Third, the development of a mentoring program for new faculty or those wanting to improve should be implemented. Innovative ideas for mentoring programs are highlighted in Kemp and O'Keefe's (2003) article. Fourth, it is also recommended that graduate programs develop methods of soliciting continual student feedback through written comments to open-ended statements (see Panasuk & LeBaron, 2000, for useful suggestions). Due to the unstructured nature of this type of feedback, the author recommends using the suggestions provided by Lewis (2001) to interpret and make sense of written comments. Finally, student feedback in regards to gender and racial differences would provide additional information for comparison. Unfortunately, student anonymity in this study made this impossible to investigate.

Dr. Sarah Rivers Deal has been teaching for the last ten years both at the undergraduate and graduate level. Dr. Deal taught part-time for five years at various institutions in San Antonio, Texas, including St. Mary's University, Our Lady of the Lake University, and University of the Incarnate Word. She also taught psychology courses at Lee College in Baytown, Texas. For the last five years, Dr. Deal has been teaching at Northeastern State University in Broken Arrow, Oklahoma. She is a licensed professional counselor and supervisor and currently is in private practice.

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MATH-ESE 4 ALL:
PROVIDING EQUITY AND EXCELLENCE IN MATHEMATICS

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ABSTRACT

Oklahoma Panhandle State University (OPSU) provided a workshop for Oklahoma Panhandle teachers of mathematics during the summer of 2009. This was the fourth year in a row that OPSU was able to conduct these workshops, due to receiving Title II No Child Left Behind grants from the Oklahoma State Regents for Higher Education. The 2009 workshop concentrated on providing equity and excellence of instruction to all students and was conducted by a combination of higher education faculty in the fields of education, math, reading, and library science along with mathematics Master Teachers from the public schools. Twenty-five area teachers and over 450 public school students were directly impacted by this workshop as evidenced by the

Oklahoma students have not reached the success levels required by the No Child Left Behind Act. This weakness occurs across grade levels, socio-economic situations, and demographic areas. Although the success rate of students in the Oklahoma Panhandle is higher than in other parts of the state, a disproportionately high number of area graduates who enter Oklahoma Panhandle State University (OPSU) have deficient mathematics ACT scores and must enroll in developmental mathematics courses. These students have come from increasingly diverse backgrounds during the past fifteen years. Input from the Oklahoma Panhandle math teachers indicate that students often score low on standardized mathematics exams because;

- they do not possess the language skills to understand the written math problems.
- they do not possess the skills necessary to interpret and comprehend math problems that incorporate charts, graphs, and tables.
- the instructors do not know how to adjust instruction to provide for the needs of their increasingly diverse student population.
- their instructors do not recognize the need to address equity issues.
- their instructors are not cognizant of strategies to meet the math needs of diverse learners.

The President of the National Council of Teachers of Mathematics (NCTM) for the 2008-2009 term, Henry S. Kepner, Jr., emphasized that teachers must look for direction in ways to help them meet the needs of an increasingly diverse student population in their schools. He further stated that they need to look at guidance from experienced and accomplished classroom teachers and other professional colleagues, as well as to substantive educational research for ideas and answers on how to meet these needs (NCTM News Bulletin, Sept. 2008).

The NCTM 2006-2007 theme of "Show Me the Math: Learning through Representation" further influenced the

Focus of the 2009 seminar. NCTM Prsident Skip Fennell stated in his 2006-2007 President's Message, "The process of representation includes using models to organize, record, and communicate mathematical ideas, as well as selecting, applying, and translating these models to solve problems and interpret mathematics. The models can be used to 'show' math, through the use of manipulative materials, diagrams, graphical displays, and symbolic expressions. Representation also includes internalizing or taking in mathematical ideas and understanding them" (Fennell, 2006). This need is especially evident in helping students understand fractions, especially in the upper grades as these representations become more sophisticated and complex. The need for area teachers to expand their knowledge and ability to use newer techniques and technology to help students comprehend these complex concepts is obvious, especially for use with the diverse student body in today's schools (Kepner, 2008). Immersion was one of the professional development strategies used throughout the workshop. Immersion allows teachers to engage in different content – such as reading, writing, and technology as related to teaching of mathematics – through the use of hands-on experiences as a learner (Loucks-Horsley, 1998).

The National Council of Teachers of Mathematics emphasized the need for highly qualified, effective mathematics teachers to prove a coherent, challenging curriculum to all students in preschool through college (Jacobs, 2008). This seminar increased that effectiveness for the area participants. Participants learned of the need for high expectations for **all** students, and the need for these expectations to be reflected in all aspects of mathematics teaching and learning process—from instructional planning and decision making to implementation and assessment (Jacobs, 2008). Another professional development strategy that was used is "training." Training assists with the understanding of theory and is most effective when modeling, demonstrations, and/or practice are included (Joyce & Showers, 2002).

Scientifically based research, along with the research that supports NCTM standards, drove the design of all facets of the workshop and follow-up activities. Information from the National Council of Teachers of Mathematics and from the Center for Education Policy provided the content design for the seminar. Professional development strategies supported by the Oklahoma State Department of Education were adapted from *The School Portfolio Toolkit: A Planning, Implementation, and Evaluation Guide for Continuous School Improvement* (Bernhardt, 2002).

Need for Staff Development in Rural Area

The idea for providing the first and successive Math-Ese Workshops grew out of the awareness of Oklahoma Panhandle State University (OPSU) faculty that opportunities for staff development in mathematics was extremely limited because of the isolation of the Panhandle schools from the more densely populated areas of the state. Teachers had voiced concern that they had to

drive a minimum of 200 miles, and often much farther, to attend workshops and meetings in which they could learn new and better techniques for helping their students achieve more in math. Funding for such training on our campus through the No Child Left Behind Act proved to be the catalyst for the writing of the first grant proposal in 2006 and has continued to be so since that time.

The suitability of this workshop, as well as the previous ones, can best be described in three words: location, location, location. The state of Oklahoma, through the State Department of Education, the Oklahoma State Regents for Higher Education, and various other organizations, offers many opportunities for current teachers to participate in outstanding professional development activities. One primary challenge, especially for Oklahoma Panhandle teachers, becomes the location of these events. When a teacher in Felt or Boise City discovers that the city of Denver is closer to them than the capitol of Oklahoma, it becomes almost impossible to take advantage of any professional development activities held in Oklahoma City or Tulsa as this almost automatically becomes a two-day trip for a four-five hour meeting. One comment that has been recurrent since the beginning of these workshops has been that of thanks for providing them at a more-convenient location. And these comments come from teachers who still have to drive one to two hours each day to get here!

Another evidence of suitability is found in the changing demographics of the Oklahoma Panhandle schools. A little over a decade ago, the minority population of the public schools in this area was below 20%, while the current figures show over 50% of the public school students come from "minority" cultures. Therefore, the inclusion of adapting instruction for special needs students (including ELL/ESL), technology, using real-world examples, equity and equality in instruction, and the other topics that have been woven throughout the mathematics content has been extremely suitable for mathematics teachers in the Oklahoma Panhandle.

Format of Workshops

The Math-Ese workshops each year have concentrated on different mathematical concepts, although the format for the sessions, presentations, and activities is similar. During the 2009 workshop, the concept concentration was in the area of fractions. Participants were given a pre-test, concentrated instruction in fractions, and a post-test. Results of these pre/post tests show an improvement of the participant's content knowledge of fractions. In addition to this concentration of fractions, content knowledge was also presented dealing with Dyslexia/Dyscalculia, Adapting mathematics instruction for all learners, reading vocabulary and comprehension, and raising the literacy achievement of ESL/ELL students. Comments from the participants in the daily journals and the

overall evaluation from the participants show an increase in content knowledge in these areas as well.

Workshop Faculty and Presenters

Oklahoma Panhandle State University has a great working relationship with the K-12 school personnel, the School of Arts and Science, and the School of Education faculty! Beginning immediately after the previous workshop (Math-Ese Three) ended, the eight faculty who have been involved in every workshop (two from the School of Math, Science, and Nursing; two from the School of Education; one from OPSU's McKee Library; two from the K-12 schools, Yarbrough and Guymon; and the director (Dean of Education) began preparing for Math-Ese 4 All. Regularly scheduled meetings were held—at least one per month and more frequently as deadlines approached; the workshop director met monthly with the superintendents and principals from the three Oklahoma Panhandle school districts to keep them appraised of the progress of the workshops and to receive input from them about the needs of the districts; and other correspondence among the faculty occurred through email, etc. Immediately following each day of the workshop, the eight faculty members reviewed the comments from the participants' daily reflections to evaluate the daily activities, discover the strengths and weaknesses of the activities, and plan/modify the next day's activities. Every faculty member participated in these reviews with equal input and revelence.

The School of Education was fortunate to be able to use Master Teachers from the area as additional faculty and presenters, as well as their own faculty. The department faculty members varied in areas of expertise from mathematics, reading and comprehension, and library science. The public school presenters are known for their successful teaching of math in their own schools. One especially is an expert in the implementation of technology in teaching mathematics K-12. The Director of the Workshop was the Dean of the Education Department, who wrote and reported on all grants, who created the "Math-Ese Toolkit" websites; incorporated all the presentations to the websites; who maintained the websites for these four years; and who monitored the progress of each day, meeting with the faculty and presenters at the end of the day to review the success of the presentations, the activities, and any problems encountered.

Workshop Activities

Because the participants were required to create learning centers, prepare lessons, and reflect on the presented lessons, it was possible to appraise the impact of the participants' instructional pedagogy. The participants were required to use a prescribed lesson plan format, utilizing the Oklahoma P.A.S.S. competencies, as they prepared their lessons. These lessons, learning centers, and presentations were assessed using a provided rubric. Each participant, along with each faculty member, assessed every presentation and provided additional comments. Each presenter was also asked to reflect on

his/her presentation. Additionally, the follow-up survey of the building principals addressed pedagogical areas and the results presented positive data.

The workshop incorporated projects that used immersion, training, active inquiry, and presentations. Immersion portions included presentations (PowerPoints, DVDs, and lectures) on Dyslexia/Dsycalculia, Adapting mathematics instructions for ALL learners, Raising the literacy achievement of ESL/ELL students, Reading vocabulary and comprehension, and "Frustration, Anxiety, Tension" video and discussion. Training portions included orinentation of the laptop comuters and document cameras, reviewing online mathematics dictionaries and other math information, using virtual manipulatives, and using the SmartBoard. Active Learning portions included the orientations previously mentioned, SmartBoard training, and a presentation by a local high school student who has a learning deficiency--this presentation and interaction with the participants was tremendous. The participants were able to gain a new perspective of the frustrations of a student in a "regular" classroom. The Presentations portion of the workshop took place during the follow-up sessions when the participants returned to OPSU with their learning centers, lesson plans, student data, and reflections. This was done in a "science fair" atmosphere and allowed the participants to interact with each other in meaningful and valuable ways.

Technology was incorporated throughout the workshop activities and experiences as evidenced by the Math -Ese 4 All web pages. Both the participants and the instructors used technology daily in almost all of the presentations and activities. Participants were given laptop computers and document cameras as a part of their stipend for attending the workshop. Training was provided for both items during the first day of the workshop. Two other sessions of the workshop dealt with virtual manipulatives, which meant that the participants would be using the Internet, and SmartBoard training, another technological tool for the classroom.

The activities and experiences provided during the Math-Ese 4-All workshop followed the provided schedule. The first day began with the introduction of all faculty members and participants, the presentation of the goals and objectives of the workshop, and the presentation of the participants responsibilities and expectations during the workshop. This was followed by the pre-tests of both the concept map for the external evaluators and the “fractions” test created by the mathematics faculty members for the two cohort groups-elementary and secondary. The afternoon of the first day included training for the laptop computer and the document camera. The participants were shown the basic instructions for setting up their laptop for individual and classroom use and the basic instructions for installing and using their document camera. The first instructional session of the workshop also occurred the afternoon

of the first day as Dr. Hodges and Mr. Mihelic, OPSU education faculty, presented the topic of Dyslexia and Dyscalculia. The first day ended, as did every day of the workshop, with the opportunity for the participants to respond to reflective prompts. The responses were reviewed each day by the workshop faculty to assess the day's activities and discuss possible modifications for the next day's schedule. These reflections also provided the director and faculty with questions that participants had about the day's activities, future requirements, and other comments/ suggestions.

Day two of the workshop was filled with presentations—after a brief session in which the director and faculty members discussed the previous day's reflections and answered questions. The first session, presented by OPSU librarian, dealt with using mathematics dictionaries in the classroom and those available on-line. Participants were given Spanish-English dictionaries of mathematical vocabulary and were shown additional sites on the Internet that are easily accessable by the students. Ms. Stewart was joined by Mr. Mihelic and Dr. Hodges for the next session dealing with teaching reading vocabulary and comprehension. The second day's afternoon featured the F.A.T. (Fear-Anxiety-Tension) City video "How Hard Can This Be?" followed with a discussion lead by Mr. Mihelic. This is also the time that a current public school student who has a learning deficency came to the workshop and discussed his challenges in the classroom. The final presentation of the second day, just prior to the daily reflection activity, centered on adapting mathematics instruction for all learners—presented by Ms. Lyle and Ms. Peterson from the OPSU School of Math, Science, and Nursing joined by Mr. Mihelic from the OPSU School of Education.

Day three of the workshop contained more presentations about equity and equality. The morning session dealt with raising the literacy achievement of ESL/ ELL students and was presented by Mr. Mihelic and Dr. Hodges of the OPSU School of Education.

Ms. Lyle of the OPSU School of Math,Science, and Nursing, joined by Mr. O'Sullivan, a public school math teacher, met with the secondary teachers and discussed the content area of fractions that was covered in the pretest, while Ms. Peterson, also of the OPSU School of Math, Science, and Nursing, was joined by Ms. Roberts, another public school math teacher, met with the elementary teachers to discuss the content area of fractions covered in the pre-test. The balance of day three was spent in two "break-out" sessions covering virtual manipulatives (several Internet locations are listed on the Math-Ese 4 All web site) presented by public school teacher Mr. O'Sullivan, and SmartBoard training presented by public school teacher Ms.Roberts.

Day four of the workshop was a "work day." The participants were required to construct learning centers for the lessons they would be using in their classrooms and presenting during the follow-up sessions. They were required to construct learning centers to meet the three leaning modalities of visual, auditory, and tactile for two different lessons—one of which to be on fractions. This day was spent with the cohort groups meeting with the faculty in various rooms on the OPSU campus where they were given examples of learning centers and were given access to the OPSU Creative Arts room where they received supplies (poster board, tape,

scissors, etc) and were able to use the lamination and die-cut machine to begin creating their learning centers. This became a wild and crazy day, but was very productive and was enjoyed by all of the participants. The fourth day ended with giving the post-tests over fractions, followed by the daily reflections.

The fifth day of the workshop began with a trip to the OPSU Library where Ms. Stewart escorted the participants through the curriculum section so the participants could see and review the new mathematics textbooks on the adoption list and through the children and youth collection to review books that have mathematical connections—again tying together math and literacy. With persmission from the library director, Evlyn Schmidt, the participants were also given a library card allowing them access to the OPSU library materials for a full year. The balance of the fifth day had the participants utilizing the Creative Arts in Education lab, the Education computer lab, and Education classroom locations as they worked on their second set of learning centers based on a topic of their choice.

The final day of the workshop was dedicated to the participants' presentations of their proposed math lessons they would be using in the fall 2009 semester with their students. The presentations also included the proposed learning centers covering the three modalities, the pre/post tests, and other possible activities. Each participant took between 15-20 minutes to outline what they planned, answer questions from other participants, and receive suggestions from the participants and faculty.

Workshop Follow-up Sessions

During the two follow-up days in the fall 2009 semester, the participants were divided into two groups. One group brought their learning centers, laptops, lesson plans, etc. on the first follow-up date and set them up in a "science fair" format, while the second group did the same on the second follow-up date. Utilizing four different rooms allowed plenty of room for the displays and for the other participants and faculty to view the presentations, ask questions, visit with the presenter and each other, and assess the presentations. Each room was closed for a time period so the presenters would have the opportunity to view and asses the other presentations. The participants were required to use a prescribed lesson plan format, utilizing the Oklahoma P.A.S.S. competencies, as they prepared their lessons. These lessons, learning centers, and presentations were assessed using a provided rubric. Each participant, along with each faculty member, assessed every presentation and provided additional comments. Each presenter was also asked to reflect on his/her presentation.

Impact on the Participants and Student Achievement

The overall impact of the workshop can be described both quantitatively and qualitatively. The participants' increase on their pre/post tests shows an average increase in content knowledge (concentration was on fractions) of 13% for the secondary teachers (n=8) and 32.24% for the elementary teachers (n=17). Pre/post test scores for the participants' students show an average increase in content knowledge (teacher-made pre/post tests based on lesson presentation) of 28.19% with a range from -35% to 100% (n=473). In addition to these quantitative scores, the comments and overall evaluations from

both the participants and building principals present qualitative data of an impact on both the participants and their students. Data from the external evaluation of the modified Teacher Work Sample also provides some valuable qualitative information. Additional data, which is really non-categorical, continues to be received almost daily through conversations, phone calls, emails, and other correspondence from the teachers and principals of the Oklahoma Panhandle expressing their satisfaction of previous workshops and questions about possible future ones.

Multiple evaluation components were used in this workshop and follow-up meetings and have been previously discussed in this article. Table 1, showing each of the objectives of the workshop and the corresponding result of the evaluation of the objective, follows this article. Only one of the original objectives was not fully met. Modifications during the workshop reduced the requirement of "*identify troublesome mathematics vocabulary as it applies to mathematical concepts, and develop strategies to help all students assimilate new vocabulary*; therefore, the lesson plans and learning centers did not specifically address this objective. However, even with this reduction, it was evident that many of the participants included this objective and utilized the Spanish-English mathematic dictionaries provided by the workshop.

This workshop, and its objectives, activities, and assessments, was based on scientifically based research. The use of pre/post tests to measure the impact of teacher content knowledge, as well as student content knowledge, along with the activities that applied rigorous, systemic and objective procedures to obtain knowledge that identifies teaching competencies to improve student learning including the lectures, video-tapes, instruction in technology usage, use of cohort groups all fall within the scope of scientifically based research.

The strengths of this workshop, MATH -ESE 4 ALL, as in the previous ones provided by OPSU, continue to be evidenced by the comments from the participants and the building principals of the schools served. One of the best means of providing evidence of this is with the following statement from one participant who has attended all four workshops:

> *I am definitely using a lot more technology now than before I attended my first seminar. I use my SmartBoard a lot and am more familiar with the available features because of the hands-on activities that we have done with Nancy and also watching the other teachers in presentations, etc. I also appreciate the web-sites and examples of how to use them in a classroom situation. I have enjoyed using my camera as a teaching tool. I use my camera by taking pictures for PowerPoints and other visual examples of concepts I am teaching. I am so excited to have these tools for my use. I didn't know anything about digital cameras and how to use them! I have become a great deal more confident in using my computer in making folders, searching the internet, making PowerPoint presentations and finding places that have ready-made PowerPoints. My first laptop is used in my classroom every day for student use plus I take it home and use it constantly. It was wonderful to have when I was working on my National Board Certification entries. The knowledge I gained of technology through these classes helped me certify as an NBCT. I am pleased to have a document camera in my class this year as it gives me the ability to show books to my whole class and show math concepts such as shapes. I am just beginning to explore what it can be used for.*

Table 1
Evidence of Meeting Objectives

OBJECTIVE	EVALUATION TOOL(S)	Evidence
1. Participants in the workshop will develop higher-level knowledge of math content.	Pre-post Content Knowledge Test on mathematics application problems with emphasis on fractions and their use.	Increase in the scores from the pre-test to the post-test taken by the participants. Elementary participants show an increase of 32.24% and Secondary participants show an increase of 13.00%.
2. Participants in the workshop will identify troublesome mathematics vocabulary as it applies to mathematical concepts, and develop strategies to help all students assimilate new vocabulary.	Peer and facilitator reviews of participants' lesson presentations, learning center exhibits, and reflective journals	This objective was not fully met. There is partial evidence located within the participants' lesson plans and learning centers, but no specific means of gathering data for this objective was contained in the rubric used to evaluation the participant's lesson presentation, learning centers, or reflective journals.
3. Participants will develop strategies for teaching reading comprehension of math problems as they relate to equity issues.	Peer and facilitator reviews of participants' lesson presentations and learning center exhibits	Evidenced through the rubric used during the follow-up meetings. Participants scored an average of 4.66 (out of a possible 5) for the rubric section "Lesson Plan Format-including objectives, instruction, assessment, closure, modifications, etc."
4. Participants will develop strategies for providing equity in mathematics instruction for all students.	Peer and facilitator reviews of participants' lesson presentations and learning center exhibits	Evidenced through the rubric used during the follow-up meetings. Participants scored an average of 4.66 (out of a possible 5) for the rubric section "Lesson Plan Format-including objectives, instruction, assessment, closure, modifications, etc."
5. Participants will create assessment instruments to measure the increase of student mathematical knowledge.	Peer and facilitator reviews of participants' lesson presentations and learning center exhibits	Participants created pre/post tests used in their classrooms to measure student gain. These pre/post tests were assessed during the follow-up sessions by the participants and faculty with an average score of 4.69 (out of a possible 5).
6. Participants will analyze student achievement data and increase their reflective practices to improve instructional strategies that address equity issues	Peer and facilitator reviews of participants' lesson presentations and learning center exhibits	Evidenced in the participants' reflection portion of their presentations—average score of 4.57 (out of possible 5) and through reflection comments provided by the external evaluation using the modified TWS assessment.
7. Participants will develop presentations and learning centers using technology to communicate mathematical concepts in their classrooms that they will share with peers	Peer and facilitator reviews of participants' lesson presentations and learning center exhibits	Evidenced in the rubric used to assess the participants' presentations during the follow-up meetings. Average scores of 4.70, 4.51, and 4.70 for the respective areas of Tactile, Auditory, and Visual learning centers.
8. Students in the participants' LEA schools will show improvement in their ability to comprehend mathematical concepts appropriate to their grade level as measured by a teacher made pre-post test	Excel spread sheet of test scores	Average gain of student knowledge of 28.19% from pre-test to post-test.
9. Professional development strategies, specific workshop activities, and participant findings will be shared with other Oklahoma school districts.	Dissemination of Professional Development Toolkit via OPSU Dept. of Education Web Page, and through presentations at local and state meetings.	"Tool Kit" for Math-Ese 4 All is on the OPSU web site: http://www.opsu.edu/education/MATH-ESE 4 ALL/index.html Presentations at OACTE in November 2009 and AACTE in February 2010.

I have learned to give pre-tests to see how much information my students already were familiar with and what instruction I needed to present and what I could skim over.

I have enjoyed incorporating reading into many of my math presentations. I feel like this was one of my strong points because I so enjoy reading and want my students to enjoy it also. Literature allows me to introduce math concepts in a way that they can relate them to the real world.

I am aware that I do make modifications for special-needs students, but I don't always know how to express these modifications when I am writing a lesson plan.

I place students with vision problems at the front, I repeat for students that have a hard time understanding, and I use different methods to reach auditory, tactile, and visual learners. I am definitely more aware of the need to address these modifications since our Math-Ese 4 all class.

I was the only one from my school district that took the first class. Since that time five other teachers have taken the class. Mary has taken it three times and Heidi has taken it twice.

I am proud of our school's attitude toward technology. I was on the committee that wrote a grant application for a new 24 student computer lab plus SmartBoards for teachers in classrooms that did not already have them. 100% of our elementary classrooms now have SmartBoards.

Among the teachers that attended the Math-Ese classes, there is a rapport where we can discuss problems and solutions. It is really helpful to know what has been taught in previous years and what we need to address for the future.

In my class I do not give end of year exams, but my students were very successful in learning the concepts taught when I employed a pre-test/post-test, multisensory instruction.

Implications for Future Math-Ese Workshops

The only weaknesses that can be reported of the current workshop, as well as the previous ones, are those of time, distance, and finances. There is never enough time to do everything the faculty would like to do, but because of the distance our participants have to travel, there is not much that can be done about this. Finances are always a concern. Again, because of the distance that the participants have to travel, it is required that lunch and snacks are provide for them. It would be great to be able to utilize this money for more instructional materials/supplies and/or stipends for the participants.

However, the long term importance to both teachers and to the OPSU Schools of Education and Math, Science, and Nursing is obvious. Staff development tailored specifically to rural schools isolated from State Department workshops, from urban and suburban consultant programs, and from each other is invaluable. The participants also benefitted from getting to know their colleagues and a strong bond was created as they shared expertise and ideas. The gains in knowledge of mathematics concepts and teaching strategies, the interaction with faculty from other area schools, and the interaction and input of university faculty with public school teachers were the real benefits of the Math-Ese Workshop programs.

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DUAL LANGUAGE PROGRAM IN A MIDWESTERN URBAN DISTRICT

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ABSTRACT

This paper focuses specifically on the effectiveness of a Midwestern urban district in implementing federally funded programs in two high poverty elementary schools. For the purpose of this discussion, Two-Way Dual Language is defined as an educational program offered in two languages (Lessow-Hurley, 2005) to mixed classrooms of native English speakers and English language learners in which literacy and academic instruction are developed for both groups of children. The Districts program set four goals: 1) developing high levels of proficiency in the first language; 2) achieving high levels of proficiency in the second language; 3) performing academically at or above grade level in both languages; and 4) developing a high level of self-esteem and positive cross-cultural values. These four goals were established as appropriate indicators of the effectiveness of a dual language program. The evaluation of the program was conducted yearly in accordance with a federal yearly progress report. These measures included Language Assessment Scales-Oral, Reading and Writing, English and Spanish, Terra Nova and Supera norm referenced tests, state CRT tests mobility rates, attendance rates, parent surveys, parent focus groups, student sociograms, and classroom observation instruments (Coy, 2001). The evaluation(s) results indicated that the dual language bilingual program did not have a negative effect on student achievement and that it helped students expand their language skills in two languages. The study argues that tow-way dual language bilingual programs are good vehicles for maintaining home language resources and respecting the nation's linguistic diversity.

The United States of America is a nation of immigrants. In this country's past, being bilingual was the rule rather than the exception (Lessow-Hurley, 2005). Today that model has slipped from popular memory. Oklahoma, like most of the country, is caught up in the controversy over bilingual education and dual language versus English only instruction. Bilingualism is perceived by many as a threat rather than an advantage. Why is maintenance of the home language difficult to accept as a viable solution in order to provide quality education for language minority students? What can a Midwestern urban school district's experience with two-way dual language programs in recent years teach us?

Brief Historical Perspective

Throughout the history of the United States dual language instruction has existed. When bilingualism was more common, programs in the public schools were also common (Lessow-Hurley, 2005). During the nineteenth century, both immigrants and Native Americans made instruction in two languages available for their children. More than a dozen states, including Oklahoma, offered dual language instruction in a variety of languages including German, Swedish, Norwegian, Danish, Dutch, Polish, Italian, Czech, Spanish (Ovando & Collier, 1985, Tyack, 1974) and Cherokee and other Native American languages (Foreman, 1938).

By 1850 the Cherokee, Chickasaw, Choctaw, Creek, and Seminole tribes of east Oklahoma had some

60,000 members settled in Indian Territory under the removal Act of 1839. The Cherokees established and operated an educational system in Oklahoma only insofar as the U.S. government allowed. The Cherokee system consisted of 21 schools and 2 academies which enrolled 1,100 students, and produced a population 90 percent literate in the Cherokee orthography created by Sequoyah (Foreman, 1938; Kilpatrick, 1965). As a result bilingual materials were available, and by 1852 Oklahoma Cherokees had a higher English literacy level than the white populations of either Texas or Arkansas (Castellanos, 1983). However, in the late nineteenth century many Native American schools were eradicated (Lessow-Hurley, 2005).

The end of the nineteenth century and early part of the twentieth century brought about a feeling of xenophobia due to the anti-Catholic bias arising from Irish immigration and the onset of World War I. During this time anti-German feelings resulted in legislation aimed at eliminating German language instruction (Lessow-Hurley, 2005). World Wars I and II helped solidify such feelings of isolationism and nationalism. Foreign language instruction was virtually eliminated between the first and second World Wars. Not until the 1950s, with the successful launch of Sputnik by the Soviet Union was interest in foreign language instruction revitalized. The National Defense Act (1958) included funding for the study of foreign languages (Lessow-Hurley, 2005).

In 1963, to accommodate to Cuban refugees in Florida, the Coral Way Elementary School in Dade County established a dual language school for Cubans and non-Hispanic children. The program served a middle-class population, was well-funded from both public and private sources and, unlike many subsequent programs, was neither compensatory nor remedial (Lessow-Hurley, 2005). With the success of the Coral Way dual language program, bilingual programs were quickly established in a number of states, including Texas, California, New Mexico, New Jersey, and Arizona (Ambert & Melendez, 1985).

As part of Lyndon B. Johnson's War on Poverty, the Elementary and Secondary Education Act (ESEA) was approved and funded by Congress. This Act was designed to equalize educational opportunities for all children. The Bilingual Education Act or Title VII of the ESEA was signed into law in 1968. Title VII did not mandate bilingual education, but provided funds for districts that chose to establish programs using primary language instruction to assist English language learners (Lessow-Hurley, 2005). In 1974 the Supreme Court held in *Lau vs. Nichols* that, in accordance with Title VI of the Civil Rights Act (1964), children must receive equal access to education regardless of their inability to speak English. This ruling initiated a controversy regarding language instruction that exists to this day (The Language Rights for Children Coalition of Western Massachusetts, 2006).

In the ensuing years, the Bilingual Education Act was expanded in scope of services and type of students to be served. Originally the students to be served had to come from non-English speaking, low-income homes, but later reauthorizations refined services and student eligibility definitions considerably in the following ways: 1974- low income restrictions were dropped and "non-English speaking homes" was changed to "limited English speaking ability"; 1978- the language proficiency definition was changed from limited English speaking (LES) to limited English proficient (LEP) recognizing that proficiency necessary for school also included reading and writing, not just speaking English; 1984-provisions for family English literacy programs were made and the development of some long term, maintenance programs were initiated. (Lessow-Hurley, 2005; Baker, 1996).

As funds and services expanded over the years, so did the number of students served. Up to the 80s students receiving services under Title VII programs received native language instruction to some degree. But there was still no mandate for schools to apply for Title VII funding or to establish bilingual programs. The 1984 and 1988 amendments to the Bilingual Education Act allowed increasing funds for English-only programs. The USDE was particularly anti-bilingual education at this time (Baker, 1996). During the 1990s the USDE continued its funding for programs serving English language learners, but the public backlash in many areas highly impacted by increasing immigration led many states to drop bilingual programs and adopt English-only policies. California followed by Arizona banned bilingual programs. By the turn of the century the zeal for reform sweeping the nation combined with growing resistance to providing special instruction in languages other than English led to the current reauthorization of the ESEA in the form of No Child Left Behind (NCLB), which was signed into law by George W. Bush in 2002 (Lessow-Hurley, 2005; Wright, 2010).

The Office of Bilingual Education and Minority Language Affairs (OBEMLA) in the USDE established under Title VII is now renamed the Office of English Language Acquisition (OELA) and the Bilingual Education Act itself has become Title III of NCLB. Currently any program provided by Title III must meet two requirements: teach English and teach academic content, as outlined in state English language proficiency (ELP) and academic standards. Title III gives ultimate authority to each state to determine what programs it will and will not support (Wright, 2010). Needless to say, there is much variation across the nation in terms of programs. It is important to note that with requirements to utilize "scientifically-based research" for classroom practices, and to meet the increasing accountability demands for performance on high-stakes standardized tests, there is much more pressure on local school districts to abandon native language instruction in favor of subject areas required to be tested by federal mandate, i.e., reading/language arts and mathematics (Wright, 2010).

Bilingual Education Definitions and Program Variation

One of the difficulties in determining the effectiveness of bilingual education for English language learners is the terminology used by researchers to describe various program models. Simply stated, dual language instruction is an educational program offered in two languages (Lessow-Hurley, 2005). Depending on the methodology and the researcher, program models may be categorized into three main types (Rossell, 2003) or into as many as six or more (Genesee, 1999; Center for School and District Improvement, 2004). Sometimes programs are called "bilingual," not because of the instruction provided, but rather the students who are identified for those services.

Andrea Hongsfeld's 2009 article *ELL Programs: Not 'One Size Fits All'* describes the different program models used by school districts throughout the United States. The first is the English-language monolingual program. The child is in a mainstream regular monolingual classroom, receiving no instruction designed especially for the language minority student. This method is often referred to as a "sink-or-swim" program and it has brought about many court cases, the most notable of which is *Lau vs. Nichols.* "Sink-or-swim" technically is not legal according to the Civil Rights Act of 1964 and subsequent court rulings.

Learning in this type program is highly stressful to students because it places high demands on concentration and tends to threaten self-esteem. Home language and culture are often disparaged. This can lead to alienation and lack of confidence in students, and contribute to high drop-out rates. The goal of such a program is assimilation into the mainstream and the result is subtractive bilingualism, i.e, replacing the native language by growing proficiency in the second language in this case English (Baker, 1996).

A second type of program is the English Monolingual Plus - ESL program. The child is in a regular mainstream monolingual classroom, but also receives instruction in English as a Second Language (ESL) (Hongisfeld & Dove, 2008). Unlike a "sink or swim" this program targets the language minority student for specially designed instruction. The goal is one of assimilation and the outcome again is subtractive bilingualism (Lessow-Hurley, 2005). This type of program is also referred to as a "Pullout program." However, the targeted children may fall behind on curriculum content delivered to others not in pullout classes. A student in a pullout program may also be seen by peers as "remedial" "disabled," or "limited" (Baker, 1996).

A third type of program, one that could be classified as dual language, is the Transitional Bilingual Education program (TBE). This program also focuses on the particular needs of the language minority student. In this program the child is placed in a bilingual classroom, where s/he receives some form of English language instruction, but is also taught in the native language or first language of the students.

Gradually, instruction is replaced by instruction solely through English (Hongisfeld & Dove, 2008). The goal is for the student to join a regular monolingual English-language program as quickly as possible. This is also an assimilation approach and the outcome is subtractive bilingualism (Lessow-Hurley, 2005). TBE programs can be split into two major types: early exit and late exit (Ramirez & Merino, 1990). Early exit TBE allows a maximum of two years of help in the mother tongue. Late exit TBE often allows about 40% of classroom teaching in the mother tongue until the 6th grade.

A fourth model is the Maintenance Bilingual Education program (MBE). This program is designed to develop and maintain the native language. The child is placed in a bilingual classroom but also receives English language instruction. Both English and the child's native language are used regularly as languages of instruction (Hongisfled & Dove, 2008). The goal of the Maintenance Education program is bilingualism and bi-literacy for language minority students. This is a pluralistic view and the outcome is additive bilingualism (Lessow-Hurley, 2005).

To a greater extent than a TBE program, a MBE program requires a long term commitment, at least six years to developing language, literacy and content through both languages. The MBE program builds self esteem and the sense of power that comes from literacy and self efficacy. Although these programs are not widespread, they are supported by research (see Thomas & Collier, 1997; Ramirez & Merino, 1990).

The Structured Immersion program is a fifth model that is widely used to address the needs of language minority students. The child is in a classroom in which the subject matter is presented in English, but in a manner that students with limited English proficiency can understand. Structured Immersion teachers are bilingual, will use a simplified form of the majority language (English), and may initially accept contributions from children in their home language (Hornberger, 1991), but no instruction is actually provided in the native language of the student. The goal is proficiency in English for language minority students. This is an assimilationist approach with the outcome being subtractive bilingualism (Lessow-Hurley, 2005).

Sheltered English or Sheltered Content Teaching is where minority language students are taught curriculum with simplified vocabulary, specially designed materials, and appropriate methods such as cooperative learning, and instruction in English only. The teachers do not need to be bilingual (Faltis, 1993). In Sheltered English, instruction is developed to match the English proficiency of the students (Faltis, 1993). The goal is one of assimilation and the outcome is subtractive bilingualism. Sheltered Instruction is a scientifically-based research method and complies with the Title III requirements. It is the choice of many districts since the teachers do not have to be bilingual.

Most of the six above mentioned programs are designed for language minority students and are subtractive

in nature except for MBE. The subtractive nature can mean a loss of language, culture, family ties, self-esteem and many other psychological and sociological perspectives (Baker, 1996). It is also important to note that none of these programs, with their significant costs and specialized teachers appear to benefit the mainstream student in any way.

A type of program design for both mainstream students and minority students is the Two-Way Dual Language (TWDL) program model also sometimes called Two-Way Immersion. This model includes both majority language students and English language learners. In this model both groups become bilingual, bi-literate and learn academic content through both languages. The goal of this program is bilingualism and bi-literacy for language minority students and language majority students. This is a pluralistic view with the outcome being additive bilingualism (Wallstrum, 2009).

The length of the TWDL program varies but typically lasts 4-6 years (Ramirez & Merino, 1990). Such a program for two or three grades is insufficient. A minimum of four years extending through the grades as far as possible is more defensible according to the literature (Thomas & Collier, 1997; Ramirez & Merino, 1990). Length of experience in a TWDL program is important to ensure a fuller and deeper development of language skills, and bi-literacy in particular. In some schools, the curriculum is initially taught for around 90% of time through the minority language, gradually increasing the instruction in English over the years until it reaches approximately 50%. In these programs, majority language students have immersion experience in a second language (i.e. Spanish) while minority language students initially receive most of their education in their home language.

Another type of TWDL program starts out with a language balance of 50%-50% and also contains a mixture of language majority and language minority students. A central idea to two-way dual language schools is language separation and compartmentalization. In each period of instruction, only one language is used. Language boundaries are established in terms of time, curriculum content and teaching. It is preferable to have an equal number of language majority and language minority students in the class, however, when imbalance does exist, it may be preferable to have slightly more language minority children (Lessow-Hurley, 2005; Baker, 1996; Carrera-Carillo & Smith, 2006).

Collier and Thomas (1997) and Ramirez and Merino report have shown that the best way to create bilingualism in children is with two-way dual language programs. Such programs “have been found to provide the greatest academic gains for language minority students when compared to the academic achievement of language minority students attending other types of bilingual or English as a Second Language programs” (Millian & Shannon, 2002, p. 683). Additionally, language majority

students experience more success in becoming bilingual and bi-literate than typically achieved in foreign language programs.

The Language Rights for Children Coalition of Western Massachusetts, (2006) reported Two-Way bilingual education is increasing in popularity across the country and there are typically waiting lists for students to enter these programs. The coalition also suggests that students with different languages who learn them together in the same classroom develop bilingual fluency in both languages and this type of program encourages appreciation of both cultures and communities (Wallstrum, 2009).

A Midwestern Urban District

In 1976 a Midwestern urban district applied for and received its first Title VII grants: a Transitional Bilingual Education program in several elementary schools and a teacher training program in conjunction with a local university. This was the beginning of a long, successful history of Title VII grants through the 80s and 90s which included bilingual assistant training, bilingual gifted and talented, bilingual curriculum development, and distance learning. The district -- partnering at various times with different universities within the metropolitan area – was able to help a large number of teachers to earn a master's degree in bilingual education/ESL and many bilingual assistants to earn a bachelor's degree. Over time a significant number of bilingual assistants have become teachers in the district as a result of Title VII funding.

One of the last Title VII grants awarded to the District was *Empowering School Communities, Sí* in 1998. This project represented the culmination of the district's best thinking and experience from previous programs. The TWDL approach gave the parents of children living in impoverished areas, an opportunity to choose a high-quality academic program with the added benefit of second language learning for their children.

The project goals for ELLs were to: 1) develop high levels of proficiency in the first language(Spanish); 2) achieve high levels of proficiency in the second language (English); 3) perform academically at or above grade level in both languages; and 4) develop high levels of self-esteem and positive cross -cultural attitudes. It is important to note that participation in the dual-language project was completely voluntary although parents signed a letter of commitment to keeping their child in the program.

The program implemented at Site A and Site B elementary schools employed the 90/10 model beginning in kindergarten. The schools had similar demographic profiles. Site A was built in 1930, and the district's statistical profile listed the school's enrollment as 308 students consisting of 7.5% American Indian, 27.6% African-American, 51.6% Hispanic, and 13.3% White. The mobility rate was 38%, the poverty rate was 97.3%, and the percentage of English language learners was 50%.

The neighborhood had 62.9% minority population and the median income was $11,406. There were 34 residents with a college degree (OK, Planning, Research, and Evaluation, Department, 1999).

Site B was constructed in 1910 and had little upkeep through the years, although like Site A, air-conditioning was installed during 1998 -1999 school year. In 2000, the enrollment at Site B of 342 students, consisted of 11.4% American Indian, 14.0% African –American, 47. 7% Hispanic, and 26.9% White. The mobility rate was 28.0%, the poverty rate was 95.9%, and number of English language learners was 40.6%. There were 2,740 residents; 58.4% were minority and 47 residents had college degrees. The median household income was $13,261 (OK, Planning, Research, and Evaluation Department, 1999).

The first major challenge faced by the project was that of finding qualified personnel. At the time, the state did not have mandated bilingual education or ESL certification for teachers. For this reason project administrator recruited Spanish certified teachers who were bilingual in Spanish and English when qualified bilingual education teachers were not available (S. Coy dissertation, 2001). In addition, an intensive training program for all staff members was implemented.

The *Empowering School Communities, Sí,* project used several types of assessment to measure outcomes on stated goals. These measures included Language Assessment Scales-Oral, Reading and Writing, English and Spanish, Terra Nova and Supera norm referenced test, state CRT tests mobility rates, attendance rates, parent surveys, parent focus groups, student sociograms, and classroom observation instruments (S. Coy dissertation, 2001). The project director's research study of the project compared 3rd grade dual language students to other 3rd grade students in Site A and Site B on norm-referenced tests (S. Coy dissertation, 2001) after 3 years of implementation. This paper reviews that data to determine if the targeted students performed academically at or above grade level in both languages.

Based on research conducted by Thomas and Collier (1997), 5-7 years are needed for students in dual language programs to perform at or above grade level academically. Crawford (1997) and Krashen (1991) also indicate that it takes 4-6 years for students to achieve academic proficiency in a second language. Because of the time it takes to learn a second language and become academically successful, evaluating program success on test scores after only three years in a program cannot give a complete picture of the project's effectiveness.

All third grade monolingual students were administered the English Terranova norm referenced test; all third grade Spanish-speaking students were administered the Supera norm referenced test, a parallel version in Supera. In the analysis of variance comparing the achievement of the dual language students with monolingual

with monolingual students, there were no statistically significant differences between the two classes in any of the subtests; however, TWDL program students performed better in all areas (S. Coy dissertation, 2001). While not scoring high enough to indicate a statistically significant difference, the TWDL students did end up with equivalent academic achievement and they were bilingual. This demonstrates that bilingual education did not negatively impact their academic achievement in English.

The next comparison was that of the English language learners in the TWDL program to those in the monolingual classrooms. The test showed that there was a statistical significance in favor of the dual language program students for reading, language, math, and total composite score. There was also a substantive significant difference in the mean score for ELLs in the dual language classes in every category except math as compared to their monolingual program counterparts. The greatest difference in the mean scores was in the language subtest between the dual language program students when compared with students in the monolingual classes. This was to be expected since students in the dual language program were learning two languages simultaneously.

The evaluation of this program in 2001 showed that the third grade TWDL program students, as a whole, performed better than monolingual students on the English TerraNova and the Spanish Supera tests after only 3 years. This was an unexpected outcome since according to research it takes 5-7 years for students in two-way dual language programs to perform at or above grade level academically (Thomas & Collier, 1997).

The analysis showed positive gains in all the other project goals as well. Given this information and the positive results in student achievement, the question remains: Why can't a TWDL program be sustained after the model program has been proven successful? *Empowering School Communities, Sí* did not diminish student academic achievement while students, both English Speaking and Spanish –speaking gained language skills. Is the political climate of anti-immigrant sentiment squelching the possibility of dual language schools in the Midwest? The *Empowering School Communities, Sí* dual language program did raise achievement levels for both ELLs and monolingual students. Did this build capacity for continuation of the TWDL program after the end of federal funds?

Site A and Site B are no longer TWDL schools. At the end of the five year project and termination of federal funds, the district discontinued the program despite the fact that the Hispanic enrollment in the district has continued to increase. The 2008 -2009 Quick Facts Sheet for the area highlights the district's demographic diversity: 30% African American, 2.5% Asian, 5.3% Native American,

21.8% White, and 40.2% Hispanic. The student population represents 43 different languages and 9,798 students are English language learners (OK website Retrieved June 25, 2010).

Discussion and Broader Analysis

How can a Midwestern urban district effectively address the needs of its diverse student population? A review of all the Title VII and Title III grants that have been implemented in this urban district, from the transitional bilingual education programs, gifted bilingual programs, and others could be reviewed and their results analyzed to determine their effectiveness in the district. The information in this article could be presented to the Districts Boards of Education along with other agencies and used to persuade the public that the district has a long, successful history in bilingual education and that TWDL programs are good for all students both bilingual and monolingual. The political climate in the Midwest is still reacting to the national anti-immigrant surge. Xenophobia has gained strength across the nation (Wright, 2010) but factual information and sound research may illuminate the proven benefits of bilingual education. Advocating for change is necessary. Is TWDL instruction the right fit for many of our urban school systems? The most current findings suggest that several major city school systems within the U.S. over the years have not provided effective instruction in English for all students entitled to it under federal law (Zehr, 2010).

Sound research is also required if bilingual education and specifically TWDL programs are to survive and flourish. This Midwestern state, in many ways is a step ahead of its counterparts and should press for more local evidence that dual language instruction should be pursued. Sociolinguist Joshua Fisherman cautioned that TWDL programs do not have sufficient power to carry out the twin task of compensatory schooling and language maintenance together (Gandara & Hopkins, 2010). More sophisticated research is needed to explore what forms of bilingual education works best with what types of students, in what languages, and under what conditions. Research should include cross-generational poverty, the importance of group identity, social justice issues, illiteracy in the home language of adult family members, and the rising hostility against Hispanic immigrants. Research since the enactment of the Bilingual Education Act in 1968, continues to produce mixed findings, after forty years. This warrants an expansion of the research in this field.

In the book *Forbidden Language: English learners and restrictive policies,* Gandara & Hopkins (2010) review of the literature and research, and subtly suggest the value of this line of research is declining. This is not to suggest that bilingual (or two-way dual language) education is without value. The authors contend quite the opposite: “if it does no damage to the

acquisition of English, and helps to maintain home language resources, it is well worth the effort. Respect for the nation's linguistic diversity is worth promoting and bilingual education is a good vehicle for that. The opposite approach, English-only instruction, denies children the benefits of maintaining their home language" (p.4).

If bilingual education does not have a negative effect on student achievement and if a two-way dual language program can give both monolingual and bilingual students expanded language skills in two languages, then this should be a feasible and desirable educational choice for parents and school districts.

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