THE IMPACT OF THE KATY MANAGEMENT OF AUTOMATED CURRICULUM SYSTEM ON PLANNING FOR LEARNING, DELIVERY OF INSTRUCTION AND EVALUATION OF STUDENT LEARNING AS PERCEIVED BY TEACHERS IN THE KATY INDEPENDENT SCHOOL DISTRICT IN TEXAS

A Record of Study

by

SHARON LEA HOGUE

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF EDUCATION

August 2010

Major Subject: Educational Administration

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Approved by:

Co-Chairs of Committee,	Virginia Collier
	Bryan Cole
Committee Members,	Lynn Burlbaw
	Toby Egan
Head of Department,	Fredrick Nafukho

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ABSTRACT

The Impact of the Katy Management of Automated Curriculum System on Planning for Learning, Delivery of Instruction and Evaluation of Student Learning as Perceived by Teachers in the Katy Independent School District in Texas. (August 2010)

Sharon Lea Hogue, B.M.E., Sam Houston State University;

M.B.A., University of Houston

Chairs of Advisory Committee: Dr. Virginia Collier
Dr. Bryan Cole

The purpose of this study was to determine teachers' perceptions of the relationship of the Katy Management of Automated Curriculum (KMAC) system developed by Katy ISD in Katy, Texas, on planning for learning, delivery of instruction and evaluation of student learning in the classroom. KMAC is a customized, proprietary networked technology curriculum management system created for online access to curriculum and the creation and sharing of lesson plans. Data was collected from 635 teachers district-wide through an online survey. This data was used to determine whether there were differences between/among teachers and teacher leaders and between/among elementary, junior high and high school teachers in their perceived impact of the KMAC on planning for learning, delivery of instruction and evaluation of student learning.

Regarding planning for learning, teachers were found to have a moderately positive perception of KMAC with teacher leaders being slightly more positive. In

addition, statistically significant differences were found between grade levels with elementary teachers more positive than secondary teachers. Regarding delivery of instruction, teacher leaders again perceived a more positive relationship with KMAC than the teacher non-leaders. Statistically significant differences were also found between elementary and junior high, elementary and high school and between junior high and high school teachers, with elementary teachers being the most positive.

Teachers were the least positive toward KMAC and the evaluation of student learning. While a statistically significant relationship was found in relationship to the grade level taught and evaluation, this area was admittedly weaker than the other two areas in district development and teachers' perceptions. While the position of teacher leader seemed to impact the results in all categories, the grade level taught was found to have the greatest statistical impact on the teacher perceptions.

DEDICATION

This record of study is dedicated to my parents, Wm. Guy Hogue, Jr. and Ethel V. Hogue, for their unending love, support, prayers, encouragement and dedication.

ACKNOWLEDGEMENTS

I would like to thank my committee co-chairs, Dr. Virginia Collier for her steady guidance and support and Dr. Bryan Cole for his outstanding courses and guidance. There were many meetings and long phone calls with both of them over the course of this record of study. Thanks also to my committee members, Dr. Lynn Burlbaw and Dr. Toby Egan, for their guidance and support throughout the course of this research and my course work at Texas A&M University. Appreciation is also given to Dr. Tolson for his statistical consultations. Thanks also go to Joyce Nelson, for her consistent help with course registration and all the technical details at College Station and my colleagues and the EAHR Department faculty and staff at Texas A&M University.

I also want to extend my gratitude to the Katy Independent School District administrators and staff. Thanks go especially to Dr. Elizabeth Clark for her support and to the Curriculum Department, especially Linda Helbach, Darla Pollard and Steve Adams, for their tireless input and background on the KMAC system. Appreciated also was the access and use of Survey Monkey and Katy ISD's allowing me to attend CRISS training with the Katy ISD teachers. Also, thanks to Meredith Gunn and the Professional Learning Department for their research help and to all the Katy ISD teachers who participated in the study. Thanks also to Dr. Sharon Boutwell for her encouragement and research support.

Finally, thanks to my parents, Guy and Ethel Hogue, for their encouragement and support and to family members, Doug & Sandra Carruth, Bill & Sarah Hogue, and

Mark and his late wife, Liz Hogue, for being in the “cheering” section. Thanks also to my friend, Ann Batten-Bishop, who first realized the potential of the KMAC issue for research and to my many friends for their encouragement during the writing of the research.

And thanks also go to my heavenly Father for the blessings in my life; I give Him glory and honor.

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CHAPTER I

INTRODUCTION

Many school districts are spending large sums of money on technology. During the decade of 1993-2003, in excess of $40 billion was spent on educational technology in the United States (Reed, 2003). With these large amounts of money being spent on technology, the concern arises as to whether the effort is worth the money and if a difference is being made in the lives of the students and the teaching and preparation practices of teachers.

Many of the technology expenditures are spent on vendor software products created as a purchase option for school districts. These software products aid in the formulation of classroom lessons, curricular alignment with the Texas Essential Knowledge and Skills (TEKS) and Texas Assessment of Knowledge and Skills (TAKS), and the tracking of lesson objectives and resources (Willis, 1996; OASIS, 2007). Curriculum management systems must include the tools for effective teaching and learning and also monitor effectiveness and consequences (Carter & Burger, 1994).

This study seeks to determine whether the use of the Katy Management of Automated Curriculum **(**KMAC) has a positive impact on teachers' planning for learning, delivery of instruction and evaluation of student learning. Katy Independent

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The style and format of this record of study follow that of *The Journal of Educational Research*.

School District (Katy ISD) in Katy, TX created a customized networked technology management system for online access to their curriculum (WCL Enterprises, 2006). There is no structured evidence, however, that this effort on the part of the district has positively impacted planning for learning, delivery of instruction or evaluation of student learning. The goal is that a systematic, serious use of KMAC by concerned professionals will change/refine teacher practice in the area of planning for learning, delivery of instruction and evaluation of student learning.

Background

Katy ISD sought "to implement the curriculum management audit standards and to develop a process whereby a coherent system for curriculum design and delivery existed" (Clark, 2005, p. 3). District administrators in Katy wanted to align both the curriculum and the system such that the randomness of delivery was diminished and student learning was meeting the standards (Clark, 2008a). A web-based, networked technology system was desired to aid in curriculum management. According to Dr. Elizabeth Clark, Deputy Superintendent for Curriculum and Instruction, there were limited options for networked technology curriculum management systems in 1997 when Katy ISD began a systemic process of aligning the school organization such that there was alignment between what was written, taught and tested (Clark, 2005). With the issues of Katy ISD's surging growth and the national requirements for student academic proficiency, the district administrators began looking for a solution for curriculum

alignment at the classroom level using an automated management system. An automated technology curriculum management system keeps track of the objectives for the curriculum (Carter & Burger, 1994). With no viable solution available, the district administrators took the bold step of creating their own innovative program of curricular alignment utilizing the network infrastructure (WCL Enterprises, 2006). However, whether teachers are helped in their planning for learning, delivery of instruction and evaluation of student learning in the classroom is a question that has not been fully answered. Ultimately, it is whether or not the students have been impacted in the most effective way that becomes the primary concern.

Statement of the Problem

Katy ISD is experiencing rapid growth in the student population as well as the teaching population. Because of accountability concerns at the local and state level and the concerns for excellence at the classroom level, Katy ISD administrators wanted curricular alignment at the classroom level and developed an online system for managing the curriculum for the teachers. There is no structured evidence, however, that this effort on the part of the district has positively impacted planning for learning, delivery of instruction or evaluation of student learning.

Katy ISD is a rapidly growing suburban school district in Region IV Education Service Center (ESC) in Texas that encompasses 181 square miles in east Texas, just west of Houston (Solomon, 2006). The district's western boundaries are a few miles

west of the city of Katy, Texas and extend eastward to approximately 16 miles west of downtown Houston, along highway Interstate 10. The district overlaps both north and south of highway Interstate 10 (K.I.S.D., 2006a). In 1992, the city of Katy, Texas, was growing as housing subdivisions were replacing prairies and rice fields. At the same time, Katy ISD had a reputation for excellence in education. The district's reputation and the movement of people from Houston into Katy ISD created an exponential student growth rate during the period of 1996-2007 (Texas Association of School Administrators, TASA, 2003; K.I.S.D., 2006a; K.I.S.D., 2007f).

Katy ISD Student Demographics

Katy ISD is experiencing rapid growth in the student population with the resulting increase in the teacher workforce. The student population was posted as 26,766 for the 1996-1997 school year (Katy I.S.D., 2006b) and was in excess of 50,000 at the start of the 2006-07 school year (Katy I.S.D., 2006a). Figure 1 shows the increase in student population from the 1996-1997 school year to the 2006-2007 school year with an actual increase of 22,496 students in that nine year period (Katy I.S.D., 2007f).

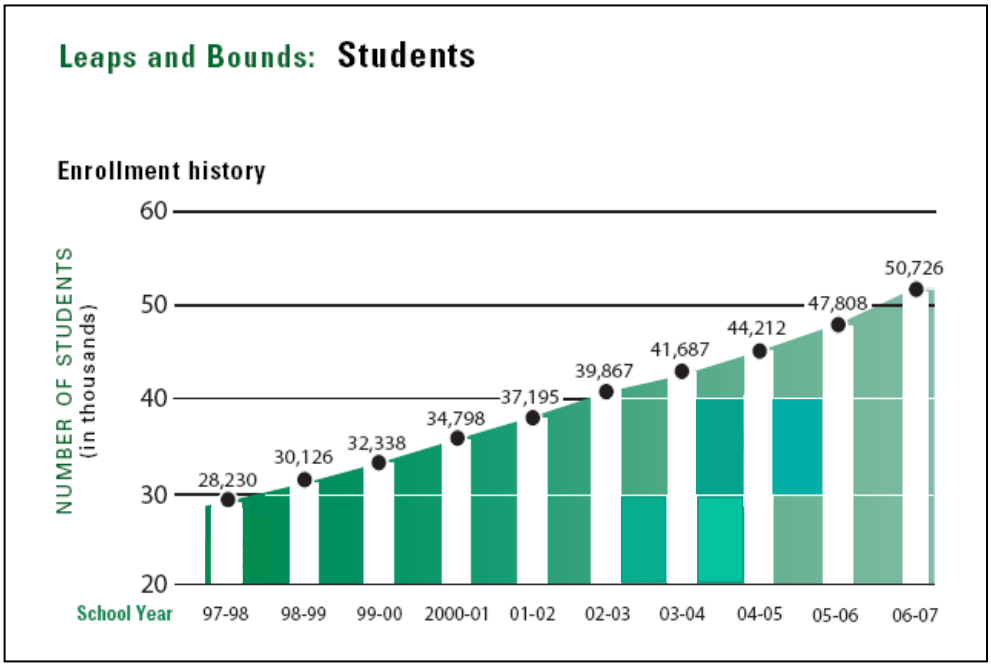

Figure 1: Katy ISD student growth projections for 1997-1998 to 2006-2007 (Adapted from K.I.S.D., *On the move*, 2007f).

The district is posting future enrollment projections of 83,000 by 2015 and 92,000 by 2017 (K.I.S.D., 2007f). Figure 2 shows the student enrollment to nearly double from the 2007-2008 school year with an increase of 38,357 students in the next nine year period to 92,000 by the 2016-2017 school year (K.I.S.D., 2007f).

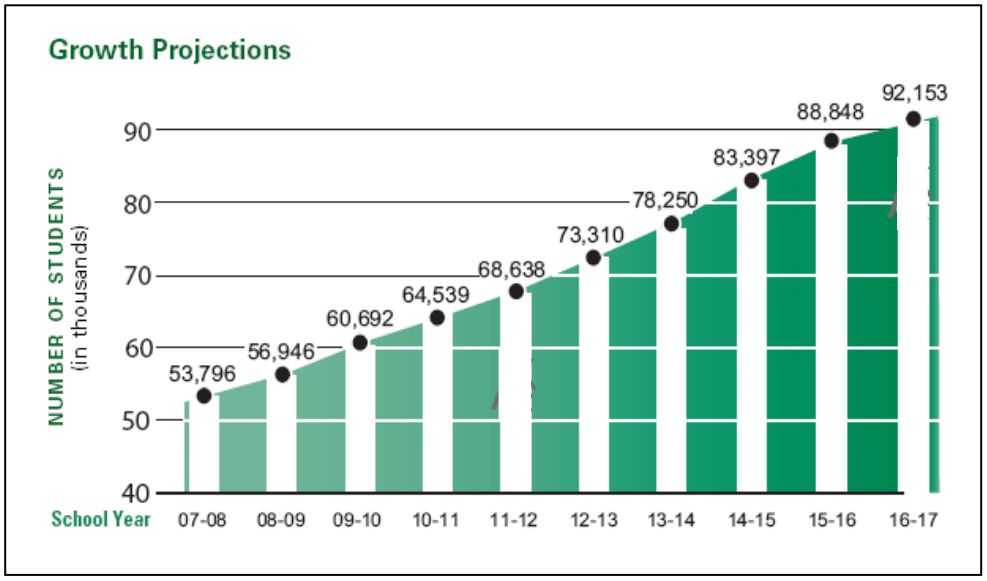

Figure 2: Katy ISD student growth projections for 2007-2008 to 2016-2017 (Adapted from K.I.S.D., 2007f).

This rapid growth projection of students and the resulting increasing teacher population heightened the concern for managing the curriculum, aligning it to standards and disseminating it at the teacher level.

The student population in Katy ISD is varied in its demographics as illustrated in Figure 3. The student population was identified as 91.2% college-bound and 38.3% as 'At-Risk' as defined by the Texas Education Code (Texas Legislature, 2007). Additionally, 23.3% are identified as low income, 11.1% are limited-English-proficient, 3.5 % are new immigrants, 3.9% are bilingual, 6.8% are in English as a Second Language classes, 5.9% are in the Gifted and Talented programs and 9.1% are in Title I Compensatory Programs (K.I.S.D., 2006b). Katy ISD includes 45 schools including six high schools with 3,195 total teachers in the district. "Since 1999, the district has

completed 19 new schools, … and … [t]hree ninth grade centers" (Katy I.S.D., 2007a). Figure 3 depicts some of the percentages for the student population in Katy ISD (K.I.S.D., 2006b).

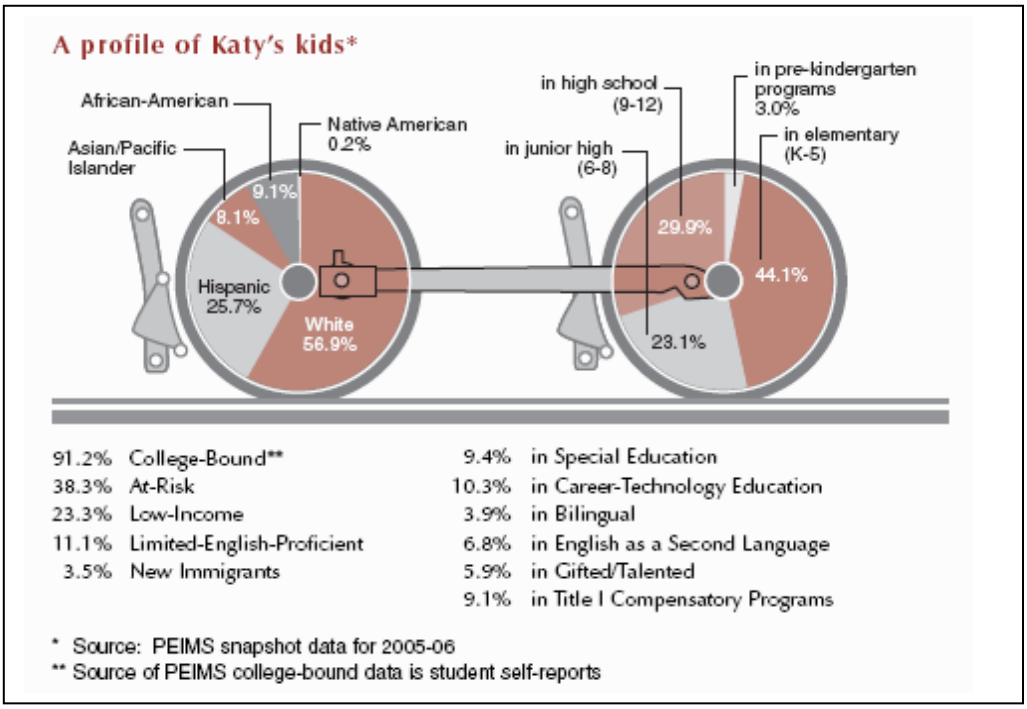

Figure 3: Katy ISD student profile for the school year 2006-2007 (Katy I.S.D., 2006b).

Goals

In an effort to maintain high student achievement standards, Katy ISD developed a strategic plan for excellence called, "Vision 2000" in 1992. Soon afterwards, the "Portrait of a Graduate for Katy ISD" was created (TASA, 2003). Following the creation

of these goal driven documents, a reorganization of the curriculum and instructional division occurred with 52 people from the department undergoing training in Curriculum Management Audit Standards in 1998 (Katy ISD, 2008). Use of these Curriculum Management Audit Standards were designed to help with curricular alignment (Clark, 2008a). Since "Katy ISD's Curriculum Department is responsible for the development, the alignment, and the instructional support for over 497 courses of study (Katy Independent School District (K.I.S.D.), 2009), the idea of managing the curriculum with automation for Katy ISD was considered important and prudent (Clark, 2008a; Resources for Learning, 2009).

Solution

There were limited options for automated technology curriculum management systems in 1997 when Katy ISD began a systemic process of aligning the school organization so there was alignment between what was written, taught and tested (Clark, 2005). Katy ISD sought "to implement the curriculum management audit standards and to develop a process whereby a coherent system for curriculum design and delivery existed" (Clark, 2005, p. 3). With the issues of national requirements for student academic proficiency and Katy ISD's surging growth, the district administrators began looking for a solution for curriculum alignment at the classroom level. Finding no appropriate curriculum management system, the district administrators decided to develop their own curriculum alignment solution. There is no structured evidence,

however, that this effort on the part of the district has positively impacted planning for learning, delivery of instruction or evaluation of student learning.

Purpose of the Study

The purpose of the study is to determine Katy ISD teachers' perceived impact of the Katy Management of Automated Curriculum system (KMAC) on their planning for learning, delivery of instruction and evaluation of student learning in the classroom.

Research Questions

This study seeks to answer the following questions:

1. What are the perceptions of the teachers in Katy ISD of the relationship between the Katy Management of Automated Curriculum and planning for learning?
2. What are the perceptions of the teachers in Katy ISD of the relationship between the Katy Management of Automated Curriculum and delivery of instruction?
3. What are the perceptions of the teachers in Katy ISD of the relationship between the Katy Management of Automated Curriculum and evaluation of student learning?
4. Are there differences between/among teacher leaders and teacher non-leaders and between/among elementary, junior high and high school teachers in their

perceptions of the KMAC on planning for learning, delivery of instruction and evaluation of student learning?

Null Hypothesis

The Null Hypothesis will assume that the KMAC system implemented in Katy ISD, a suburban, fast growth district has not impacted teachers in their practice of planning for learning, has not changed their delivery of instruction and has not changed the teachers' evaluation of student learning.

Operational Definitions

The findings of this study are to be reviewed within the context of the following operational definitions:

Centralized Management of Automated Curriculum (CMAC): The Katy ISD networked technology curriculum management project (CMAC), is comprised of three separate components. These components are Katy Management System (KMS), Katy Management of Automated Curriculum (KMAC) and Administrative Connection (ADCON).

Clarifiers: Clarifiers in KMAC are sample assessment items designed to illustrate the depth to which an objective needs to be taught.

Curriculum (standards, goals, resources, and objectives): "[B]y KISD definition, curriculum is the total program of formal studies offered by [the] district resulting in an organizational plan and design for learning" (K.I.S.D., 2007c). The curriculum is broken down into subcategories of standards, goals, resources and objectives. Standards of the curriculum are described as broad categories or strands that are consistent throughout a content area in grades PreK-12 to identify the major ideas. Goals describe or break down the broad standards. Resources are the available references, tests, texts, and items used in preparation for and presentation of the lesson. Objectives are statements of student performances to be taught, tested and reported.

Delivery of instruction: Delivery of instruction is defined as the process wherein the teacher teaches, facilitates, models the lesson and monitors the student activity. English & Steffy (2001) define delivery of instruction as "the teaching act or the implementation of the curriculum."

Evaluation of student learning in the classroom: "Assessment should be an integrated component of all instructional planning, not just something that happens at the end of teaching. Students will be assessed on the objectives derived from the Katy ISD curriculum documents. Assessment methods should vary based on the desired learner outcomes. Assessment should be understandable and meaningful to students, parents and educators alike" (K.I.S.D., 2007e).

Instructional practice: Instructional practice is purposefully enacted, curriculum-related and professionally-informed teaching (Saskatchewan Department of Learning, 1991).

Katy Management of Automated Curriculum (KMAC): KMAC is the component of CMAC wherein the teachers plan their classroom lessons through the online interface.

Networked technology curriculum management system: A networked technology curriculum management system is a database system housing curriculum and lesson planning resources for teachers. The system has a lesson planning template with standard fields of data to be entered. The database is accessible to teachers and campus administrators online via the computer through the district technology network with digital files stored in a central location.

Planning for learning: Planning for learning, versus planning for teaching, is defined as teacher preparation for high student engagement and student mastery of the content.

Strategies: Strategies are techniques taught to students that they can use for processing and analyzing information.

Structures: Structures are classroom or lesson organizational issues that teachers utilize in content presentation and lesson practice.

Assumptions

The findings of this study are preceded by the following assumptions:

1. The respondents are proficient in the use of the KMAC curriculum management system and knowledgeable about its effect on their planning for learning,

delivery of instruction and evaluation of student learning and will respond honestly and objectively.

2. A certain amount of uniformity throughout the district is required of the teaching staff, i.e. all teachers in Katy ISD are held to the same standards of using KMAC.
3. The research methodology proposed and described herein offers an appropriate and logical design for this particular study.

Limitations

The findings of this study are limited by the following:

1. Only Katy ISD teachers will be surveyed regarding KMAC.
2. There is a possibility that the only teachers to respond were those with strong negative or strong positive opinions regarding KMAC.
3. A certain personal comfort level with technology use may impact the teachers' perceptions of the benefits of KMAC.
4. Other components of CMAC, such as KMS & ADCON will not be considered.
5. Results of this study are limited by the survey instrument and the literature review.

Significance of the Study

This study is important in that America's schools aim to provide a level of expertise such that nearly every child can attain a high-quality academic education (Schlechty, 2001). Student mastery of the required curriculum is now a central focus of school districts due to the standards movement and the Texas state accountability system utilizing the Texas Assessment of Knowledge and Skills (TAKS) (Texas Education Agency (T.E.A.), Accountability, n.d.; Carter & Burger, 1994; Schlechty, 2002; Ingram, Louis, Schroeder, 2004). Many school districts are spending large sums of money on technology; in the USA, in excess of $40 billion has been spent on educational technology in the decade of 1993-2003 (Reed, 2003). With the large amounts of money being spent on technology, the concern arises on whether the effort is worth the money and if a difference is being made in the lives of the students and the teaching and preparation practices of the teachers. Katy Independent School District (Katy ISD) in Katy, TX created a customized networked technology management system for online access to their curriculum (WCL Enterprises, 2006) to reduce the randomness of delivery and to assure that student learning was meeting the standards (Clark, 2008a). There is, however, no current research to prove that this effort of curricular alignment and monitoring by a networked technology curriculum management system on the part of the Katy ISD has positively impacted planning for learning, delivery of instruction or evaluation of student learning.

This study will analyze survey data to determine whether one school district's systematic work in deep curriculum alignment through their automated curriculum system makes a positive difference in the areas of planning for learning, delivery of instruction and evaluation of student learning from the classroom teacher's perspective. An online survey was administered to teachers to determine their perception of the automated curriculum system. If the use of this new approach is efficient and effective, other school districts might find such an approach useful as well.

Record of Study Contents

This record of study is divided into five chapters. Chapter I contains an introduction, the statement of the problem, the purpose of the study, research questions, the null hypothesis, operational definitions, assumptions, limitations and the significance of the study. Chapter II provides a review of the literature pertaining to pertinent topics. Chapter III describes the method of study including the population studied, instrumentation and procedures. Chapter III also includes the modified survey instrument used, a copy of the original Katy ISD survey, the survey instrument with question items tagged with the research question it addresses, a research question tree and a copy of the e-mail request for participation and reminder e-mail. Chapter IV provides the survey analysis and results of the study. Chapter V presents the researcher's conclusions and recommendations for further study.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

America's schools desire to provide a level of expertise such that nearly every child can attain a high-quality academic education (Schlechty, 2001) and are spending billions of dollars on educational technology to achieve this goal (Reed, 2003). Due to the standards movement and the Texas state accountability system utilizing Texas Assessment of Knowledge and Skills (TAKS), student mastery of the required curriculum is now a central focus of school districts (Texas Education Agency (T.E.A.), Accountability, n.d.; Carter & Burger, 1994; Schlechty, 2002; Ingram, Louis, Schroeder, 2004). To attain student mastery, the focus or business of schools should be to create assignments for students that actively engage them so they learn what society wants them to learn (Schlechty, 2002). With this focus in mind, the Katy Independent School District (Katy ISD) sought "to implement the curriculum management audit standards and to develop a process whereby a coherent system for curriculum design and delivery existed" in order to provide for excellence in the classroom (Clark, 2005, p. 3).

This study seeks to determine whether the use of the Katy Management of Automated Curriculum **(**KMAC) has a positive impact on teachers' planning for learning, delivery of instruction and evaluation of student learning. The KMAC is a networked technology management system for online access to the Katy Independent School District's curriculum. The review of literature includes a discussion of the

national educational standards movement and the accountability system under which Texas school systems now operate. Also included in the review of literature are the curriculum management audit and the learning philosophies and instructional practice which guided the work of the curriculum process in Katy ISD, including curriculum alignment and how the curricular system addresses planning for learning, delivery of instruction and evaluation of student learning. A discussion of Katy ISD's growth challenges, educational goals and curriculum alignment philosophy is included, as are various curriculum management systems which were available for use and consideration as a solution for the district. An in-depth discussion of the Katy Management of Automated Curriculum (KMAC) and its components is also included in the review of literature.

Standards Movement

Education in the public school system in America has come under increasing scrutiny with much research and reporting on the topic and is currently in the midst of the accountability movement (English & Steffy, 2001; Carter & Burger, 1994; Ingram, Louis, Schroeder, 2004; Marzano, 1998; Marzano, Pickering, Pollock, 2001). Schools are held accountable for student test data and must be responsive to the public (Rinehart, 1993; Peck & Carr, 1997; Salisbury et al., 1997; Schlechty, 2002). With the launch of Sputnik in 1957 and the societal concern that America was not producing enough scientists, the federal government became increasingly involved in the schools in the

1960's and 1970's with the creation of the National Science Foundation curricula and the National Defense Act (Schlechty, 2001). There is now an emphasis to focus on what is truly the core business of schools (Schlechty, 2001) because of societal expectations (Carter & Burger, 1994). Students must learn and master concepts which are valued by parents and society (Schlechty, 2001). These expectations and standards have oversight from various agencies and organizations which produce mandates and standards (Carter & Burger, 1994). School accountability and curricular standards continue to be the focus for school improvement for student achievement (Ingram, Louis, Schroeder, 2004).

Approximately ten years ago, when the standards based movement began, there was a move to solidify the criteria and the standards which would lead to measurable student improvement on required state tests (Strong, Silver, Perini, 2001). There is an understanding among many that some standards are more powerful or important than other standards (Reeves, 2002; Carter & Burger, 1994). These identified standards also needed to allow educators the flexibility to meet various student needs of rigor and acknowledgement of learning styles (Strong, Silver, Perini, 2001).

Eventually, the standards for student achievement were congealed into four areas and were identified as 1) rigor, 2) thought, 3) diversity and 4) authenticity. Rigor is defined as a curriculum goal using challenging texts and ideas. These rigorous ideas can be 1) complex, 2) provocative, i.e. conceptually challenging, 3) ambiguous as poetry or statistics, or 4) personally or emotionally challenging (Strong, Silver, Perini, 2001). The standard of thought is a discipline of learning, inquiry and problem solving wherein learning is the outcome produced by thinking (Perkins, 1992). Strong, Silver and Perini

(2001) quote Confucius on the standard of thought, “Learning without thought is labor lost; and thought without learning is perilous.” The diversity standard incorporates diverse student learning styles and intelligences, various modes of assessment and take into account the various perspectives and cultures of the students, as well as their varying abilities, learning motivations, concerns and talents. The authenticity standard is the curriculum goal that relates learning to real world situations. This standard is concerned with preparing students for their life in the real world of adult work. Authenticity in course work emphasizes real world products or solutions and uses source information that adults use in their careers. This authenticity standard is also concerned with the ultimate wider audience outside of school and usually involves problem-based projects (Strong, Silver, Perini, 2001).

A Nation at Risk is a 1983 U.S. Department of Education report (U.S. Department of Education, 1983) which many believe was the start of the current educational reform movement with the goal of restoring greatness to America’s schools (Schlechty, 2001). This report concluded with five recommendations for education in America. Recommendation A was to strengthen high school graduation requirements and curriculum content at the lower grades. Recommendation B required raising standards and expectations for academic performance; Recommendation C required a longer school day and school year and Recommendation D dealt with teacher preparation, remuneration and support. The last recommendation, Recommendation E, dealt with the responsibility of leadership at the local, state and federal level to finance,

govern, support and promote the educational and reporting process (U.S. Department of Education, 1983).

Accountability System

An accountability system has been created for Texas schools to track their progress toward meeting the standards (Carter & Burger, 1994). The Texas Education Agency (T.E.A.) keeps track of and posts information in the fall of each year on Texas schools and districts through the Accountability Ratings and the Academic Excellence Indicator System Reports (AEIS) in specific areas and in a variety of formats. Not only is the Adequate Yearly Progress (AYP) of students measured and reported on the T.E.A. website, but also student dropout and grade-level retention and completion, as well as the Texas Assessment of Knowledge and Skills (TAKS) information. The Division of Accountability Research also keeps track of college entrance exam scores for SAT and ACT as well as the exams for International Baccalaureate and AP-Advanced Placement. Blue Ribbon Schools are listed as those whose students perform extremely well or those schools which have been successful at narrowing the achievement gap between ethnicities or sub-populations. The school accountability ratings rank the schools and districts as exemplary, recognized, academically acceptable and unacceptable. (Texas Education Agency (T.E.A.), Accountability, n.d.). In the ranking system for schools in Florida and Texas, "[e]normous pressure is exerted to "improve"-which means moving up in the categorical rankings" (English & Steffy, 2001, p. 39). If districts and schools

do not improve, there are sanctions imposed by the state. These sanctions include creation of school district improvement plans, withholding funds, replacing of personnel and restructuring of the school district (Fagan, 2002). In the current system of high stakes tests for students and high accountability for teachers and schools, school "leadership has to hold curriculum development tightly as a central function, based upon the assessment standards, [the] Texas Essential Knowledge and Skills (TEKS) and [the] Texas Assessment of Knowledge and Skills (TAKS)" (Clark, 2008a).

Curriculum Management Audit

Increasingly, a curriculum audit is being used in school districts to analyze the curriculum at the district and campus level with the purpose of increasing student achievement (Steffy, 1995). A tool that is gaining in use for this purpose is the American Association of School Administrators' (AASA's) Curriculum Management Audit "developed by Peat, Marwick and Mitchell in cooperation with Fenwick W. English, professor of educational administration at the University of Kentucky" (Vertiz & Downey, 1993, p. 2), with the first audit conducted in 1979 (English, 1995). These curriculum audits are specifically designed to determine how well the planned and written, taught, and tested curriculum are aligned within the district and the extent to which school district resources are focused to provide development and implementation of the curriculum (Downey & Frase, 1995).

> The Curriculum Audit is governed by similar principles, procedures, and standards as the financial audit. The audit team uses documents, interview,

> and site visits as major sources of data to determine the extent to which there is congruence among the written, taught, and tested curriculum. The curriculum audit process is probably the single most powerful tool yet created for the improvement of curriculum (Vertiz & Downey, 1993, p. 10).

Katy ISD conducted an internal audit on its curriculum after sending over 70 people from the central office to curriculum audit training in an effort to align the curriculum with best practice principles (Clark, 2008a).

The Curriculum Management Audit has five standards of review for information gathered with documents, interviews and school visits. These audit standards are 1) control, 2) direction, 3) connectivity and equity, 4) feedback and 5) productivity. Standard One emphasizes control by the district to maintain, change or direct resources, programs and personnel (Vertiz & Downey, 1993). This standard requires clear school board policies reflecting goals with the use of achievement data, a functional administrative structure, a centrally defined curriculum, a clear line of authority and a mechanism for change and innovation, among others (Downey & Frase, 1995). Standard Two is concerned with a clear and valid direction utilizing quality control (Vertiz & Downey, 1993, p. 11) with school board adopted goals and objectives established system wide (Greene, 1995b). Standard Three deals with internal connectivity and equity among program development and implementation (Vertiz & Downey, 1993). The internal connectivity is concerned with clearly explaining the curriculum to all parties, including the teaching staff and building and supervisory administrators (Poston, 1995). Regarding equity, those students with greatest need must have the greatest resources (Poston, 1995) and control of the system and the distribution of the various resources are crucial to successfully overseeing the program (Glatthorn, 1987). Standard Four uses feedback “to

adjust, improve, or terminate ineffective practices or programs" (Vertiz & Downey, 1993, p. 11) to allow for diverse assessment strategies analysis of educational programs and system improvements (Streshly, 1995). Standard Five emphasizes improved productivity within the district (Vertiz & Downey, 1993, p. 11), improved school and district climate, student interventions, financial planning and school facilities that comply with regulations and help facilitate delivery of instruction (Greene, 1995a). These five standards comprise the Curriculum Management Audit (Vertiz & Downey, 1993) and influenced the work of Katy ISD in their curriculum development (Clark, 2008a).

Learning Philosophies and Instructional Practices Which Had an Influence on the Development of KMAC

There were several leading educational researchers whose ideas influenced the curriculum process in Katy ISD. Fenwick English's thoughts on deep curriculum alignment drove much of the Katy ISD curriculum process on aligning it with state standards and TAKS (Pollard, 2007; Resources for Learning, LLC, 2009). The five curriculum audit standards were also influential in the alignment effort (Clark, 2008a). Katy ISD wanted to have not only an aligned curriculum but also an aligned system (Clark, 2008a). The school system must be aligned and supportive enough to sustain the innovation while introducing and inserting these new practices and innovations to allow for systematic improvement (Schlechty, 2001). Leadership in Katy wanted to align both

the curriculum and the system such that the randomness of delivery was diminished and student learning was meeting the standards (Clark, 2008a). This is the same idea expressed by Carter & Burger (1994), in that preparing students for the next century, doing things better is not enough, we must do them differently for educationally justifiable ends, with the guidance of visionary, effective leadership.

Deep Curriculum Alignment

"Curriculum alignment ensures that the content and processes that are embedded in the work students are assigned or encouraged to undertake are relevant to what the community expects students to learn" (Schlechty, 2001, p. 61). Figure 4, adapted from the work of English & Steffy (2001), illustrates the idea of deep curriculum alignment with the connection between the written, taught and tested curriculum. Design of the curriculum is one-third of the model with delivery at the classroom level of the written, taught and tested curriculum accounting for two-thirds of the model. "Sometimes referred to in the literature as 'curriculum overlap' between the curriculum content and the tested content. Alignment raises the probability that the written curriculum will be learned because it will be taught" (English & Steffy, 2001, p. 46). Deep alignment encompasses more than aligning classroom teaching practice to specific test formats or previous test items made public, it is a "comprehensive approach to teaching and learning that goes beyond any single measure of the curriculum taught or learned" (English & Steffy, 2001, p. vi). The alignment of the curriculum is the assurance that

what the students see on the test, they have been taught in the classroom to assure that all students "can learn and be successful" (English & Steffy, 2001, p. vii).

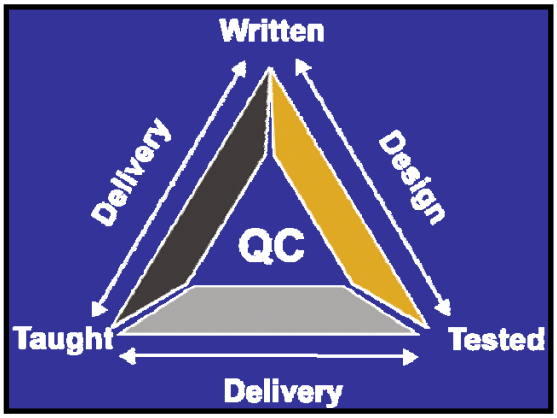

Figure 4: Model of the connections between the written_taught_tested curriculum and the quality control which guides the design and delivery process *(Adapted from English & Steffy, 2001) (Clark, 2006).*

Figure 5 illustrates that the students are tested on a portion of the whole written curriculum and that they are taught much more in the classroom (English & Steffy, 2001). The taught curriculum occurs from teachers using an issue of immediate interest to the children and capitalizing on it to create a teachable moment. The written curriculum is "the plan of the work" (English & Steffy, 2001, p. 89). The tested curriculum carries the greatest weight for accountability and is considered to be representative of a student's mastery of the written curriculum (English & Steffy, 2001).

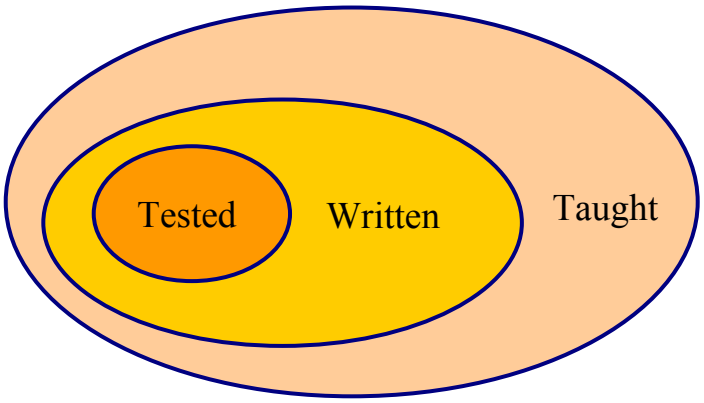

Figure 5: Model of the tested, written and taught curriculum which occurs in the classroom *(Adapted from English & Steffy, 2001, p. 88).*

Curriculum Design Methods

There are four design methods for creation of a curriculum as shown in Figure 6; two of these design methods approach the process from a frontloaded idea and two approach the process from a backloaded idea. Frontload / design is an idea referring to creation of the curriculum on paper, then creating assessment tests to match the curriculum. Frontload / delivery is a method referring to teaching first, then writing what was taught on paper, then creating assessment tests to match. Backload / design is the most efficient method of curriculum creation, in which publicly available test items are used as a guide in the writing of the curriculum. Backload / delivery has classroom teaching practice mirror the publicly available test items. This backload / delivery

practice may or may not include teaching more content beyond the test items (English & Steffy, 2001).

Design Methods	Design	Delivery
Frontloading	Write, Test	Teach, Write, Test
Backloading	Public tests, Write	Public tests, Teach

Figure 6: Matrix of four design methods for curriculum development *(Adapted from English & Steffy, 2001).*

There are two ways for the curriculum to connect, laterally or horizontally, also called *curriculum coordination* and vertically, also called *curriculum articulation.* Articulation or vertical alignment is important as basic skills must be taught at the lower grade levels as a foundation for more complex learning to occur at the higher grade levels. The curriculum coordination or lateral alignment assures that the same concepts are taught across the same grade levels. Figure 7 from the work of English and Steffy (2001) illustrates the vertical (articulated) and horizontal (lateral) alignment which must take place for deep alignment to occur.

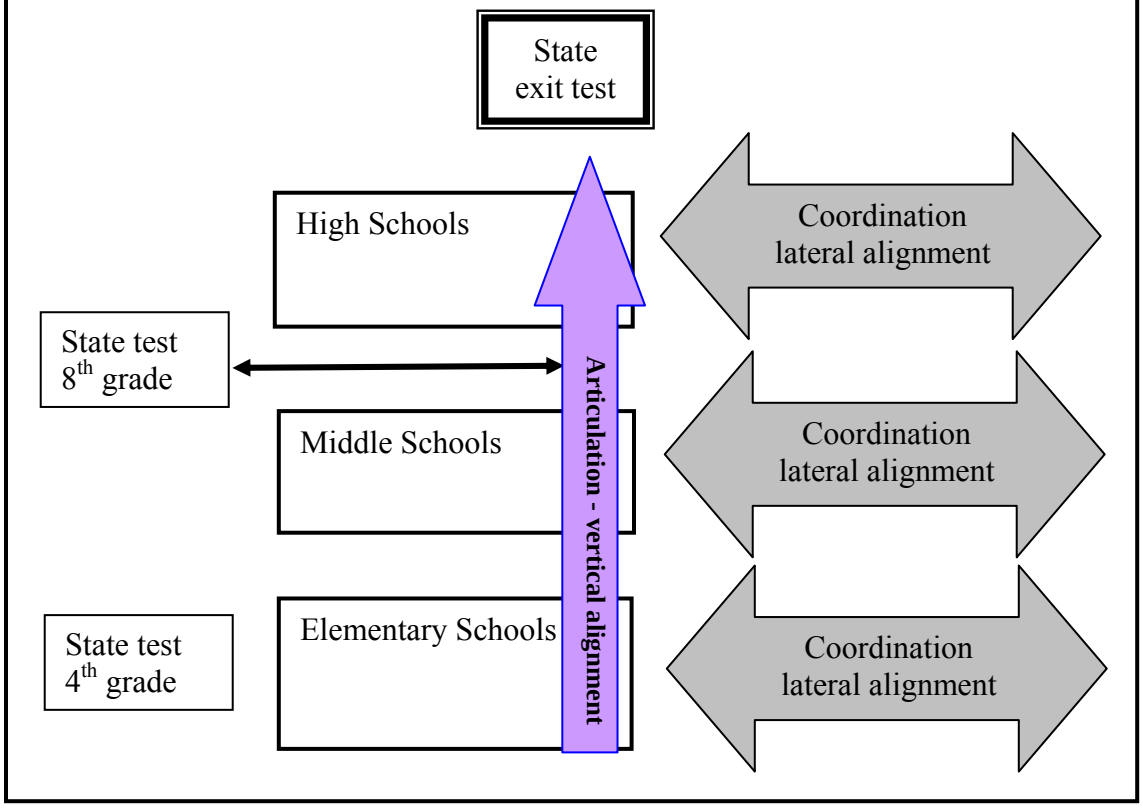

Figure 7: English and Steffy model of a school system as the unit of analysis and the curricular lateral coordination and vertical articulation *(Adapted from English & Steffy, 2001, p. 62).*

Staff Development in Delivery of Instruction

Staff development in good teaching techniques, or delivery of instruction, is noted as a key ingredient in effective curriculum mastery by students (English & Steffy, 2001; Mann, Kitchens & Aylor, 1991; Bickel, 1983; Brookover, 1981). English & Steffy (2001) also note that there should be a "well-developed approach to staff development, modeling how to apply the data in the classroom (pedagogical parallelism), and the systematic use of supplementary materials" (p. 93). Katy ISD requires all new teachers

to undergo training in Project Creating Independence through Student Owned Strategies (Project CRISS) to gain more tools or strategies for student learning (Resources for Learning, LLC, 2009). Additionally, student gains in achievement are facilitated by a focused curriculum, linked with staff development and implemented by supervisory personnel and involved principals as verified by the doctoral dissertation research of Felicia Moss-Mitchell (English & Steffy, 2001). The Katy ISD is utilizing this model with curriculum specialists writing a focused curriculum in KMAC, supported by instructional personnel providing ongoing staff development in best classroom teaching practices to teachers and monitoring by the campus principals (Clark, 2008a; Resources for Learning, LLC, 2009).

Assessment - Evaluation of Student Learning

The third aspect of deep curriculum alignment is the tested portion, or evaluation of student learning (English & Steffy, 2001). Schlechty (2002) notes that, "[a]ssessment is critical to understanding." Assessment items presented to students should be in various formats linked to the curriculum and frequently integrated into instruction to provide important feedback. The assessment items therefore become instructional tools. Students are then able "to handle multiple types of assessments, thus getting closer to the concept of deep alignment" (English & Steffy, 2001, p. 103). Deep alignment occurs in the written curriculum and in the teaching practices in the classroom. "Deep alignment [is] [t]he concept that what is tested is contained in what is taught, but that what is taught is not confined to the test. Teaching that is engaged in deep alignment is anticipating ways

of assessment in which important information, concepts, processes, or disposition may be tested" (English & Steffy, 2001, p. 110).

Curriculum Management Systems

Overview

As the USA continues to shift more to a technologically based economy, this technology transformation impacts most aspects of our lives, including education (Carter & Burger, 1994). Technology is typically used by educators as a "synonym for electronic means of communicating, storing, retrieving, and processing information" (Schlechty, 2001, p. 31). Technology requires the availability of tools, the processes and the skills for effective use (Schlechty, 2001). The technology tools and infrastructure are now available to manage "curriculum, instructional processes and student performance" (Carter & Burger, 1994, p. 153) in more effective processes than has been possible over the last 2,500 years (Carter & Burger, 1994) to help support learning (Further Education Unit, 1993).

> The inevitable transition to computer supported and computer managed learning contexts offers major challenges and new opportunities for pedagogy and curriculum, potentially enabling us to break the lock of structures and the inertia of tradition which we have tended to think of as given when introducing changes into our educational systems (Carter & Burger, 1994, p.153).

Organizations are now able to design their particular information systems to satisfy their organizational needs for data manipulation and information retrieval (Hodgson, 1999). It is the advent of technology instructional management systems which are pedagogically

based that combine curriculum development with instruction, evaluation, assessment and administrative functions that have the potential to transform the process of education. An integrated technology curriculum management system is preferable to the piecemeal or incremental approach of using various software packages (Carter & Burger, 1994). This integrated technology curriculum management system would allow the input of a curricular scope and sequence, ongoing staff development of the teaching staff to support the curriculum (Carter & Burger, 1994; Further Education Unit, 1993), online adjustments to daily lesson plans and monitoring by school administrators. The monitoring by administrators for supervision and evaluations would be to determine "the extent to which a particular teacher uses a variety of instructional activities in his or her teaching, or the extent to which curriculum and its implementation is congruent with state guidelines, standards and bench-marks, or other external references" (Carter & Burger, 1994, p. 156).

An effective technology curriculum management system must provide the tools to "plan, implement and monitor attendant teaching and learning processes, including their effectiveness and consequences" (Carter & Burger, 1994, p. 156, 157) and should have the functional capability of allowing administrators to update and maintain the curriculum with frequency and regularity to guarantee its relevance in this age of new knowledge generation. An effective technology curriculum management system must not be inflexible, but must allow the educator to have flexibility while planning for learning in order to be sensitive to the students' learning styles (Carter & Burger, 1994). Teachers are able to use a process discipline which Kanter (1997) describes as

establishing a measure of control but does not constrain the ultimate form the lesson will take.

Carter & Burger (1994) note that a curriculum and instructional management system must be backed by research, analysis and professional development in order to allow educators the tools to answer meaningful questions to improve education. The curriculum portion of the technology curriculum management system contains the curriculum and lesson planning functions. The instructional portion of the technology curriculum management system contains all student data for reporting demographics and test mastery and allows for an administrative oversight (Carter & Burger, 1994). Student success is dependent upon high expectations for their achieving clearly defined and understood goals. Success is also dependent on an emphasis on basic skills and constant monitoring of student progress (Mann, Kitchens & Aylor, 1991). Carter & Burger (1994) also note that when combined with a student data analysis function, the teachers' lives are not easier, just more effective. Utilizing a curriculum management system is one method of assisting the teacher in reaching the identified goals of building lesson plans (Mann, Kitchens & Aylor, 1991).

To make a curriculum management system viable, one must have the two raw materials of information and imagination paired together in this technology age (Toffler, 1980). Automating the curriculum is not enough as there is a difference between automating and informating. Automating refers to using technology tools to handle data. Informating refers to the process of empowering professionals with readily available information through technology. In this informating process, administrators and teachers

work together to refine a system wherein the right information is available in an understandable format for common purposes (Carter & Burger, 1994). The life cycle model of technology-based educational systems design by Cook, Oliver and Conole (2001) includes five steps. These five steps are 1) problem specification, 2) educational modeling, 3) design, 4) system implementation and 5) system evaluation. Earlier research stressed that "[t]he schools must learn the lessons of our most successful and productive enterprises; they must be client centred and performance driven, incorporating new learning systems which focus on the individual" (Lyndon B. Johnson School of Public Affairs, 1988, p. 92).

Vendor Products

There were limited options for networked technology curriculum management systems when Katy ISD began looking for a solution for curriculum alignment at the classroom level (Clark, 2008a). The search for an adequate technology curriculum management system solution of products which were available in the year 2000 included Project ABCD, ABACUS and OASIS curriculum management software products (Katy ISD, 2008). The desired curriculum management system needed to have not only an aligned curriculum, but also to be part of an aligned system as well (Clark, 2008a).

Project ABCD was developed by Texas Association for Supervision and Curriculum Development (Texas ASCD) with Dr. Elizabeth Clark and Dr. Nancy McLaren serving as co-chairs for Project ABCD Task Force. This four year project in the late 1980's and early 1990's included a group of teachers who identified curriculum

objectives and key resources like state textbooks and wrote curriculum for the subject areas of math, language arts, social studies and science. This system also gave assessments and real world examples of applying concepts. When Katy ISD began the process of researching curriculum management solutions in late 1990's, it was determined at that time that Project ABCD was an older curriculum system using a less agile programming language and therefore was considered not appropriate for current Katy ISD needs (Clark, 2008a).

ABACUS was owned by National Computer Systems (NCS) and was later bought by Pearson. ABACUS was a software program which had the ability for teachers to create lesson plans and tests in a combined technology instructional management system. NCS ABACUS Test software allowed teachers to create tests from a bank of professionally developed, field tested questions numbering in the thousands of items. Another product offered by NCS was ABACUS Score which scanned and scored the tests that teachers created using NCS ABACUS Test. The ABACUS Score program provided a variety of reports for student data disaggregation. These two products were incorporated into the NCS ABACUS Instructional Management System "for fully automated assessment and instructional management" (Willis, 1996, p.2). The drawback for use of this system for Katy ISD as a large, fast-growth school district, was the costs of the scantron sheets that would be needed to utilize the testing component. Since all tests use scantron sheets for bubbling answers, the large number of students in the district multiplied by the various courses and multiple times throughout a semester for test taking, the cost of the use of the paper scantron sheets seemed prohibitive. An

additional issue was the fact that the NCS ABACUS Instructional Management system was not an internet based system. At the time, the software did not operate over the internet, only the intranet, i.e. the internal school district network, therefore teacher access from home was not provided as an option (Clark, 2008a).

OASIS (Objective Alignment System in Schools) is a curriculum management system which was considered for use by the Katy ISD curriculum department (Clark, 2008a). The software currently consists of several components to help facilitate student achievement (OASIS, 2007).

> OASIS (Objective Alignment System in Schools) is an internet instructional management system for documenting and monitoring teaching the Texas Essential Knowledge and Skills (TEKS) and aligning with the Texas Assessment of Knowledge and Skills (TAKS). OASIS contains a dynamic curriculum database vertically-aligned with TEKS for all subject areas, grades PK-12, and the requirements of the TAKS, grades K-11 (exit level) (OASIS, 2007).

OASIS has an instructional management system wherein teachers may put a check beside the objectives which have been taught. In the Lesson Plan component, teachers create weekly lesson plans which are saved into a database for later review by the teacher, principal or instructional coordinator. The Curriculum Development component has "a framework for the ongoing development of curriculum at the district level and/or the school level" (OASIS, 2006). Customization of the teacher created lesson plans is possible by adding rows of information for activities, resources, assessment, etc. These customized rows of information are viewable by other teachers, promoting a workgroup environment among the teachers, however the lessons are not shared among the teacher

accounts. OASIS also has a Monitoring component for the Superintendent to monitor school and teacher lesson plans and objectives. The school principals can monitor all of the teacher lesson plans and objectives at their campus (Oasis, 2006). However, in 1998 when Katy ISD began researching systems, OASIS had lesson plans which were already planned and the teachers could access the bank of lessons but could not create lessons of their own (Helbach, 2009).

Katy ISD - Centralized Management of Automated Curriculum (CMAC)

Katy ISD sought "to implement the curriculum management audit standards and to develop a process whereby a coherent system for curriculum design and delivery existed" (Clark, 2005, p. 3). The Professional Learning model by Rick DuFour later also influenced the curriculum organization process, as did the work of Fenwick English in the alignment of the written, taught and tested curriculum (Clark, 2005, p. 3). Walter Shewhart's concept of the value added process (Shewhart, 1939) and Edward Deming's Plan_Do_Study_Act model, emphasized the necessity for planning and study to achieve the desired results (Deming, 2000). Continuous improvement in the organization is a purposeful activity as Deming (2000), Juran (1988) and Shewhart (1939) conceived it (Ingram, Louis, Schroeder, 2004). A common language is used throughout the Katy ISD in discussions regarding curriculum as the research of Dr. Robert Marzano describes as a necessity for common understanding (Resources for Learning, LLC, 2009. It was these influences that helped formulate the concepts that Katy ISD wanted to have not only an aligned curriculum managed with automation, but also an aligned system. The leadership

in Katy wanted to align both the curriculum and the system such that the randomness of delivery was diminished and student learning was meeting the standards. (Clark, 2008a).

Since an effective curriculum management system must provide the tools to "plan, implement and monitor attendant teaching and learning processes, including their effectiveness and consequences" (Carter & Burger, 1994, p. 156, 157), Katy ISD began a systemic process of aligning the school organization such that there was alignment between what was written, taught and tested (Clark, 2005). First there was a restructuring of curriculum personnel and formal curriculum audit training, then an evaluation of various vendor options for curriculum management systems occurred (Curriculum Dept./Katy ISD, 2008). Finding no networked curriculum management system which suited their needs, Katy ISD took the bold step of writing their own networked software solution with a customized online curriculum (WCL Enterprises, 2006; Resources for Learning, 2009). The system was designed "around research, objectives, aligned resources, good teaching strategies, methodologies and structures and assessment" (Clark, 2008a). The Katy ISD networked curriculum management project is titled the Centralized Management of Automated Curriculum (CMAC). Version 1.0 was launched to district staff in the 2002-2003 school year with an upgraded Version 2.0 introduced in the following 2003-2004 year and Version 3.0 in the 2004-2005 school year (Xpedient, 2007). Figure 8 is a representation of the components of CMAC.

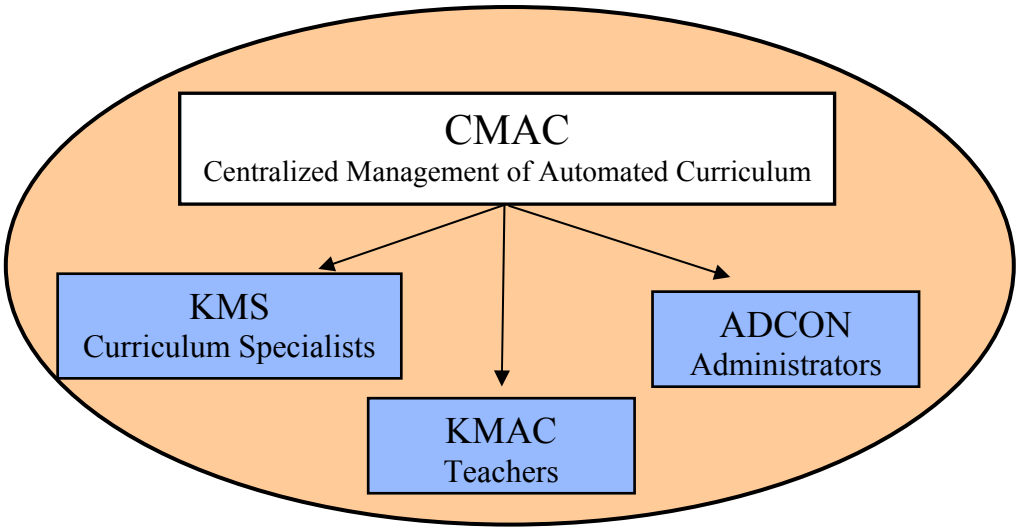

Figure 8: Overall design of CMAC with the three sections of KMS, KMAC and ADCON *(Adapted from K.I.S.D., 2007c).*

CMAC is the umbrella which comprises the three components of KMS, KMAC and ADCON. The Katy Management System (KMS) is the portion of CMAC wherein the curriculum specialists house the curriculum and lesson strategy ideas and resources. Katy Management of Automated Curriculum (KMAC) is the online interface to the system for teachers to plan their classroom lessons (K.I.S.D., 2007c; Resources for Learning, LLC, 2009. "KMAC provides a database of instructional support of each of the objectives taught. Resources, assessment items, suggested strategies, and structures for classroom management facilitate the lesson planning and delivery to offer needed instructional support for teachers and students" (K.I.S.D., 2007c). The Administrative Connection (ADCON) is the function available to administrators for monitoring completion of lesson plans and objectives and has several report features (Clark, 2005).

"The scope of this work has evolved from designing 468 curriculum guides and an automated system to managing the curriculum as well as committing to an aggressive plan for developing leadership at all levels of the system for the purpose of promoting student learning through managing the delivery, assessment, and monitoring of district curriculum" (Clark, 2005, p. 3). The overall objective of the networked curriculum management project was to create a system whereby the necessary components of the teaching and learning process were aligned and not left to chance. The components of the core business are curriculum, resources, student work, strategies, structures, and teacher plans to create the output of optimal learning (Clark, 2005, p. 4).

The curriculum guides on KMAC are for all subjects and grade levels in the district (Solomon, 2006). The guides are based on the Texas Essential Knowledge and Skills framework, which is the curriculum standard for the state of Texas. Since KMAC is web based as a 24-hour seamless system, teachers have home access as well as work access (Rivero, 2006).

In KMAC, teachers find links to clarifiers to help educators understand the performance level required of students, as well as suggested strategies and resources for the lessons. Planning tools, suggested homework and a search feature are also present in KMAC (National Center for Educational Accountability, 2003). District-wide, use of curricular objectives in the lessons is mandated; however teachers decide the strategies for the delivery of the lessons in their classrooms (Clark, 2005). Once teachers submit their lessons, their administrators can view the lessons electronically. An additional feature is the ability to e-mail to students who are absent or are missing work, any

project that is developed on-line in KMAC (National Center for Educational Accountability, 2003). “Katy ISD teachers from elementary through high school work as teams within each content area to develop well-planned and standards-aligned curricula in which student learning objectives are precisely articulated and sequenced in six-week blocks to pace instruction” (Rivero, 2006, p.2). “By automating lesson planning and design, teachers are able to focus on differentiation and delivery of instruction with the ultimate goal of improved instruction and greater student achievement” (Texas Association of School Administrators, 2003, p. 29). English and Steffy (2001) emphasize that the goal of improved student achievement is facilitated by a focused curriculum, linked with staff development and implemented by supervisory personnel and involved principals.

Katy Independent School District Systemic Alignment Process

Curriculum Alignment

In an effort to reduce random variation in curriculum design and lesson delivery, administrators in Katy ISD in Katy, Texas, had the vision of creating a coherent process to control variation (Clark, 2005). The design of a curriculum should have a “tight coupling of the written and tested curriculum … so at the delivery point, which is the classroom, … [teachers are] systematically planning and using an aligned curriculum” (Clark, 2008a). Several states are focusing their attention on teachers and classroom instruction in order for student improvement to take place (Schlechty, 2001). Carter and

Burger (1994) note that there are benefits to curricular alignment, especially in an online format. Without a management system, each teacher creates in his or her own mind an understanding of both what the curriculum is and what the testing standard is and therefore, delivery at the classroom level becomes a random variable (Clark, 2008a). Schlechty (2002) notes that only when you can control whatever needs to be improved, can you allow improvement to occur. Petrides & Guiney (2002) emphasize that organizational learning is imperative for long term change to occur. Leadership in Katy wanted to align both the curriculum and the system such that the randomness of delivery was diminished and student learning was meeting the standards (Clark, 2008a).

When the curriculum alignment work began in Katy ISD, curriculum documents for the various subjects were in various stages of development. There were no six week pacing guides, therefore course objectives were being taught at different times on different campuses. There were scope and sequence documents; however there was variety in the delivery times of the content on different campuses. Additionally, the curriculum did not contain sample lesson plans, suggestions for instructional strategies or common assessments (Clark, 2005; Resources for Learning, 2009). The district wanted to make sure objectives were being taught in an effective sequential manner. Another purpose of the curriculum reorganization was to give the teachers the ability to have access to the same list of resources. Planning for learning begins with the identification of the content objectives to be learned by the students, then includes the process to be used for all students to master the content. This student course work must also be challenging enough to require mastery of the course content with assessment of

the students proving their mastery. “By focusing on what students do, the teachers’ thought process is on planning for high student engagement which, in turn, produces desired results” (Clark, 2005, p. 5). Schlechty (2001) notes also that a curriculum aligned with standards and engaging knowledge work for students, produces student learning and mastery. The lesson planning process is therefore a bridge between the written curriculum objectives and student mastery as illustrated in the diagram in Figure 9. A systemic focus should control for variation in design (Clark, 2005). As noted in the Figure 9, “[l]esson design is the ‘Gap Analysis’ that bridges the written curriculum to lesson delivery” (Clark, 2006).

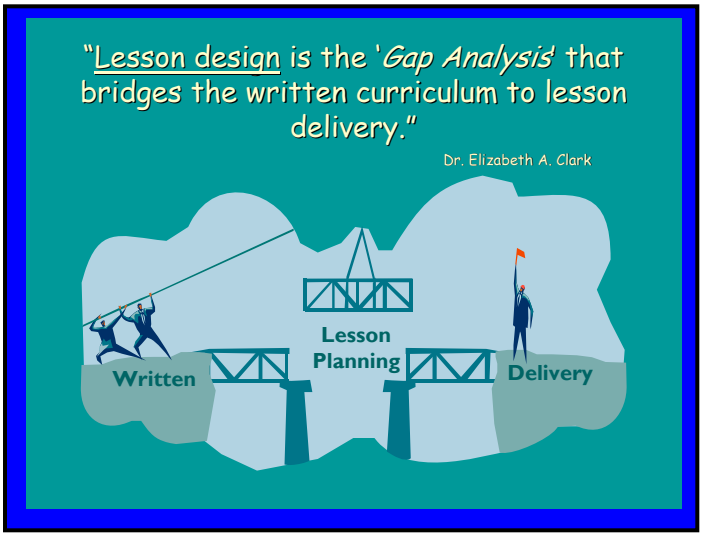

Figure 9: Lesson design model of the connection that occurs between the written curriculum and delivery of instruction in the classroom *(Clark, 2006).*

Planning for Learning

Figure 10 indicates the Katy ISD process of planning for learning (Clark, 2007). In this model, the educational focus is on planning for learning rather than planning for teaching (Dufour, 2007) as a shift from a teacher-oriented viewpoint to a learner-oriented viewpoint (Cook, Oliver, Conole, 2001). "In the context of teaching, it is understood that what the students do is much more important than is what the teacher does" (Schlechty, 2001, p. 152). Phil Schlechty (2001) emphasizes that as teachers plan for learning, they need to plan engaging and challenging work for students that increases student engagement. Quality work assigned to students, encourages quality work from the students which improves student learning and student mastery (Schlechty, 2001). This assigned quality work must also be perceived by the students as being purposeful and engaging in order to accomplish the mastery of objectives (Schlechty, 2001).

As illustrated in Figure 10, the KMAC lesson objectives identify the concepts, vocabulary and skills necessary for student success and the KMAC clarifiers, or question examples, illustrate the depth and specificity to which a concept should be taught. The concepts, vocabulary, skills, prior knowledge and item distracters are then used to create the summative assessment. Using the assessment content, the teachers identify the strategies to be used for delivery of instruction and correlate the resources and activities used for teaching the students. A formative assessment is developed to check for understanding during the process of learning with reflection on the lesson and student mastery occurring afterwards (Clark, 2007).

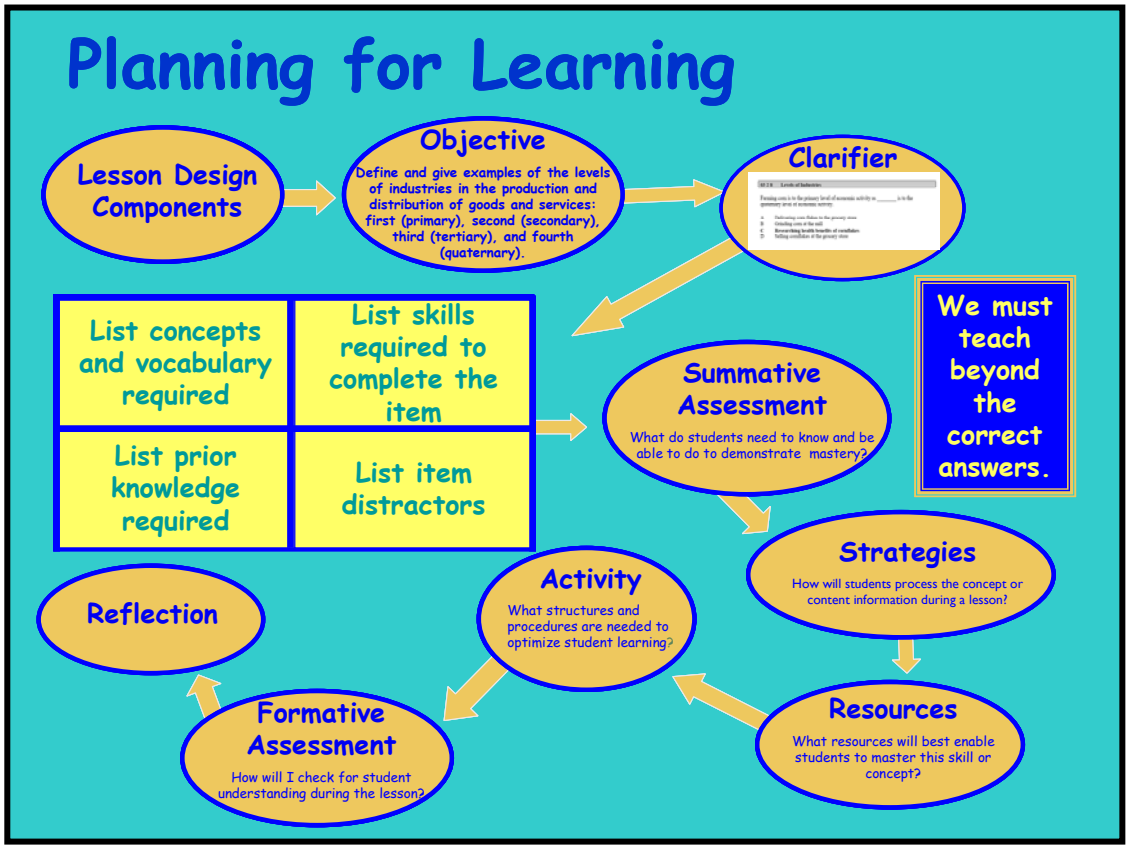

Figure 10: Planning for Learning flow chart *(Clark, 2007)*.

Katy ISD believes that both teaching and learning are value added processes and that what happens in the classroom should not be left to chance, but should be purposeful, based on precise standards, an accurate curriculum and specificity on the cognitive level of the students (Clark, 2008a). Dr. Clark (2008a) believes that "[v]ariation is the enemy of any value added process."

The Simple Systems Model in Figure 11 illustrates that a simple system has an input to which value is then added to achieve an output. The Simple Systems Model is interpreted with the Input to the system as the students and the Output of the system as student learning and mastery of the curriculum. The Value Added portion of the system includes all that the school district does including curriculum design, lesson planning, and classroom delivery, as indicated in Figure 12 (Clark, 2008a). The objective of the value added portion of the system in Figure 11, is to improve the practice and quality of teaching and student learning and participation (Further Education Unit, 1993).

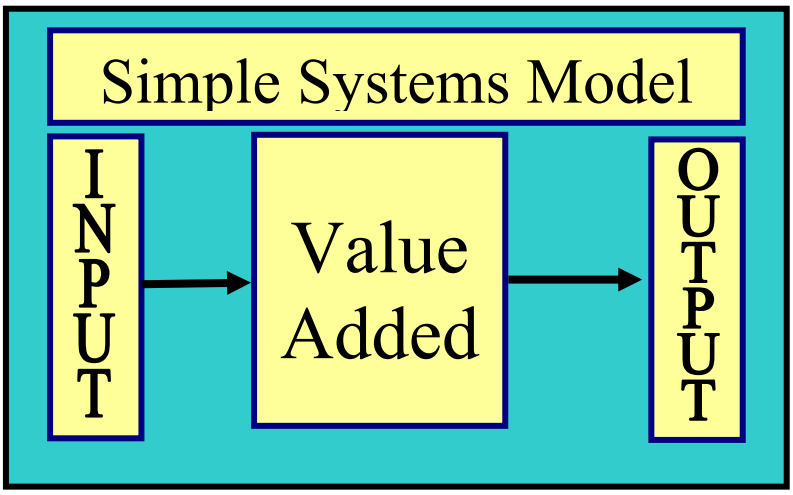

Figure 11: Simple Systems Model illustrating the students as inputs to the system and student learning as the output of the system. The Value Added section is the educational process. *(Figure adapted from Clark, 2008a).*

From the Simple Systems Model in Figure 11, Katy ISD has adapted Shewhart's fishbone figure to conceptualize and give more specificity to the value-added process as

illustrated in the *Teaching and Learning Process* fishbone in Figure 12 (Clark, 2008a). Dr. Walter Shewhart in his 1938 lectures at the Graduate School of the Department of Agriculture, outlined the quality control process in three stages: "the *specification* of what is wanted, the *production* of things to satisfy the specification, and the *inspection* of the things produced to see if they satisfy the specification" (Shewhart, 1939, p. 1).

> The model following became the basis of the training that [Katy ISD] provide[s]. It is based on Shewhart's concept of a value-added process. Shewhart viewed variation as the enemy of any value-added process. Deming concluded that variation can either be common cause (i.e. created by system) or special cause (outside the system). In education, we tend to view variation in test scores as special cause and blame poor results on things such as students, parents, or social/cultural issues. In Katy, we use the Teaching and Learning Process Model (Clark, 2006) to depict the components that the system should control in order to produce the required results under state and national accountability standards. Thus, the training that the district has done with administrators and teachers is predicated on the notion that if we want to achieve higher results, it is that function of how well teachers plan lessons, using our aligned curriculum, and deliver those lessons using strategies that actively engage students in the learning process (Clark, 2008a).

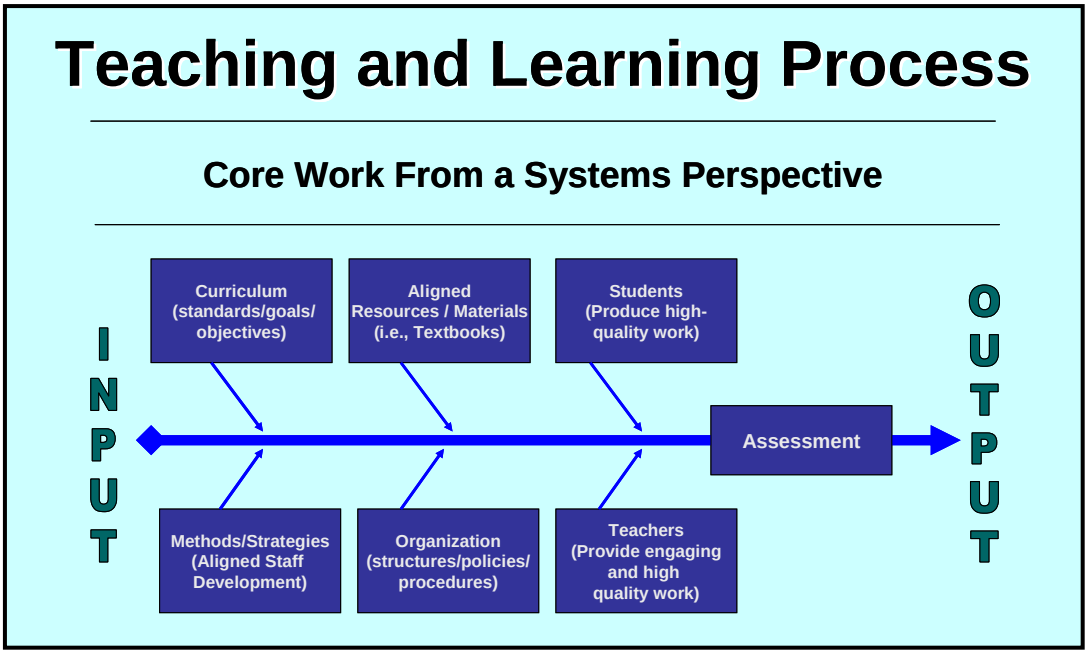

Figure 12: Teaching and Learning Process fishbone graphic illustrating the educational process or value added process *(Clark, 2006)*.

In the *Teaching and Learning Process* fishbone in Figure 12, teaching and learning are seen as a process. Inputs to the system are students. The value added portion are the curriculum, resources, work given to students, methods/strategies, organizational procedures and teachers designing knowledge work and assessments for students. Student mastery of the curriculum is the output. The curriculum includes the standards, goals and objectives with aligned resources and materials like textbooks, and resources to support it. The district provides the organizational structure, policies, and procedures to support methods and strategies including aligned staff development. Teachers are then supported, trained and guided by all the system provides to be able to deliver engaging

lessons of a high quality to encourage students to produce work of a high quality nature (Clark, 2006).

Professional Learning Community

In the 'Plan_Do_Study_Act' model in Figure 13, Deming emphasizes the necessity to plan and study in order to get the desired results. "It is not enough to do your best; you must know what to do and then do your best" (Deming, 2000, p.19). Rick DuFour's conceptualization of the Professional Learning Community (PLC) model includes research based practices for high student engagement and are incorporated into the Deming "Plan_Do_Study_Act'" model in the Katy ISD Figure 13. The idea behind the Professional Learning Community is improvement of schools and student learning by closing the gap between knowing the right thing to do and doing the right thing (Pfeffer & Sutton, 2000).

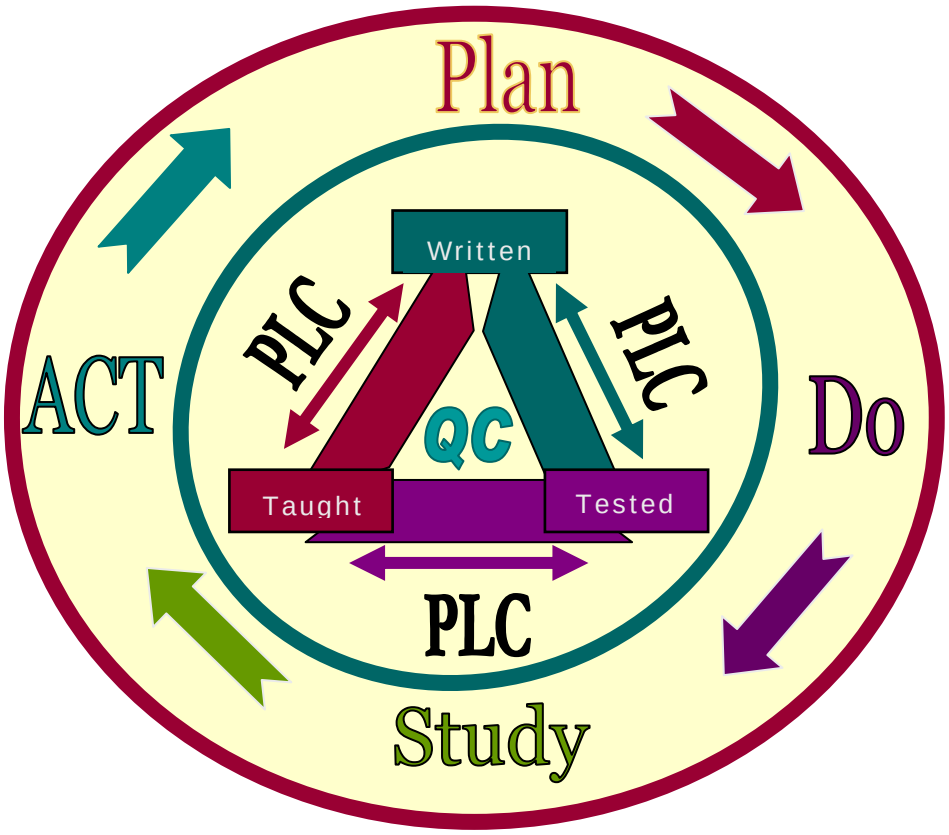

Figure 13: Deming's Plan_Do_Study_Act figure with Rick DuFour's PLC added *(Clark, 2006)*.

The PLC concepts are concerned with the knowledge and skills students are expected to know, the criteria and assessments for determining their progress and using best practices and strategies in a collaborative manner to accomplish the goals (DuFour, 2007). These concepts are stated in four questions. Question one: "What is it we want our students to learn?" (DuFour, DuFour, & Eaker, 2008, p. 183), is identified by Katy ISD as a curriculum issue (Clark, 2008a). Question two: "How will we know if each

student is learning each of the essential skills, concepts, and dispositions we have deemed most essential ?" (DuFour, DuFour, & Eaker, 2008, p. 183), is identified by Katy ISD as an assessment issue (Clark, 2008a). DuFour's third question, "How will we respond when some of our students do not learn?" (DuFour, DuFour, & Eaker, 2008, p. 184) and the fourth question, "How will we enrich and extend the learning for students who are already proficient?" (DuFour, DuFour, & Eaker, 2008, p. 184) is addressed by Katy ISD as a learning strategy, learning activity, teaching resource or classroom structure issue (Clark, 2008a).

The PLC concepts reiterate research based best practices on collaborative teams (Little, 1990), a quality curriculum (Marzano, 2003), frequent monitoring of student learning (Lezotte, 1997), formative assessments (Reeves, 2006) and high achievement expectations for students (Brophy & Good, 2002). The Professional Learning Community practices by educators have been noted as providing overall school improvement for students (Newmann, 1996; Louis & Marks, 1998; McLaughlin & Talbert, 2001; Darling-Hammond, 2001; Fullan, 2001; Schmoker, 2005; Sparks, 2005; Reeves, 2006). These concepts promoted by Rick DuFour heavily influenced the curriculum work done in Katy ISD (Clark, 2008a).

Katy Management of Automated Curriculum (KMAC) Components

Katy Management of Automated Curriculum (KMAC) components in the networked technology curriculum management system available for teachers in

composing their lesson plans include objectives, resources, strategies, assessments, structures, clarifiers and a scope and sequence with six-week pacing guides as illustrated in Figure 14. These components in KMAC are necessary for the completion of an individual lesson plan and are available from a drop down list; the item is chosen by clicking next to the component. Teachers may create new lessons for private use or shared use or they may use lessons in the lesson bank which were previously created and posted by Katy ISD teachers (Pollard, 2007). The KMAC as a process discipline has established control over the curriculum and its components, however, it does not constrain the individual teacher (Kanter, 1997) in the process of planning for learning, delivery of instruction, and evaluation of student learning (Pollard, 2007).

Katy Management of Automated Curriculum (KMAC) *Components*		
Objectives	Resources	Assessments
Six-Week Pacing Guides	Strategies	Clarifiers
	Structures	

Figure 14: Components which comprise KMAC *(Adapted from Resources for Learning, 2009).*

Objectives

The KMAC objectives are the student competencies and skills which are expected of the students to demonstrate mastery of a discipline or course (Clark, 2008a,

April). The teacher must identify the online lesson objectives which are broken down into standards, goals and objectives to be used in the particular lesson. KMAC keeps track of the objectives which a teacher has previously chosen, therefore, it is easier to know which objectives still need to be included in future lessons. Standards are broad categories or strands that are consistent through a content area in grades PreK-12 which identify the big idea of the subject mater. Goals describe or break down standards and are consistent in grades PK-12. Objectives are statements of student performances to be taught, tested and reported (Pollard, 2007).

Six Week Pacing

Six week pacing guides are available online to the teachers to facilitate planning. In creating the teaching pacing guides, teams of Katy ISD teachers from elementary through high school worked within each content area to provide valuable input into the curriculum development process. This well articulated and sequenced curriculum is aligned to the Texas Essential Knowledge and Skills and is presented in six-week blocks of instruction to guide the teachers in pacing instruction (Rivero, 2006).

Resources

Resources are all the materials used to support instruction (Clark, 2008b, April). Resources can be of a variety found within KMAC or the teacher may bring others for use in the classroom. As an example, the top ten resources used by teachers in the third

six weeks period in the Fall of 2005 at one junior high campus were textbooks from four publishers, CollegeEd Teacher's manual and Student Portfolio, United Streaming website, Links and Lessons website, a campus video, a publisher's activity book and the KMAC curriculum information document (Clark, 2005). The teacher may also suggest to the Curriculum Department additional resources which should be included in KMAC for use by all teachers (Clark, 2008a).

Strategies

Strategies as defined by Katy ISD are the "techniques or tools that students use to process information that can be applied to any learning situation" (Clark, 2008b, April, p.17). Student learning strategies are emphasized over teaching strategies since these learning strategies focus on student acquisition of the skills to master the content and make personal applications to the content. It is these strategies which help the learner organize thoughts and information into patterns of ideas which are meaningful (Strong, Silver, Perini, 2001). Student learning and thinking are more important than the specific strategy used. Strategies should be used which have a greater probability of increasing or enhancing student achievement (Marzano, Pickering, Pollock, 2001) and should match the students and the specific learning goals (Buehl, 2001).

This idea of learning strategies is at the heart of what Katy ISD refers to as planning for learning vs. planning for teaching. The Katy ISD Curriculum department put as much information into KMAC as possible to help teachers learn to teach better. One of the tools integrated into the KMAC system is a list of teaching, learning and

lesson reinforcing strategies which teachers must identify for each lesson posted (Clark, 2008a). Learning strategies are techniques taught to students that they can use for processing and analyzing information (Clark, 2008a; Buehl, 2001). These classroom strategies help with interactive learning. There is considerable staff development offered throughout the district to train teachers in these strategies which leads to a common language and pedagogical understanding among the Katy faculty. Strategies which have been included in district-wide staff development are marked as such in the online KMAC list for easy identification by the teachers. Many of the Project CRISS strategies for teaching are incorporated in KMAC (Clark, 2008a).

The top ten strategies used by teachers in the third six weeks period in the Fall of 2005 at one junior high campus for Social Studies were "Content Frames, Compare and Contrast, Two Column Notes, Focused Practice, Annotated Illustrations Timelines Maps, T Chart, Foldables, Role Playing/Simulation, One Sentence Summary and Say Something" (Clark, 2005, p. 36). An example of classroom strategies suggested for use in one particular content area and course description are: "3 Levels of Questioning, 4 Question Inference, Anticipation Guide, APPARTS, Background Information Conclusion BIC, Categorization Strategy I, Categorization Strategy II, Cause and Effect, Character Maps, Character Quotes, Compare and Contrast, Concept Definition Maps, Content Frames, Cornell Note Making, Developing a Thesis Statement" (Clark, 2005, p. 22).

Katy teachers and administrators use a common language when discussing strategies. Think-Pair-Share and Two-Column notes are two examples of strategies

frequently referenced among Katy educators. Think-Pair-Share refers to a discussion strategy which encourages participation from every student. In this strategy, the teacher suggests a topic or asks a question. The student then thinks about the subject and writes down what he/she knows about the topic. Afterwards, the student joins with another student or small group of students to share their comments. Whole group discussion follows on the topic with the teacher directing conversations regarding what the students knew before and what they learned from their partners and whether any misunderstandings were clarified (Santa et al., 2004; Strong, Silver, Perini, 2001). This technique is powerful in generating high student engagement in the topic and encouraging interest in learning more. Two-Column notes is a strategy which is suggested in KMAC, taught to teachers in staff development and highly recommended for student use in the classroom for deeper analysis of topics at present and for development of life skills and college preparation for the future. Two-Column notes can be used for low level and high level thinking and can be adapted for analyzing problems, developing opinions and supporting ideas for persuasive papers or for the improvement of process skills in subject areas (Santa et al., 2004; Strong, Silver, Perini, 2001). Two-column notes can be used for "(1) Main Idea-Detail notes, (2) Conclusion-Support, (3) Problem-Solution, and (4) Process Notes" (Santa et al., 2004, p. 118). To utilize this strategy, students draw a vertical line down their papers, thus creating two columns. In one strategy, the left column is used for main ideas and the right column for detail notes. In another strategy, the left column is used for listing the topic conclusions and the right column is used to list the supporting details for each conclusion (Santa et al., 2004).

Problem-solution notes can be used for discussion guides and note taking for class and reading assignments, as well as administrative use for discipline referrals as the students must determine the solutions to the problems addressed. The left column asks a question regarding the nature of the problem, the effects, the causes and the solutions. The right column provides a space for the student to give evidence or support to the question on the left. Process notes are especially helpful in mathematics or science for breaking down the word problems into smaller steps which can more easily be understood. Another use of the process notes is to list the procedures of an experiment on the left and the answers and observations on the right (Santa et al., 2004). These strategies are a few of the many examples listed in KMAC suggested for teacher use. The KMAC framework is then supported as the strategies are taught in district provided staff development (Clark, 2008a).

Structures

Structures in the Katy ISD terminology are the "[w]ays that a teacher organizes the classroom to maximize student engagement and interaction for the purpose of enhancing learning" (Clark, 2008b, April, p. 17). These structures are used by teachers for classroom or lesson organization for content presentation and lesson practice. Structures which have been included in district-wide staff development are marked in the list. The top classroom structures in use in the third six weeks of Fall 2005 at one junior high campus in Katy ISD are "Whole Class Instruction, Interactive Lecture, Demonstration/Modeling, Cooperative Group, Guided Reading, Peer Evaluation,

Student Presentation, Carousel Brainstorming and Small Group Instruction" (Clark, 2005, p. 38). An example of classroom structures suggested for use in one particular content area and course description are "Carousel Brainstorming, Computer Lab, Conferencing, Cooperative Group, Debate, Demonstration/Modeling, Exhibition, Field Trip, Gallery Walk, Guided Reading, Inquiry, Interactive Lecture, Jigsaw, Peer Evaluation, Small Group Instruction, Ticket Out, Walk-About Review, and Whole Class Instruction" (Clark, 2005, p. 23). The jigsaw model divides the students into small groups which examine a subject through a particular process, for instance using the Gardner (1983) Multiple Intelligences, then the individuals in each group join their own team and present their findings (Strong, Silver, Perini, 2001). "Procedures and processes (activities) *are steps* that are taken to ensure that what has been planned in terms of structures and strategies occur in an efficient and effective manner" (Pollard, 2007, p. 17).

Assessments

Assessments of student learning are integral pieces of the educational process. Katy ISD uses both "[f]ormative and summative measures to evaluate student learning" (Clark, 2008b, April, p. 17). Strong, Silver and Perini (2001) emphasize the importance of responsible assessments which are evaluative, reflective and supported. The evaluation portion of an assessment is similar to a ladder in that it is a gauge of a student's academic progress. The reflective nature of an assessment is likened to a window to understand the students' thinking, interests and multiple intelligences and the

supportive nature of an assessment allows the teacher to continue to coach the student to successful mastery of the material. Assessment is ultimately used as a tool for refinement and extension of the learning (Pollard, 2007).

Evaluation of student learning ideas is termed as assessments in the KMAC system. The Core Objective Tests (COTS) for math, science, and social studies are used to measure student progress and are based on the TAKS test. These COTS are written by curriculum specialists with input from teachers. The ELA Curriculum Specialists write specialized assessments for the ELA curriculum (Resources for Learning, LLC, 2009).

The top assessment types used by teachers in the third six weeks period in the Fall of 2005 at a particular elementary school, were "Teacher Observation, Lab Report, Journal, Product, and Retellings" (Clark, 2005, p. 39). An additional tool available for teacher creation of course assessments is Webccat, an online tool with 30,000 assessment items. Katy ISD has contracted with the Region 10 Education Service Center for this assessment service. Teachers may create an account with Webccat and are then able to create assessments aligned to specific TEKS, passages or graphics. The assessment items are in various formats, i.e. short answer, multiple choice, performance task, or open-ended, and are of varying levels of difficulty and cognitive ability, aligned with Bloom's taxonomy. Webccat keeps track of assessment items previously used. Alternative forms of the same test may be created to allow for individual student accommodations or multiple periods of the same course. Teachers are able to create tests for their courses and print copies for their students. The assessments are then held in a

bank for shared use by all Katy ISD teachers. (Katy ISD, *Creating aligned assessments using webccat,* 2007).

Clarifiers

Clarifiers are a special addition to KMAC as sample assessment items designed to illustrate the depth to which an objective needs to be taught. Clarifiers within KMAC are not intended to be a test bank of questions, but rather a guide for the teachers in planning to help them understand the depth and complexity of the concept the student must grasp. A mathematics example of clarifiers for a particular problem lists questions for calculating volume, surface area, cost of materials, selling price and reasoning for the proposed selling price (Clark, 2005).

Summary

The Katy ISD has developed the systematic and automated approach to managing the curriculum development, lesson preparation for planning to learn, delivery of instruction and the assessment of student learning. The CMAC includes KMS, KMAC and ADCON. This learning system includes a common language shared among teachers and administrators, common assessments, a highly developed professional development system and management tools for both the teachers and administrators (Resources for Learning, LLC, 2009).

Summary of Literature Review

In this "age of high publicly verifiable accountability" (Carter & Burger, 1994, p. 156), America's schools desire to provide a level of expertise such that nearly every child can attain a high-quality academic education (Schlechty, 2001). Accountability and standards continue to be the focus for school improvement for student achievement (Ingram, Louis, Schroeder, 2004). Due to the standards movement and the state accountability system utilizing the Texas Assessment of Knowledge and Skills (TAKS) test, student mastery of the required curriculum is now a central focus of school districts (Texas Education Agency (T.E.A.), Accountability, (n.d.); Carter & Burger, 1994; Schlechty, 2002). Katy ISD sought "to implement the curriculum management audit standards and to develop a process whereby a coherent system for curriculum design and delivery existed" (Clark, 2005, p. 3) in order to attain excellence in student learning. The Katy ISD mission statement emphasizes that KISD "seeks academic excellence for each student to pursue a productive and fulfilling life through a balanced curriculum aligned with quality instruction and assessment of achievement" (Resources for Learning, LLC, 2009).

This study seeks to determine whether the use of the Katy Management of Automated Curriculum **(**KMAC) has a positive impact on teachers' planning for learning, delivery of instruction and evaluation of student learning. There is no current research, however, that this effort on the part of the district has positively impacted planning for learning, delivery of instruction or evaluation of student learning. The goal

is that a systematic, serious use of KMAC by concerned professionals will change/refine teacher practice in the area of planning for learning, delivery of instruction and evaluation of student learning.

The review of literature included a discussion of the national educational standards movement and the accountability system under which Texas school systems now operate. Also included in the review of literature are the learning philosophies and instructional practice which guided the work of the curriculum process in Katy ISD including curriculum alignment and the curriculum management audit and how the curricular system addresses planning for learning, delivery of instruction and evaluation of student learning. A discussion of Katy ISD's growth challenges, educational goals and curriculum alignment philosophy is included. A review of various curriculum management systems which were available for use and consideration as a solution for the district were investigated. And an in-depth discussion of the Katy Management of Automated Curriculum (KMAC) and its components were also included in the review of literature.

CHAPTER III

METHODOLOGY

Purpose

This study was designed to determine how teachers in Katy Independent School District (Katy ISD) in Katy, TX perceive the Katy Management of Automated Curriculum (KMAC), a customized networked technology management system for online access to curriculum. Specifically, the study was designed to determine whether the use of KMAC has a positive impact on teachers' planning for learning, delivery of instruction and evaluation of student learning as perceived by the teachers of Katy ISD. Additionally, using demographic data, the study determined whether there were differences among elementary, junior high and high school teachers and among teachers and teacher leaders in their perceived impact of the KMAC on planning for learning, delivery of instruction and evaluation of student learning.

Chapter III is organized into five sections. Section one describes the population to be studied and the research meetings with Katy ISD. Section two describes the survey instrumentation used including the field testing of the survey instrument. Section three describes the procedures used in the administration of the survey. Section four describes the statistical analysis of the data. Section five is a summary of the chapter.

The following research questions guided the study:

1. What are the perceptions of the teachers in Katy ISD of the relationship between the Katy Management of Automated Curriculum and planning for learning?
2. What are the perceptions of the teachers in Katy ISD of the relationship between the Katy Management of Automated Curriculum and delivery of instruction?
3. What are the perceptions of the teachers in Katy ISD of the relationship between the Katy Management of Automated Curriculum and evaluation of student learning?
4. Are there differences between/among teacher leaders and teacher non-leaders and between/among elementary, junior high and high school teachers in their perceptions of the KMAC on planning for learning, delivery of instruction and evaluation of student learning?

Research Population

Katy ISD Teacher Demographics

In the 2007-08 school year, the Texas Education Agency Academic Excellence Indicator System (AEIS) (Texas Education Agency (T.E.A.), 2008) reported a Katy ISD teaching staff of 3,669 with the percentage of male to female at 18.5% to 81.5% as indicated in Table 1. 84.7% of the teachers in the district were white and 15.3% were minority as indicated in Table 2.

Table 1. Katy ISD Teachers by Sex

Teachers by Sex	N	%
Males	679.2	18.5%
Females	2990.6	81.5%

(T.E.A, 2008)

Table 2. Katy ISD Teachers by Ethnicity

Teachers by Ethnicity	N	%
African American	155.0	4.2%
Hispanic	330.9	9.0%
White	3109.9	84.7%
Native American	9.0	0.2%
Asian/Pacific Islander	65.0	1.8%

(T.E.A, 2008)

Table 3 indicates the university degree breakdown of teachers in Katy ISD. The largest percentage of years of teaching experience is in the 1-5 year range with 29.4% and the second largest percentage of teaching experience is in the 11-20 year range at 26.2% as indicated in Table 4 (T.E.A, 2008).

Table 3. Katy ISD Teachers by Degree

Teachers by Highest Degree Held:	N	%
No Degree	11.0	0.3%
Bachelors	2844.6	77.5%
Masters	788.9	21.5%
Doctorate	25.3	0.7%

(T.E.A, 2008)

Table 4. Katy ISD Teachers by Experience

Teachers by Years of Experience	N	%
Beginning Teachers	0.3	7.1%
1-5 Years Experience	1078.1	29.4%
6-10 Years Experience	789.3	21.5%
11-20 Years Experience	961.0	26.2%
Over 20 Years Experience	579.6	15.8%

(T.E.A, 2008)

The population surveyed was elementary and secondary teachers in Katy ISD. Survey requests were sent electronically to all teachers in the district. The Texas Education Agency website reports the following campus profile information for Katy ISD for the year 2005-2006, discounting the alternative campus numbers, as illustrated Table 5 below (Texas Education Agency (T.E.A.), 2006). The six comprehensive high schools report a teacher population of 920, representing approximately 30% of the total district teaching staff. The ten junior high schools report 701 teachers, representing approximately 22% of the district teaching staff and the twenty-six elementary schools report 1518 teachers, which approximates 48% of the district total teaching staff.

Given this district profile, the number of survey responses expected per Krejcie and Morgan (1970) would be 346, regardless of whether the state reported population of 3139 was used or the more current district figure of 3195. Of the 346 district teachers expected to respond per Krejcie and Morgan (1970), 104 teachers would be expected from the high schools, representing 30% of the population, 76 teachers would be expected from the junior high schools, representing 22% of the population, and 166

teachers would be expected from the elementary schools, representing 48% of the population. Historically, Katy ISD has a response rate of 25% for internal surveys as reported by district administrators. Using this percentage of return for the population of the more current total of 3195, the anticipated result would be approximately 798 responses. The total number of responses received was 797. Of those 797 responses, 635 participants completed the whole survey and 162 participants answered the demographic questions on page one of the survey but did not answer the KMAC questions on page two of the survey. Analyses were conducted using 635 respondents. The response breakdown by grade level taught is indicated in Table 5.

Table 5. Katy ISD Teacher Population Breakdown by Grade Level

	Elem (26)	Junior High (10)	High School (6)	N
Teacher population	48.4% (1518)	22.4% (701)	29.3% (920)	3139
Responses expected	166	76	104	346
Responses received	40.9% (260)	21.7% (138)	37.3% (237)	635

Adapted from T.E.A. (2006)

Katy ISD Meetings

Several meetings were held with this researcher and Katy ISD personnel to understand the KMAC product, its background for research and its purpose and current use. The initial formal meeting was held June 2005 with Dr. Clark and a Katy ISD technology committee at their monthly curriculum meeting. In September 2005, the researcher met with curriculum personnel to further understand the KMAC product, its use, purpose, and background ideology. On January 2, 2006 the researcher met with

Darla Pollard, curriculum personnel, regarding KMAC formation and background. Informal e-mail communication continued throughout 2006 with curriculum personnel. In April 2007, the researcher met with Dr. Clark and the district statistician regarding the Katy ISD administered teacher survey and its use as a basis for a formal survey. On June 8, 2007, the researcher met with a committee of curriculum personnel and with Steve Adams on June 27, 2007 and September 21, 2007 for further research. Formal CRISS training was attended at Katy ISD on October 9 and 10 and November 27, 2007 to better understand KMAC since CRISS strategies are an integral part of KMAC. CRISS professional development is provided by the district as a support for the framework which occurs in KMAC. The researcher met again with the curriculum team in July 2008 to gather additional background information on the formation and structure of KMAC. In February 2009, the researcher met with Dr. Clark and a curriculum team to review KMAC information.

Instrumentation

The data collection was done through an online survey to the whole district population of teachers. The survey investigated teacher perceptions regarding the relationship between the KMAC system and their planning for learning, their delivery of instruction and evaluation of student learning in the classroom (Appendix A). The survey is modified from the Katy ISD Professional Educators Survey, which was administered in January 2007 to gauge the effectiveness of several of the district's

programs for teachers (Appendix B). The original survey asked about several software programs available in the district and their usefulness in the educational process. The survey also inquired about the effective communication and responsiveness of each central office department and the professionals at each level on the campus. There were questions directly related to KMAC and its components and resources available for curriculum planning.

This researcher's modification of the January, 2007 Katy ISD Professional Educators Survey was based on the original structure, however with feedback from the Katy ISD survey administrators, the basic response area was adjusted not to include a non response, i.e. NA for "Not Applicable" and to provide only 4 answer choices instead of the original 5 answer choices. On the original survey with 5 answer choices and an NA, the administrators thought too many respondents opted for the 3 or the NA instead of giving a thoughtful response. Additionally, since this researcher's concern was specifically with the impact of KMAC in the classroom process of planning for learning, delivery of instruction and the evaluation of student learning and a comparison of the responses of teachers at the various levels, i.e. elementary, junior high and high school, and between the teachers as a whole and the teacher leaders, the survey was designed around these ideas.

Structure of the Survey

The survey was designed to measure the three issues of the Katy ISD teachers' perceptions of the relationship of the Katy Management of Automated Curriculum

(KMAC) system on their planning for learning, delivery of instruction and evaluation of student learning in the classroom. Each of these research questions was further subdivided into three sub-categories to determine (1) the perceived relationship with the teachers' thinking, (2) the change in behavior and (3) the classroom impact of KMAC as shown in Appendix D. The four research questions were to determine the impact of KMAC in the areas of (1) planning for learning, (2) delivery of instruction, (3) evaluation of student learning and (4) the impact of demographic differences among the teachers on their answers. The survey questions were intended to gauge three sub-categories within the areas of planning for learning, delivery of instruction and evaluation of student learning, i.e. 1) whether there was a change in thinking, impact on thinking, on the part of the teachers, 2) whether there was a change in teacher behavior, change in behavior, and 3) to gauge the impact on teacher behavior, classroom impact, in the areas of planning for learning, delivery of instruction and evaluation of student learning, making a total of nine areas of interest.

The demographics portion of the survey was taken from the January, 2007 Katy ISD Professional Educators Survey. Two demographic questions were added to the survey. One question added "Specialist" as an identifier, meaning a teacher who does not teach math, language arts, science or social studies. The second additional question was regarding whether the teacher is in a leadership position on campus, i.e. Department Chair, Team Leader, etc. to provide for analysis of the responses between teacher non-leaders and teacher leaders.

On the survey instrument (Appendix A), questions # 1-4 are taken directly from the original Katy ISD survey and questions # 9-23 are similar to the original survey. Questions # 1-8 were intended to gauge whether there was a change in thinking on the part of the teachers due to using KMAC. Questions # 9-23 are intended to gauge the impact of specific components of KMAC on planning for learning, delivery of instruction and evaluation of student learning. Questions # 24-32 are intended to gauge whether there was a change in behavior on the part of the teachers in the planning for learning, delivery of instruction and evaluation of student learning. Questions # 33-35 are intended to gauge the impact of the teachers' use of KMAC in the classroom. To understand teachers' perceptions of each of the areas (planning for learning, delivery of instruction and evaluation of student learning), survey questions focused on perceptions related to impact on teacher thinking, change in teacher behavior and classroom impact (Appendix D). The survey was developed to target the specific areas of interest to this study with prior field testing to validate the survey. Table 6 following illustrates the question breakdown on the survey.

Table 6. Number of Survey Items for Each Sub-variable

	Impact on Thinking	Change in Behavior	Classroom Impact	Total
Planning for Learning	5	3	6	14
Delivery of Instruction	2	3	6	11
Evaluation of Student learning	1	3	6	10

The appendices contain the documents used in conducting this research. Appendix A is a listing of the questions asked in an on-line survey format. Appendix B is the original January, 2007 Katy ISD Professional Educators Survey. Appendix C has each question of this study's survey labeled with the research question it addresses. Appendix D is a diagram of the survey questions that address each of the three research questions, broken down into the areas of the perceived impact on the teachers' thinking, the change in behavior and the classroom impact of KMAC. Appendix E is the e-mail message from the Assistant Superintendent's office to the campus secretaries requesting they send the survey to all teachers in order to maintain confidentiality. Appendix F is a copy of the e-mail message from the researcher to the campus secretaries, requesting that they forward a blind copy to the teachers requesting participation in the online survey. Appendix G is a copy of the reminder message to participate in the online survey from the researcher to the campus secretaries.

Survey

The administered survey investigated teacher perceptions regarding the relationship between the KMAC system and their planning for learning, their delivery of instruction and evaluation of student learning in the classroom (Appendix A). The data collection was done through an online survey to the whole district population of teachers in December 2007. The survey questions were intended to gauge three sub-categories within each of the categories of planning for learning, delivery of instruction and

evaluation of student learning, i.e. (1) whether there was a change in thinking, "impact on thinking," on the part of the teachers, (2) whether there was a change in teacher behavior, "change in behavior," and (3) to gauge the impact on teacher behavior, "classroom impact," making a total of nine categories of interest.

Research Question Analysis

Table 7 demonstrates the number of survey questions for each of the aspects of the main research questions as illustrated in Appendix D. For each of the three main research questions, the survey questions were intended to gauge KMAC's impact on thinking of the teacher, whether there was a change in behavior of the teacher and the perceived classroom impact of KMAC in each of the categories of planning for learning, the delivery of instruction and the evaluation of student learning.

As illustrated in Table 7 in the category of planning for learning, five questions dealt with the impact on the thinking of the teachers, three questions dealt with the change in behavior of the teachers and six questions dealt with the classroom impact of KMAC. For the delivery of instruction category, two questions dealt with the impact on thinking of the teachers, three questions dealt with the change in behavior of the teachers and six questions dealt with the classroom impact of KMAC. For the evaluation of student learning, one question dealt with the impact on thinking of the teachers, three questions dealt with the change in behavior of the teachers and six questions dealt with the classroom impact of KMAC.

Table 7. Number of Survey Questions for Each Sub-variable

Dependent Variable	Impact on Thinking	Change in Behavior	Classroom Impact	Total
Planning for Learning	5	3	6	14
Delivery of Instruction	2	3	6	11
Evaluation of Student learning	1	3	6	10

Table 8 contains a report of the descriptive statistics for each dependent variable's related independent sub-variables. The descriptive statistics include the item mean, the standard deviation and the reliability of the responses of the survey questions. Pearson correlation tests were run resulting in reliability coefficients for each of the research categories. The number of cases, number of items and alpha were used in determining reliability. It was found that correlations were significant at 0.01 (2-tailed). The reliability of the survey question groupings was high and the item means were relatively consistent within each question grouping.

Table 8. Standard Deviation and Reliability Factors Question Analysis for 635 Responses

Dependent Variable	Independent Sub-Variable	Item Mean	Std Deviation	Reliability
Planning for Learning	Thinking	2.76	0.77	0.89
	Behavior	2.85	0.87	0.89
	Impact	2.75	0.77	0.92
Delivery of Instruction	Thinking	2.74	0.82	0.76
	Behavior	2.60	0.86	0.93
	Impact	2.61	0.82	0.94
Evaluation of Learning	Thinking	2.46	0.93	-
	Behavior	2.50	0.86	0.95
	Impact	2.54	0.83	0.95

Table of sub-variable means, standard deviations and reliability.
(note: Evaluation of student learning/Thinking - 1 question only, so no reliability is reported).

Table 9 shows that within each main research question category, the effect scores of the sub-variables were highly correlated, i.e. the correlation numbers between the variables are high and homogenous.

Table 9. Correlations among the Sub-variables for the Main Research Categories

Dependent Variable	Independent Sub-Variable	Thinking	Behavior	Impact
Planning for Learning	Thinking	1.000		
	Behavior	.872	1.000	
	Impact	.895	.871	1.000
Delivery of Instruction				
	Thinking	1.000		
	Behavior	.810	1.000	
	Impact	.808	.900	1.000
Evaluation of Learning				
	Thinking	1.000		
	Behavior	.797	1.000	
	Impact	.795	.922	1.000

Notes: n = 635. All correlations are significant ($p < .05$).

Table 10 contains a report of the descriptive statistics for each of the main research categories. The table shows the reliability scores were high, indicating consistency among the individual survey questions for each of the dependent variable research categories.

Table 10. Mean and Standard Deviation Statistics for the Single Composite Dependent Variables

Dependent Variable	# Items	Item Mean	Std Deviation	Reliability
Planning for Learning	14	2.78	.76	0.96
Delivery of Instruction	11	2.63	.79	0.96
Evaluation of Learning	10	2.52	.82	0.97

Since Table 8 shows high reliability among the sub-variables of the main research questions, Table 9 shows the sub-variables as being highly correlated and Table 10 shows a high degree of reliability within each of the three main research questions, therefore single composite scores for each main research question category were created and analyzed.

Field Testing of the KMAC Survey

Survey questions on the modified survey were field tested on a select group of individuals per Isaac and Michael (1995). These individuals were contacted via their school e-mail addresses and requested to participate in the survey via Survey Monkey, an online survey company. After these initial results were analyzed for question authenticity and survey website response, the survey was modified as deemed necessary and administered again in the same manner to the identified population of teachers.

The personnel involved in the field test were comprised of two different groups of testers. The first group was comprised of Katy ISD personnel and the second group was not from Katy ISD. Five field testers were from Katy ISD, seven were from Spring Branch ISD, and two were from Dickinson ISD. The Katy ISD reviewers were non-teachers, who were involved with the creation or implementation of KMAC and would have specific concerns for the accuracy of the survey questions and how KMAC was presented. The non-Katy ISD reviewers were administrators, teachers, librarians or doctoral students. These individuals were included in the survey field test group to test

for readability of the questions, question sequence and to notate the time it took to take the survey. The Dickinson ISD group included one classroom teacher and one librarian.

Responses

The Katy ISD reviewers responded that the survey took only five minutes to complete, was easy to read and captured the essence of KMAC. The non-Katy ISD reviewers responded that the survey took them only 5 minutes to complete and was easy to understand. Based on some feedback, changes made were in language alignment in the survey. No substantive changes were made due to field testing.

Issues Arising From Field Testing

Issue #1:

The e-mail notice asked the teachers to participate and click on the embedded link if they wished to take the survey. Once at the survey website, there was a web memo to teachers, inviting them to participate and asking them if they agreed with the information regarding the survey, to take the survey by clicking "Next." In the field test, the first question was: 1. Do you agree to take this voluntary survey? [yes, no] It was discovered that two field testers chose "No," yet took the survey anyway. This last question was deleted from the survey given.

Issue #2:

Question 13 "Lesson Plan delivery ideas", should be reworded for "Delivery of instruction ideas" to be in alignment with the rest of the survey.

Issue #3:

A suggestion was made to include the qualifier "accurately" on questions 33-35, i.e. To what extent do your plans in KMAC **accurately** reflect how you plan for learning in the classroom?

Procedures - Quantitative Study

Survey Procedures

The research study survey was conducted district-wide in December 2007 with district contact through the Deputy Superintendent for Curriculum and Instruction and Assistant Superintendent for Curriculum, Staff Development, and Accountability in Katy ISD. The survey incorporated an online questionnaire available via the internet. The researcher input the questions onto Survey Monkey, the survey program, and monitored the results.

Survey participants were teachers from all campuses in Katy ISD. The district supplied the identified school secretaries' e-mail addresses and the access to the online survey program. The Assistant Superintendent notified the school principals that the survey would take place and asked for their participation. The survey administration began with notification from the Assistant Superintendent's office to the campus secretaries that the survey was approved by the school district, participation by the teachers was voluntary and the researcher's e-mail notification should be sent via e-mail

blind-copy to the teachers (Appendix E). The time frame for participation in the survey was a two week window from December 3, 2007 - December 14, 2007.

The researcher e-mailed the campus secretaries and asked the secretaries to contact the campus teachers via blind-copy e-mail and forward the researcher's letter of request for participation. The electronic invitation to participate in the online survey included an online cover letter (Appendix F) by the researcher explaining the purpose, process and timeline for the response to the study, how the data will be reported and guaranteeing anonymity of the respondents. The researcher thanked respondents in advance for their participation and a two week response window was requested. The researcher monitored the response totals throughout the two week window.

The researcher contacted a teacher at one school a week later to see if survey participation notification had been sent and found that the campus secretary was out ill and therefore e-mail notification to the staff had not occurred. The researcher contacted the Assistant Superintendent's office to find another person on that campus who could forward the notification. The researcher continued monitoring the response rate to the survey and found there were not enough completed surveys near the end of the two week window. The researcher then requested permission of the Assistant Superintendent to e-mail the campus secretaries a note to blind copy forward to the teachers a reminder message (Appendix G). The historical response rate for online surveys in Katy ISD is 25%, per Katy ISD administrators. Based on a teacher population of 3195 (Katy I.S.D., 2007b), 798 responses were anticipated.

The survey was turned off seven days later with 797 total responses. Of those responses, 635 participants completed the whole survey and 162 participants answered the demographic questions on page one of the survey but did not answer the KMAC questions on page two of the survey. The survey results were downloaded from Survey Monkey, the online survey company, in a comma separated value file (.csv) and imported into a statistical computer software program (SPSS) for data analysis.

Data Download

Survey data was downloaded from the website at the end of the administration window. Table 6 demonstrates the number of survey questions asked for each of the aspects of the main survey questions as illustrated in Appendix D. For each of the three main survey questions, the questions were intended to gauge KMAC's impact on thinking of the teacher, whether there was a change in behavior of the teacher and the perceived classroom impact of KMAC in each of the areas of planning for learning, the delivery of instruction and the evaluation of student learning.

As illustrated in Table 6, for planning for learning, five questions dealt with impact on the thinking of the teachers, three questions dealt with change in behavior of the teachers and six questions dealt with the classroom impact of KMAC. For the delivery of instruction category, two questions dealt with the impact on thinking of the teachers, three questions dealt with change in behavior of the teachers and six questions dealt with the classroom impact of KMAC. For the evaluation of learning, one question

dealt with the impact on thinking of the teachers, three questions dealt with change in behavior of the teachers and six questions dealt with the classroom impact of KMAC.

With the downloaded data from the spreadsheet, new variables were created in SPSS from the average of the survey question answers addressing the three research areas, i.e. the answers for all survey questions pertaining to planning for learning were averaged and put into a new variable (planlrn), the answers for all survey questions pertaining to delivery of instruction were averaged and put into a new variable (delinstr) and the answers for all survey questions pertaining to evaluation of student learning were averaged and put into a new variable (evalstln).

Data Analysis

The study allowed data analysis of survey responses of teachers' perceptions of the relationship of the KMAC system and their activities of planning for learning, delivery of instruction in the classroom and evaluation of student learning in the classroom. The data were exported from Survey Monkey, the online survey company, in a spreadsheet format. The spreadsheet was manipulated to fit the requirements of the Statistical Package for the Social Sciences (SPSS) statistical software program and imported into SPSS. Survey responses were grouped according to the research questions and categories were created for use in analysis. Data was analyzed with the use of a statistical computer software program using techniques for graphical and numerical analysis to test the working hypothesis.

Analysis of variance (ANOVA) was used to test for significant differences between and within groups for each variable. The significance level was set at 0.05 (p = .05) or 5%. The descriptive analysis includes standard deviation, mean scores, frequency and correlation. Reflection on the research content of the survey and use of expert professional colleagues were utilized for data interpretation. Descriptive statistics were used to describe patterns of behavior and inferential statistics helped to generalize the findings from the survey sample questions to the population (Rudestam and Newton, 2007).

Independent and Dependent Variables

The dependent variables are planning for learning, delivery of instruction and the evaluation of student learning. The dependent variables each had sub-variables to account for the impact on thinking, the change in behavior and the classroom impact of KMAC. The independent variables of teacher leader versus teacher non-leader and grade level taught (elementary, junior high and high school) were derived from the demographics portion of the survey.

Statistical tests were run on each of the 35 question responses and the independent sub-variables. Reliability tests were run on the independent sub-variables to determine whether there was a high enough correlation among the independent sub-variables to justify using single composite scores for each main research question dependent variable. Statistical techniques of the analysis of variance (ANOVA) and multivariate analysis (MANOVA) were utilized to test for significance of the results.

Post Hoc analysis tests were conducted using the Bonferroni Post Hoc test to determine significant impact of the independent demographic variables on the dependent variables of planning for learning, delivery of instruction and evaluation of student learning. The means were also analyzed using the 95% confidence intervals to determine interaction between the independent variables. Effect size (ETA) and power were also discussed relative to the means.

Summary

This study was conducted in December of 2007 in the Katy Independent School District in Katy, TX. The population consisted of the Katy ISD teachers. The online survey was administered with district permission and cooperation of district teachers. The purpose of the study was to determine the Katy ISD teachers' perception of the relationship of the Katy Management of Automated Curriculum system (KMAC) on their planning for learning, delivery of instruction and evaluation of student learning in the classroom.

Results from the analysis are discussed in detail in Chapter IV. Analysis of data followed statistical principles identified by Gall, Gall & Borg (2003). Major results and recommendations for further study are discussed in Chapter V.

CHAPTER IV

ANALYSIS AND EVALUATION

Chapter IV provides an analysis and evaluation of data collected in the research study. The purpose of the study was to determine Katy ISD teachers' perceptions of the relationship of the Katy Management of Automated Curriculum (KMAC) and their planning for learning, delivery of instruction and evaluation of student learning. Additionally, using demographic data, the study was to determine whether there were differences between/among teachers and teacher leaders and between/among elementary, junior high and high school teachers in their perceived impact of the KMAC on planning for learning, delivery of instruction and evaluation of student learning.

Research Questions

This chapter is the quantitative analysis of the survey data responses for the following research questions which have guided this study.

1. What are the perceptions of the teachers in Katy ISD of the relationship between the Katy Management of Automated Curriculum and planning for learning?
2. What are the perceptions of the teachers in Katy ISD of the relationship between the Katy Management of Automated Curriculum and delivery of instruction?

3. What are the perceptions of the teachers in Katy ISD of the relationship between the Katy Management of Automated Curriculum and evaluation of student learning?
4. Are there differences between/among teacher leaders and teacher non-leaders and between/among elementary, junior high and high school teachers and in their perceptions of the KMAC on planning for learning, delivery of instruction and evaluation of student learning?

This chapter also briefly explains the survey, data gathering and variables. Data analysis of reliability and correlation was conducted on the survey questions and appropriate single composite variable groupings were assigned. The data analysis section discusses the Katy ISD teachers' perceptions of the relationship of KMAC and the variables of planning for learning, delivery of instruction and evaluation of student learning using single composite scores. The demographic data section contains the analyses of the categories of planning for learning, delivery of instruction and evaluation of student learning each by group response, by sub-variable, then by individual question analysis. The demographic variables of teacher leader and grade level taught are analyzed as groups. The next section discusses the impact of the combination of the variables of teacher leaders and teacher non-leaders and grade level taught on the variables of planning for learning, delivery of instruction and evaluation of student learning. The chapter concludes with information gleaned from three unsolicited e-mail responses from teachers to the researcher.

Data Analysis - Single Composite Scores

This section contains the data analysis for the survey for the single composite scores. The first three research questions deal with the aspect of planning for learning, delivery of instruction and evaluation of student learning. The fourth question looks at the data for teacher leader versus teacher non- leader and for grade level taught.

Research Question One: Planning for Learning Category

What are the perceptions of the teachers in Katy ISD of the relationship between the Katy Management of Automated Curriculum and planning for learning?

Figure 15 contains a histogram indicating the answer spread for research question one of highly positive versus highly negative, with "1" being highly negative and "4" being highly positive. The label of "N = 635" indicates the number of people who responded to these questions. SPSS software was used to analyze the survey data using factor analysis which produced the results with kurtosis, skewness, 95% confidence intervals and the histograms. For the research category of planning for learning, the figure indicates a wide response rate with groupings around the mean of 2.78, as indicated in Table 11.

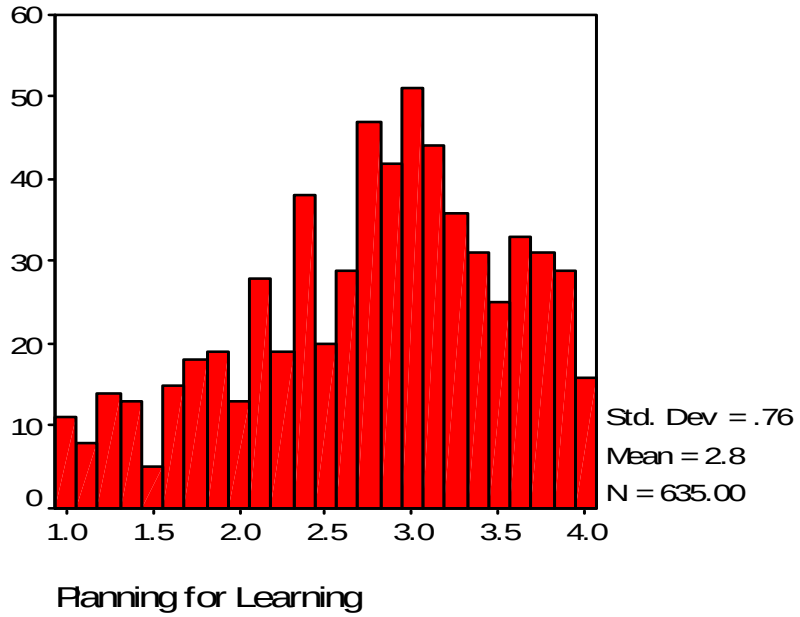

Figure 15: Histogram for planning for learning responses.

Table 11 contains a report of the descriptive statistics with skewness and kurtosis for research question one. Table 11 indicates a skewness of - 0.46, meaning more positive responses (scores above 2.5) than negative responses (scores below 2.5). The planning for learning category average of 2.78, indicates a relatively high degree of endorsement from the teachers. In the planning for learning category, the teachers were moderately positive in their perception of the benefits of KMAC.

Table 11. Descriptive Statistics with Skewness and Kurtosis for Research Question One

Source	N Statistic	Mean Statistic	Std. Dev. Statistic	Skewness Statistic	kurtosis Statistic
Planning for Learning	635	2.78	0.76	-0.46	-0.51

Research Question Two: Delivery of Instruction Category

What are the perceptions of the teachers in Katy ISD of the relationship between the Katy Management of Automated Curriculum and delivery of instruction?

Figure 16 contains a histogram indicating the answer spread for research question two of highly positive versus highly negative, with "1" being highly negative and "4" being highly positive. The label of "N = 635" indicates the number of people who responded to these questions. For the research category for delivery of instruction, the figure indicates a wide dispersion of responses around the mean of 2.63, as indicated in Table 12.

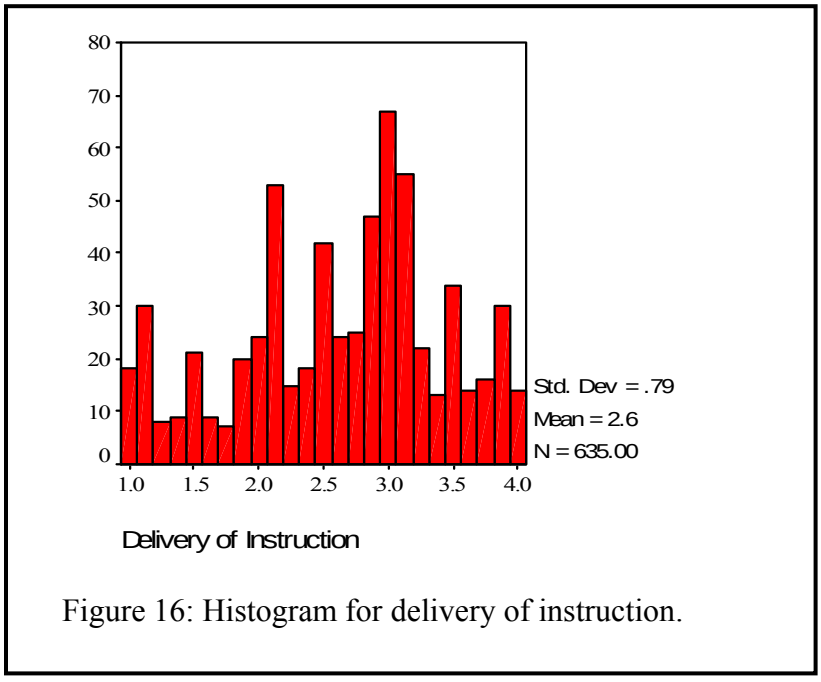

Figure 16: Histogram for delivery of instruction.

Table 12 contains a report of the descriptive statistics with skewness and kurtosis for research question two.

Table 12. Descriptive Statistics with Skewness and Kurtosis for Research Question Two

Source	N Statistic	Mean Statistic	Std. Dev. Statistic	Skewness Statistic	kurtosis Statistic
Delivery of Instruction	635	2.63	0.79	-0.36	-0.66

The delivery of instruction category mean ($\mu = 2.63$, $\sigma = 0.79$) is slightly lower than the mean reported for the planning for learning category ($\mu = 2.78$, $\sigma = 0.76$), but higher than the median of 2.50. Table 12 indicates skewness of - 0.36, meaning more positive responses than negative responses and a kurtosis of - 0.66 with wide data variability. In the category of delivery of instruction, the teachers were moderately positive in their perception of the benefits of KMAC.

Research Question Three: Evaluation of Student Learning Category

What are the perceptions of the teachers in Katy ISD of the relationship between the Katy Management of Automated Curriculum and the evaluation of student learning?

Figure 17 contains a histogram indicating the answer spread for research question three of highly positive versus highly negative, with “1” being highly negative and “4”

being highly positive. The label of "N = 635" indicates the number of people who responded to these questions. For the research category for evaluation of student learning, the figure indicates a wide response rate with groupings around the mean of 2.52, as indicated in Table 13.

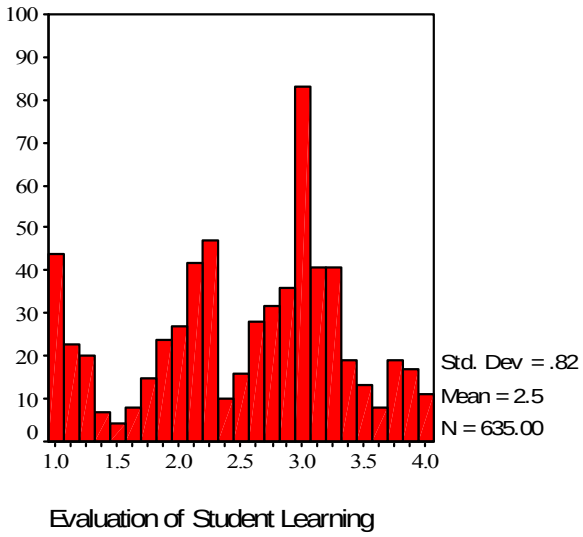

Figure 17: Histogram of evaluation of student learning.

Table 13 contains a report of the descriptive statistics with skewness and kurtosis for research question three. Table 13 indicates skewness of - 0.35, meaning more positive responses than negative responses. The kurtosis of - 0.73 indicates greater data variability and a flatter bell curve than that for the first two research questions.

Table 13. Descriptive Statistics with Skewness and Kurtosis for Research Question Three

Source	N Statistic	Mean Statistic	Std. Dev. Statistic	Skewness Statistic	kurtosis Statistic
Evaluation of Student Learning	635	2.52	0.82	-0.35	-0.73

For research question three dealing with the evaluation of student learning, the figure indicates a wide response rate with groupings around the mean ($\mu = 2.52$, $\sigma = 0.82$). The responses shown on the figure show less grouping with a greater spread of the data with a kurtosis of - 0.73 for the evaluation of student learning. The category of evaluation of student learning has the lowest mean of the three research categories. This category of evaluation of student learning also has the least negative skewness of the three research categories, meaning the greatest data spread with the least consistency among the answer groupings.

Teachers were most positive regarding KMAC's feature of planning for learning ($\mu = 2.78$, $\sigma = 0.76$) with a left skew of - 0.46, indicating more positive responses to the right of the figure, as indicated in Table 11 and Figure 15. The teachers were still positive with KMAC's relationship in the category of delivery of instruction ($\mu = 2.63$, $\sigma = 0.79$) and a left skew of - 0.36, as indicated in Table 12 and Figure 16. Table 13 indicates skewness of - 0.35, meaning more positive responses than negative responses and a kurtosis of - 0.73 indicating wide data variability with a flatter bell curve. The

teachers were least positive regarding KMAC's relationship in the category of evaluation of student learning ($\mu = 2.52$, $\sigma = 0.82$) with a left skew of - 0.35. These numbers indicate the teachers responded moderately, i.e. not highly positive nor highly negative, in their perceptions of the relationship between KMAC and the evaluation of student learning.

Analysis of Data Related to Research Questions

Demographic data from the teachers was collected on the survey. This data included whether the teachers were leaders on their campuses and grade level taught. Additional data collected included content area taught, the number of years of teaching experience and the number of years of teaching experience in Katy ISD. Research question four looked at data comparisons between and among the groups of teacher leaders and teacher non-leaders and between and among teachers by grade level taught. Each category of planning for learning, delivery of instruction and evaluation of student learning is discussed first with group responses, then by sub-variables and then with individual question analysis.

Research Question Four- Between/among - Teacher Leaders & Grade Level

Are there differences between/among teacher leaders and teacher non-leaders and between/among elementary, junior high and high school teachers in their perceptions of

the KMAC on planning for learning, delivery of instruction and evaluation of student learning?

Research Question One: Planning for Learning

Planning for Learning: Group Responses - Teacher Leaders / Teacher Non-leaders

Figure 18 contains the histograms indicating the survey responses in the category of planning for learning, disaggregated by campus leadership. The teacher leaders had a higher mean ($\mu = 2.89$, $\sigma = .749$) than the teacher non-leaders ($\mu = 2.73$, $\sigma = .757$) with statistical significance ($p = .025$), as indicated in Table 14. The answers for the teacher leaders appear to have more grouping of the answers to the right of the midpoint.

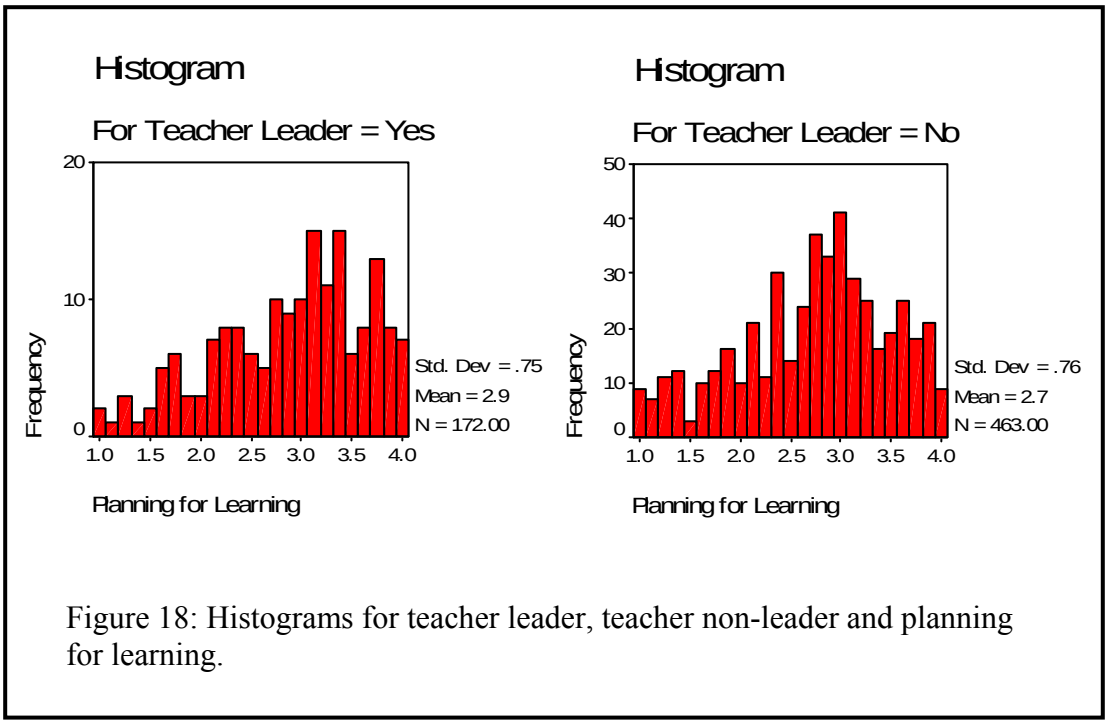

Figure 18: Histograms for teacher leader, teacher non-leader and planning for learning.

Table 14. Mean, Standard Deviation & ANOVA Statistics for Teacher Leader and Teacher Non-leader with Planning for Learning

Teacher Leader	Planning for Learning		
	Mean	**Std. Dev.**	**N**
Yes	2.89	.749	172
No	2.73	.757	463
Total	2.77	.757	635
F statistic	5.053		
Degrees of freedom	1/634		
P-value	.025*		

* Degrees of freedom (num/denom).
* Significant at the .05 level.

Figure 19 contains a box plot of responses of teacher leader vs. teacher non-leader in the category of planning for learning showing slightly more positive perceptions on the part of the teacher leaders.

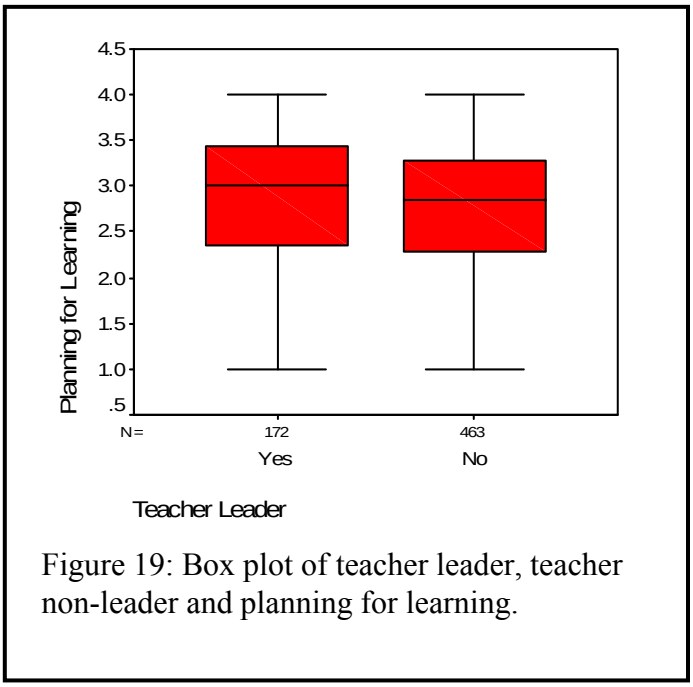

Figure 19: Box plot of teacher leader, teacher non-leader and planning for learning.

Table 15 contains the ANOVA for the variables of teacher leader and planning for learning. The teacher leaders perceived that KMAC had a statistically (p = .025) higher impact on planning for learning than the teacher non-leaders. However, with the small effect size (.008) less than .05, and the power (.612) less than .80, further analysis would need to be conducted to discern the underlying reasons for this difference in means between the teacher leader and teacher non-leader responses. It is noted that the members of the district Leaders of Learners group which meets regularly at the district administration building originally met to discuss KMAC implementation throughout the district and may have more training and more investment in the success of KMAC than other teachers.

Table 15. ANOVA of Teacher Leader and Planning for Learning

Source	Sum of Squares	df	Mean Square	F	Sig.	*eta*	Power
Between Groups	2.879	1	2.879	5.053	.025*	.008	.612
Within Groups	360.619	633	.570				
Total	363.497	634					

* Significant at the .05 level.

Planning for Learning: Sub-variables - Teacher Leader / Teacher Non-leader

Table 16 contains a report of the descriptive and ANOVA statistics of the sub-variables for the planning for learning category. The table is grouped by sub-variables and disaggregated by campus leadership designation. The answer choices for the survey were “1” highly negative, “2” moderately negative, “3” moderately positive, or “4”

highly positive. These answers are categorical ordinal items, not necessarily equal intervals. The responses were considered highly negative in the 1.0 to 1.5 range, moderately negative in the 1.5 to 2.5 range, moderately positive in the 2.5 to 3.5 range and highly positive in the 3.5 to 4.0 range.

Teacher leaders are those teachers who are subject area campus Department Chairpersons, Team Leaders among a grade level or subject area, a member of the district's Leaders of Learners (LOL) group or serve in other campus leadership areas. The following narrative discusses the teacher leader effect on the sub-variables of impact on thinking, change in behavior and classroom impact within the planning for learning category. Eta or effect size indicates a measure of strength of the association of the variables (Pierce, 2004) and will also be used in the analyses. Individual question analysis follows each sub-variable discussion.

Table 16. Planning for Learning Category Analysis with Mean, Standard Deviation, P-value, ETA and Power for Teacher Leader Vs. Teacher Non-leader Subdivided by Sub-variables of Impact on Thinking, Change in Behavior and Classroom Impact

Sub-Variable	Teacher Leader		Teacher Non-Leader				
	Mean	Std Dev	Mean	Std Dev	*p*	*eta*	Power
Impact on Thinking	2.87	.791	2.72	.758	.034*	.007	.566
Change in Behavior	2.96	.852	2.82	.864	.066	.005	.452
Classroom Impact	2.87	.735	2.70	.774	.018*	.009	.655

** Significant at the .05 level.*

Planning for Learning: Sub-variables - Teacher Leader / Teacher Non-leader - Impact on Thinking

Table 16 indicates that for the impact on thinking sub-variable, the teacher leaders were more positive ($\mu = 2.87$, $\sigma = .791$) than the teacher non-leaders ($\mu = 2.72$, $\sigma = .758$). The means for both groups were in the moderately positive range. However, even though the sub-variable of impact on thinking is statistically significant ($p = .034$), the effect size is small (*eta* = .007), indicating the variable of teacher leader by itself accounted for less than 1% of the overall variance.

Since the mean differences for the teacher leaders and the teacher non-leaders is statistically significant (p = .034), more analysis should be conducted to determine why the difference exists in their responses. The difference could be affected in part by the answers of the Leaders of Learners (LOL) within the teacher leaders group. This Leaders of Learners (LOL) group meets regularly throughout the school year and was originally focused on KMAC and its implementation in the classroom.

The narrative following Table 17 refers to the survey questions and their respective numbers found in the table.

Table 17. Katy ISD - KMAC Survey Questions

Survey Question #	Survey Question
	To what extent do you perceive that the KMAC has:
1	Helped you understand the scope and sequence of the curriculum you are responsible to teach
2	Made you aware of available curriculum resources
3	Made you aware of research based instructional structures and strategies
4	Encouraged collaborative planning (within your building and/or across the district
5	Provided you with delivery of instruction ideas
6	Provided you with evaluation of student performance ideas
7	Enabled you to plan for high student engagement
8	Enabled you to plan for mastery of content
	To what extent do you perceive the following components of KMAC positively impact planning for learning in your classroom?
9	Curriculum (standards, goals, resources, and objectives)
10	Strategies
11	Clarifiers
12	Student evaluation ideas
13	Delivery of instruction ideas
	To what extent do you perceive the following components of KMAC caused a change in the delivery of instruction in your classroom?
14	Curriculum (standards, goals, resources, and objectives)
15	Strategies
16	Clarifiers
17	Student evaluation ideas
18	Delivery of instruction ideas
	To what extent do you perceive the following components of KMAC caused a change in the evaluation of student learning in your classroom?
19	Curriculum (standards, goals, resources, and objectives)
20	Strategies
21	Clarifiers
22	Student evaluation ideas
23	Delivery of instruction ideas

(table continues)

Table 17. (Cont'd)	
Survey Question #	Survey Question
	To what degree has the KMAC impacted your:
24	Planning for Student Learning
25	Delivery of Instruction
26	Evaluation of Student Performance
27	Variability of delivery of instruction
28	Variability of student evaluation activities/methods
29	Ability to keep track of lesson objectives
30	Learning how to plan for student learning
31	Learning how to deliver instruction
32	Learning how to evaluate student learning
33	To what extent do your plans in KMAC accurately reflect how you plan for learning in the classroom?
34	To what extent do your plans in KMAC accurately reflect how you deliver instruction in the classroom?
35	To what extent do your plans in KMAC accurately reflect how you evaluate student learning in the classroom?

Planning for Learning: Question Analysis - Teacher Leader / Teacher Non-leader

Table 18 contains a report of descriptive and ANOVA statistics for the individual survey questions for the teacher leader designation for the planning for learning category, subdivided by the sub-variables of impact on thinking, change in behavior and classroom impact. For each question response for the planning for learning category, the teacher leaders had higher means and were slightly more positive than the teacher non-leaders. Eight of the 14 question responses were not statistically significant; however 6 of the 14 questions responses were statistically significant.

Table 18. Planning for Learning Individual Question Analysis with Mean, Standard Deviation, F Statistic and P-value for Teacher Leader Vs. Teacher Non-leader Subdivided by Sub-variables of Impact on Thinking, Change in Behavior and Classroom Impact

Sub-variable	Question #	Teacher Leader		Teacher Non-Leader		*a*	
		Mean	Std Dev	Mean	Std Dev	F statistic	*p*
Impact on Thinking	1	3.22	.836	3.03	.852	6.060	.014*
	2	3.01	.865	2.82	.861	6.285	.012*
	4	2.72	.988	2.59	.942	2.093	.148
	7	2.63	.974	2.53	.959	1.205	.273
	8	2.76	1.014	2.62	.956	2.299	.130
Change in Behavior	24	2.94	.968	2.77	.930	3.762	.053
	29	3.28	.889	3.10	.950	4.722	.030*
	30	2.65	.988	2.57	.964	.872	.351
Classroom Impact	9	3.28	.806	3.02	.871	12.506	.000*
	10	3.10	.866	2.88	.889	8.190	.004*
	11	2.63	.968	2.51	.935	1.966	.161
	12	2.55	.900	2.51	.907	.251	.617
	13	2.69	.963	2.58	.901	1.829	.177
	33	2.93	.915	2.73	.955	5.756	.017*

a: degrees of freedom = 2/(n-3)=2/(631).
** Significant at the .05 level.*

Planning for Learning: Individual Question Analysis - Teacher Leader / Teacher Non-Leader - Impact on Thinking

Table 18 contains the data for the individual question analysis for the impact on thinking sub-variable. Teacher leaders in question 1 were more positive in their responses ($\mu = 3.22$, $\sigma = .836$) compared to the teacher non-leaders ($\mu = 3.03$, $\sigma = .852$). The means for both groups are in the moderately positive range. The teacher leaders

perceived that KMAC had a statistically (p = .014) higher impact on understanding the scope and sequence of the curriculum than did the teacher non-leaders.

Teacher leaders in question 2 were more positive in their responses (μ = 3.01, σ = .865) compared to the teacher non-leaders (μ = 2.82, σ = .861). The means for both groups are in the moderately positive range. The teacher leaders perceived that KMAC had a statistically (p = .012) higher impact on making them aware of available curriculum resources than did the teacher non-leaders.

Planning for Learning: Sub-variables - Teacher Leader / Teacher Non-leader - Change in Behavior

For the change in behavior sub-variables in Table 16, the teacher leaders were more positive in their responses (μ = 2.96, σ = .852) than the teacher non-leaders (μ = 2.82, σ = .864). The means for both groups were in the moderately positive range. The differences were not statistically significant when evaluated categorically.

Planning for Learning: Individual Question Analysis - Teacher Leader / Teacher Non-leader - Change in Behavior

Table 18 contains the data for the individual question analysis for the change in behavior sub-variable. Teacher leaders in question 29 were more positive in their responses (μ = 3.28, σ = .889) compared to the teacher non-leaders (μ = 3.10, σ = .950) regarding KMAC impacting their ability to keep track of lesson objectives. The means for both groups are in the moderately positive range. The teacher leaders perceived that

KMAC had a statistically (p = .030) higher impact on their ability to keep track of lesson objectives than did the teacher non-leaders.

Planning for Learning: Sub-variables - Teacher Leader / Teacher Non-leader - Classroom Impact

For the classroom impact sub-variables in Table 16, the teacher leaders were more positive in their responses (μ = 2.87, σ = .735) compared to the teacher non-leaders (μ = 2.70, σ = .774). The means for both groups were in the moderately positive range. The teacher leaders perceived that KMAC had a statistically (p = .018) higher impact on classroom impact than did the teacher non-leaders. However, even though the sub-variable of classroom impact is statistically significant (p = .018), the effect size is small (*eta* = .009), indicating the variable of teacher leader by itself accounted for less than 1% of the overall variance.

Planning for Learning: Individual Question Analysis - Teacher Leader / Teacher Non-leader - Classroom Impact

Table 18 contains the data for the individual question analysis for the classroom impact sub-variable. Teacher leaders in question 9 were more positive in their responses (μ = 3.28, σ = .806) compared to the teacher non-leaders (μ = 3.02, σ = .871). The means for both groups are in the moderately positive range. The teacher leaders perceived that KMAC had a statistically (p = .000) higher impact on the classroom impact of the

curriculum components (standards, goals, resources, objectives) in the planning for learning category than did the teacher non-leaders.

Teacher leaders in question 10 were more positive in their responses ($\mu = 3.10$, $\sigma = .866$) compared to the teacher non-leaders ($\mu = 2.88$, $\sigma = .889$). The means for both groups are in the moderately positive range. The teacher leaders perceived that KMAC had a statistically ($p = .004$) higher impact on the classroom impact of the curriculum strategies in the planning for learning category than did the teacher non-leaders.

Teacher leaders in question 33 were more positive in their responses ($\mu = 2.93$, $\sigma = .915$) compared to the teacher non-leaders ($\mu = 2.73$, $\sigma = .955$). The means for both groups are in the moderately positive range. The teacher leaders perceived that KMAC had a statistically ($p = .017$) higher impact on the classroom impact of how their plans in KMAC accurately reflect how they plan for learning in the classroom than did the teacher non-leaders.

Summary - Planning for Learning - Teacher Leader / Teacher Non-leader

An analysis was performed on the teachers' perception of planning for learning in KMAC, treating it as a single composite score. Additional analyses were conducted on the sub-variables of the (1) impact on thinking, (2) change in behavior and (3) classroom impact of KMAC within the planning for learning category. Also, each individual question was analyzed within the planning for learning category.

As a single composite score, Table 15 shows the teacher leaders perceived that KMAC had a statistically higher ($p = .025$) impact on planning for learning, however the

effect size is small (*eta* = .008), indicating the variable of teacher leader by itself accounted for less than 1% of the overall variance. The analysis on the sub-variables in Table 16 indicates a significant difference in the area of the impact on thinking (p = .034) and classroom impact (p = .018) with the teacher leaders being more positive, however the effect size is small (*eta* = .007, *eta* = .009), indicating that less than 1% of the overall variance can be attributed to the teacher leader variable. For each individual survey question for the planning for learning category, the teacher leaders had higher mean responses than the teacher non-leaders, with 6 of the 14 questions indicating statistical significance. It is important to note that across all individual questions both teacher leaders and teacher non-leaders perceived that KMAC has a moderately positive impact on factors relating to impact on thinking, change in behavior and classroom impact in the planning for learning category. KMAC was not perceived by either teacher leaders or teacher non-leaders as having a highly positive impact on any of the factors. Questions were not asked of the teachers on their perceived ease of use of technology in general, or ease of use of KMAC specifically. A certain personal comfort level of the individuals with technology use may impact the teachers' perceptions of the benefits of KMAC use in their planning for learning. Some teachers may or may not feel comfortable with using technology in planning for learning and some may need more professional development to feel successful.

Planning for Learning: Group Responses - Grade Level

Figure 20 with the 95% confidence interval shows the means decreasing for each grade level for the variable planning for learning and that the confidence intervals do not overlap within the grade levels, indicating that grade level taught has an effect on the means. The data in Table 19 indicate this difference to be statistically significant (p = .000). The elementary teachers were more positive than the junior high or high school teachers and the high school teachers were less positive than the elementary or junior high teachers. More analysis would need to be conducted to determine why these differences exist. Possible reasons could include the collaborative nature of the subjects and grade level taught, administrative support or encouragement of the use of KMAC at the building level, a greater number of specialist/extra curricular teachers at the secondary level for whom KMAC curriculum is not yet in place or the lack of connection in the minds of the teachers regarding the framework in KMAC and the professional development offered in Katy ISD.

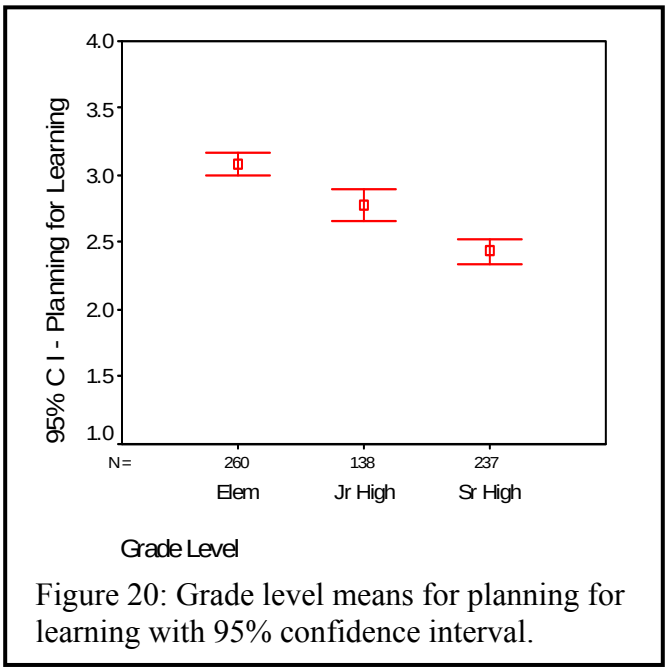

Figure 20: Grade level means for planning for learning with 95% confidence interval.

Table 19. Mean, Standard Deviation & ANOVA Statistics of Grade Level Teaching Assignment with Planning for Learning

Grade Level	Planning for Learning		N
	Mean	Std. Dev.	
Elementary	3.08	.662	260
Junior High	2.78	.698	138
Senior High	2.44	.747	237
Total	2.77	.757	635
F statistic	52.42		
Degrees of freedom	2/63		
p-value	.000		

* Degrees of freedom (num/denom).
*Significant at the .05 level.

Table 20 contains the Bonferroni Post Hoc test for the variables of grade level and planning for learning. There is a statistically significant difference (p = .000) between the grade level means of elementary and junior high, between elementary and high school and between junior high and high school in their responses. Grade level taught makes a significant impact on the teachers' perception of the impact of KMAC in the planning for learning category.

Table 20. Bonferroni Post Hoc Test for Grade Level & Planning for Learning

Multiple Comparisons

(I) GRLEVEL	(J) GRLEVEL	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Elem	Jr High	.2995	.07397	.000*	.1219	.4770
	Sr High	.6458	.06308	.000*	.4944	.7973
Jr High	Elem	-.2995	.07397	.000*	-.4770	-.1219
	Sr High	.3464	.07521	.000*	.1658	.5269
Sr High	Elem	-.6458	.06308	.000*	-.7973	-.4944
	Jr High	-.3464	.07521	.000*	-.5269	-.1658

* The mean difference is significant at the .05 level.

Planning for Learning: Sub-variables - Grade Level - Impact on Thinking

Table 21 contains a report of the descriptive and ANOVA statistics of the survey questions for the planning for learning category. The table is grouped by sub-variables, disaggregated by grade level taught. The following narrative discusses the grade level teaching assignment effect on the sub-variables of impact on thinking, change in behavior and classroom impact within the planning for learning category.

Table 21. Planning for Learning Category Analysis with Mean, Standard Deviation, P-value, ETA and Power for Grade Level Taught, Subdivided by Sub-variables of Impact on Thinking, Change in Behavior and Classroom Impact

Sub-Variables	Elementary		Junior High		High School				
	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	*p*	ETA	Power
Impact on Thinking	3.07	.672	2.76	.728	2.43	.754	.000*	.136	1.00
Change in Behavior	3.18	.754	2.90	.817	2.47	.847	.000*	.134	1.00
Classroom Impact	3.04	.687	2.74	.694	2.43	.763	.000*	.126	1.00

* *Significant at the .05 level.*

For the impact on thinking sub-variables, the elementary teachers were more positive in their responses ($\mu = 3.07$, $\sigma = .672$) than junior high teachers ($\mu = 2.76$, $\sigma = .728$), but the means for both groups were in the moderately positive range. The high school teachers were less positive ($\mu = 2.43$, $\sigma = .754$) with means in the moderately negative range. Grade level taught makes a significant impact ($p = .000$) on the teachers' perception of the impact on thinking regarding KMAC in the planning for learning category.

The effect size (*eta* = .136) indicates that approximately 14% of the variability in the means is attributed to grade level. Since power indicated in Table 21 is very high (1.00), we can be certain that a great deal of the differences in the mean is attributed to grade level taught. The Ryan-Einot-Gabrial-Welsch F^a post hoc tests in Appendix H indicate a significant difference in the response means between elementary and junior high, elementary and high school and between junior high and high school for the sub-variable of impact on thinking in the planning for learning category.

Planning for Learning: Sub-variables - Grade Level - Change in Behavior

For the change in behavior sub-variables in Table 21, the elementary teachers were more positive in their responses (μ = 3.18, σ = .754) than junior high teachers (μ = 2.90, σ = .817), with the means for both groups in the moderately positive range, indicating both groups were more positive in their responses than the high school teachers. The high school teachers were less positive (μ = 2.47, σ = .847) with means in the moderately negative range. Grade level taught makes a significant impact (p = .000) on the teachers' perception of the change in behavior regarding KMAC in the planning for learning category.

The effect size (*eta* = .134) indicates that approximately 13% of the variability in the means is attributed to grade level. Since power indicated in Table 21 is very high (1.00), we can be certain that a great deal of the differences in the mean is attributed to grade level taught. The Ryan-Einot-Gabrial-Welsch F^a post hoc tests in Appendix H indicate a significant difference in the response means between elementary and junior high, elementary and high school and between junior high and high school for the sub-variable of change in behavior in the planning for learning category.

Planning for Learning: Sub-variables - Grade Level - Classroom Impact

For the classroom impact sub-variables in Table 21, elementary teachers were more positive in their responses (μ = 3.04, σ = .687) than junior high teachers (μ = 2.74, σ = .694), with the means for both groups in the moderately positive range, indicating

both groups were more positive in their responses than the high school teachers. The high school teachers were less positive ($\mu = 2.43$, $\sigma = .763$) with means in the moderately negative range. Grade level taught makes a significant impact ($p = .000$) on the teachers' perception of the classroom impact regarding KMAC in the planning for learning category.

The effect size (eta = .126) indicates that approximately 13% of the variability in the means is attributed to grade level. Since power indicated in Table 21 is very high (1.00), we can be certain that a great deal of the differences in the mean is attributed to grade level taught. The Ryan-Einot-Gabrial-Welsch Fa post hoc tests in Appendix H indicates a significant difference in the response means between elementary and junior high, elementary and high school and between junior high and high school for the sub-variable of change in behavior in the planning for learning category.

For each sub-variable, the elementary teachers were more positive in their responses than the junior high or high school teachers with a moderately positive to highly positive response. For each sub-variable, the junior high teachers were more positive in their responses than the high school teachers with a moderately positive response. The high school teacher response means were in the moderately negative range.

Planning for Learning: Individual Question Analysis - Grade Level

Table 22 contains a report of descriptive and ANOVA statistics for the individual survey questions for the grade level taught for the planning for learning category,

subdivided by the sub-variables of impact on thinking, change in behavior and classroom impact. For each question response for the planning for learning category, all of the 14 question responses were statistically significant (p = .000).

Table 22. Planning for Learning Individual Question Analysis with Mean, Standard Deviation, F Statistic and P-value for Grade Level Taught, Subdivided by Sub-variables of Impact on Thinking, Change in Behavior and Classroom Impact

Sub-Variable	Question #	Elementary		Junior High		High School		*a*	
		Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	F statistic	*p*
Impact on Thinking	1	3.43	.674	3.04	.818	2.73	.898	47.292	.000*
	2	3.17	.733	2.90	.848	2.52	.886	39.226	.000*
	4	2.90	.926	2.59	.933	2.35	.920	22.015	.000*
	7	2.87	.881	2.55	.921	2.22	.962	31.266	.000*
	8	2.97	.887	2.69	.957	2.30	.957	31.887	.000*
Change in Behavior	24	3.13	.858	2.88	.900	2.44	.926	36.734	.000*
	29	3.48	.773	3.21	.883	2.76	.986	41.877	.000*
	30	2.93	.887	2.62	.931	2.20	.939	39.617	.000*
Classroom Impact	9	3.39	.735	3.11	.799	2.74	.900	39.557	.000*
	10	3.26	.762	2.91	.827	2.61	.926	37.672	.000*
	11	2.86	.845	2.55	.960	2.19	.916	35.172	.000*
	12	2.83	.819	2.49	.839	2.20	.915	33.998	.000*
	13	2.87	.860	2.57	.853	2.35	.943	21.220	.000*
	33	3.03	.871	2.83	.971	2.48	.932	23.229	.000*

a: degrees of freedom = 2/(n-3)=2/(631).
** Significant at the .05 level.*

Table 22 indicates for each question response, the elementary teachers, with moderately positive responses, perceived that KMAC had a higher impact on planning

for learning than the junior high and high school teachers. The junior high teachers, with moderately negative to moderately positive responses, perceived that KMAC had a higher impact on planning for learning than the high school teachers. The high school teachers had moderately negative to moderately positive responses with nine moderately negative response means and five moderately positive response means.

All grade level teachers were most positive with moderately positive responses (elem: $\mu = 3.48$, $\sigma = .773$, jr. high: $\mu = 3.21$, $\sigma = .883$, high school: $\mu = 2.76$, $\sigma = .986$) regarding KMAC impacting their ability to keep track of lesson objectives (question 29). Elementary teachers were more positive than junior high teachers and junior high teachers were more positive than high school teachers, with statistical significance between grade levels. The mean was the lowest for elementary and junior high concerning the student evaluation ideas in KMAC positively impacting planning for learning (question 12). The only moderately negative mean response from the junior high teachers ($\mu = 2.49$, $\sigma = .839$) was for question 12. More analysis should be done on student evaluation ideas to determine why the variability exists. Discussions with Katy ISD administrators indicate that the evaluation of student learning module was the last to be developed and is still in the developmental stages. This timeline of development could explain why the means dipped for question 12. High school teachers were least positive ($\mu = 2.19$, $\sigma = .916$) concerning the clarifiers in KMAC impacting their planning for learning (question 11).

Summary - Planning for Learning - Grade Level

An analysis was performed on the teachers' perception of the concept of the independent variable of planning for learning in KMAC disaggregated by grade level taught. This analysis was performed on the variable, treating it as a single composite score. Additional analysis was conducted on the sub-variables of the (1) impact on thinking, (2) change in behavior and (3) classroom impact of KMAC within the planning for learning category. Also, each individual question was analyzed within the planning for learning category.

As a single composite score, the elementary teachers were more positive than the junior high or high school teachers and the high school teachers were less positive than the elementary or junior high teachers. The analysis on the sub-variables in Table 21 indicates a significant difference (p = .000) in all grade levels taught on all sub-variables. Post hoc analysis (Appendix H) indicates significant differences (p = .000) between elementary and junior high, elementary and high school and between junior high and high school teachers. Individual question analysis indicates significant differences (p = .000) in grade level means for all 14 questions in the planning for learning category. Grade level taught makes a significant impact (p = .000) on the teachers' perceptions of the impact on KMAC in the planning for learning category.

Research Question Two: Delivery of Instruction

Delivery of Instruction: Group Responses - Teacher Leaders / Teacher Non-leaders

Figure 21 contains the histograms indicating the survey responses in the category of delivery of instruction, disaggregated by teacher leadership. The teacher leaders (μ = 2.76, σ = .784) were more positive than the teacher non-leaders (μ = 2.58, σ = .790) with statistical significance (p = .014), as indicated in Table 23. The answers for the teacher leaders appear to have more grouping of the answers to the right of the midpoint indicating more positive responses for the perceived benefits of KMAC in the category of delivery of instruction. However, the teacher non-leaders seem to have less consistency in their answers regarding the perceived benefits of KMAC.

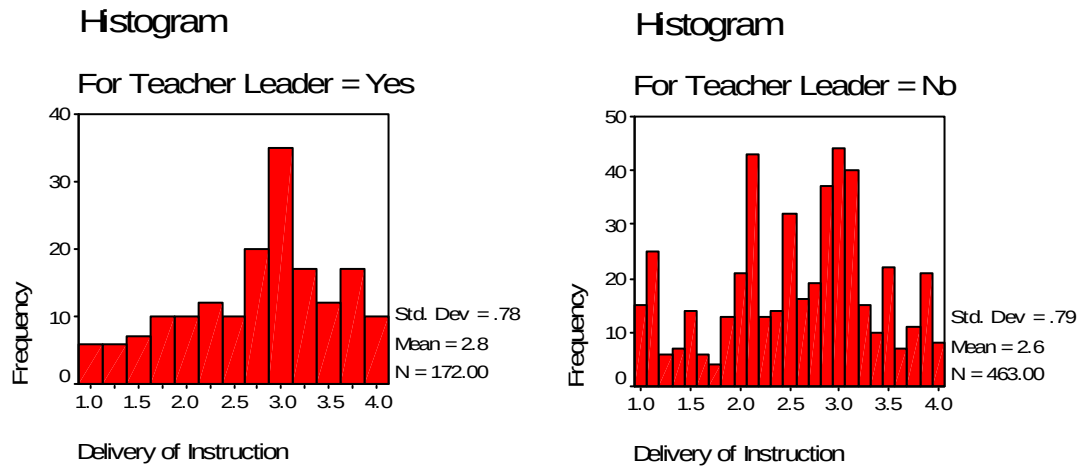

Figure 21: Histograms for teacher leader, teacher non-leader and delivery of instruction.

Table 23. Mean, Standard Deviation & ANOVA Statistics for Teacher Leader with Delivery of Instruction

Teacher Leader	Delivery of Instruction		N
	Mean	Std. Dev.	
Yes	2.76	.784	172
No	2.58	.790	463
Total	2.63	.791	635
F statistic	6.091		
Degrees of freedom	1/634		
p-value	.014*		

* Degrees of freedom (num/denom)
* Significant at the .05 level.

Figure 22 contains a box plot comparison of teacher leader versus teacher non-leader on delivery of instruction showing slightly more positive perceptions on the part of the teacher leaders.

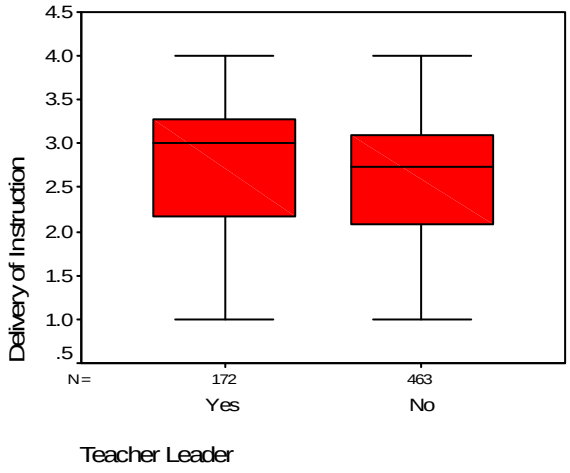

Figure 22: Box plot of teacher leader, teacher non-leader and delivery of instruction.

Table 24 contains the ANOVA for the variables of teacher leader and delivery of instruction. The teacher leaders perceived that KMAC had a statistically (p = .014) higher impact on delivery of instruction than the teacher non-leaders. However, with the small effect size (.010), less than .05 and the power (.693) less than .80, further analysis would need to be conducted to discern the underlying reasons for this response difference between the teacher leaders and the teacher non-leaders.

Table 24. ANOVA of Teacher Leader and Delivery of Instruction

Source	Sum of Squares	df	Mean Square	F	Sig.	ETA	Power
Between Groups	3.784	1	3.784	6.091	.014*	.010	.693
Within Groups	393.269	633	.621				
Total	397.053	634					

* Significant at the .05 level.

Delivery of Instruction: Sub-variables- Teacher Leader / Teacher Non-leader

Table 25 contains a report of the descriptive and ANOVA statistics of the sub-variables for the delivery of instruction category. The table is grouped by sub-variables and disaggregated by campus leadership designation. The answer choices for the survey were “1” highly negative, “2” moderately negative, “3” moderately positive, or “4” highly positive. These answers are categorical ordinal items, not necessarily equal intervals. The responses were considered highly negative in the 1.0 to 1.5 range, moderately negative in the 1.5 to 2.5 range, moderately positive in the 2.5 to 3.5 range and highly positive in the 3.5 to 4.0 range.

Teacher leaders are those teachers who are subject area campus Department Chairpersons, Team Leaders among a grade level or subject area, a member of the district's Leaders of Learners (LOL) group or serve in other campus leadership areas. The following narrative discusses the teacher leader effect on the sub-variables of impact on thinking, change in behavior and classroom impact within the delivery of instruction category. Eta or effect size indicates a measure of strength of the association of the variables (Pierce, 2004) and will also be used in the analyses. Individual question analysis follows each sub-variable discussion.

Delivery of Instruction: Sub-variables- Teacher Leader / Teacher Non-leader - Impact on Thinking

Table 25 indicates that for the impact on thinking sub-variable, the teacher leaders were more positive in their responses ($\mu = 2.84$, $\sigma = .820$) than the teacher non-leaders ($\mu = 2.70$, $\sigma = .817$). The means for both groups were in the moderately positive range. The sub-variable of impact on thinking is not statistically significant ($p = .063$) and the effect size is small (*eta* = .005), indicating the variable of teacher leader by itself accounted for less than 1% of the overall variance.

Table 25. Delivery of Instruction Category Analysis with Mean, Standard Deviation, P-value, ETA and Power for Teacher Leader Vs. Teacher Non-leader Subdivided by Sub-variables of Impact on Thinking, Change in Behavior and Classroom Impact

Sub-Variable	Teacher Leader		Teacher Non-Leader				
	Mean	**Std Dev**	**Mean**	**Std Dev**	***p***	**ETA**	**Power**
Impact on Thinking	2.84	.820	2.70	.817	.063	.005	.460
Change in Behavior	2.73	.865	2.55	.851	.021*	.008	.638
Classroom Impact	2.74	.801	2.56	.817	.011*	.010	.719

** Significant at the .05 level.*

Delivery of Instruction: Question Analysis - Teacher Leader / Teacher Non-leader

Table 26 contains a report of descriptive and ANOVA statistics for the individual survey questions for the teacher leader designation for the delivery of instruction category, subdivided by the sub-variables of impact on thinking, change in behavior and classroom impact. For each question response for the delivery of instruction category, the teacher leaders had higher means and were slightly more positive than the teacher non-leaders. Five of the 11 question responses were not statistically significant; however 6 of the 11 questions responses were statistically significant.

Delivery of Instruction: Individual Question Analysis - Teacher Leader / Teacher Non-leader - Impact on Thinking

Table 26 contains the data for the individual question analysis for the impact on thinking sub-variable. Although the teacher leaders were more positive than the teacher

non-leaders for the impact on thinking sub-variable, the differences were not statistically significant. Both groups were moderately positive in their responses.

Table 26. Delivery of Instruction Individual Question Analysis with Mean, Standard Deviation, F Statistic and P-value for Teacher Leader Vs. Teacher Non-leader, Subdivided by Sub-variables of Impact on Thinking, Change in Behavior and Classroom Impact

Sub-Variable	Question #	Teacher Leader		Teacher Non-Leader		*a*	
		Mean	Std Dev	Mean	Std Dev	F statistic	*p*
Impact on Thinking	3	2.98	.905	2.84	.871	3.021	.083
	5	2.70	.955	2.57	.932	2.613	.107
Change in Behavior	25	2.79	.932	2.60	.915	5.129	.024*
	27	2.87	.902	2.64	.927	8.026	.005*
	31	2.53	.964	2.42	.891	1.903	.168
Classroom Impact	14	2.90	.928	2.69	.898	6.599	.010*
	15	2.90	.953	2.68	.914	6.874	.009*
	16	2.57	.980	2.42	.908	3.311	.069
	17	2.49	.882	2.44	.892	.531	.466
	18	2.70	.936	2.51	.911	5.711	.017*
	34	2.87	.930	2.59	.994	10.214	.001*

a: degrees of freedom = 2/(n-3)=2/(634-3).
**Significant at the .05 level.*

Delivery of Instruction: Sub-variables - Teacher Leader / Teacher Non-leader - Change in Behavior

For the change in behavior sub-variables in Table 25, the teacher leaders were more positive in their responses ($\mu = 2.73$, $\sigma = .865$) than the teacher non-leaders ($\mu = 2.55$, $\sigma = .851$). The means for both groups were in the moderately positive range.

However, even though the sub-variable of change in behavior is statistically significant (p = .021), the effect size is small (*eta* = .008), indicating the variable of teacher leader by itself accounted for less than 1% of the overall variance.

Delivery of Instruction: Individual Question Analysis - Teacher Leader / Teacher Non-leader - Change in Behavior

Table 26 contains the data for the individual question analysis for the change in behavior sub-variable. Teacher leaders in question 25 were more positive in their responses (μ = 2.79, σ = .932) compared to the teacher non-leaders (μ = 2.60, σ = .915) regarding KMAC impacting a change in behavior. The means for both groups are in the moderately positive range. The teacher leaders perceived that KMAC had a statistically (p = .024) higher impact on their delivery of instruction than did the teacher non-leaders.

Teacher leaders in question 27 were more positive in their responses (μ = 2.87, σ = .902) compared to the teacher non-leaders (μ = 2.64, σ = .927) regarding KMAC's impacting a change in behavior. The means for both groups are in the moderately positive range. The teacher leaders perceived that KMAC had a statistically (p = .005) higher impact on their variability of delivery of instruction than did the teacher non-leaders. For the change in behavior sub-variable, question 31 found the teacher non-leaders as moderately negative regarding KMAC's impacting their learning how to deliver instruction. This difference between teacher groups was not found to be significant.

Delivery of Instruction: Sub-variables - Teacher Leader / Teacher Non-leader - Classroom Impact

For the change in behavior sub-variables in Table 25, the teacher leaders were more positive in their responses (μ = 2.74, σ = .801) than the teacher non-leaders (μ = 2.56, σ = .817). The means for both groups were in the moderately positive range. However, even though the sub-variable of classroom impact is statistically significant (*p* = .011), the effect size is small (*eta* = .010), indicating the variable of teacher leader by itself accounted for less than 1% of the overall variance.

Delivery of Instruction: Individual Question Analysis - Teacher Leader / Teacher Non-leader - Classroom Impact

Table 26 contains the data for the individual question analysis for the classroom impact sub-variable. Teacher leaders in question 14 were more positive in their responses (μ = 2.90, σ = .928) compared to the teacher non-leaders (μ = 2.69, σ = .898) regarding KMAC and its classroom impact. The means for both groups are in the moderately positive range. The teacher leaders perceived that KMAC had a statistically (*p* = .010) higher impact on the classroom impact of the curriculum components (standards, goals, resources, objectives) in the delivery of instruction category than did the teacher non-leaders.

Teacher leaders in question 15 were more positive in their responses (μ = 2.90, σ = .953) compared to the teacher non-leaders (μ = 2.68, σ = .914) regarding KMAC and its classroom impact. The means for both groups are in the moderately positive range.

The teacher leaders perceived that KMAC had a statistically (p = .009) higher impact on the classroom impact of the curriculum strategies in the delivery of instruction category than did the teacher non-leaders.

For question 17, both teacher leaders and (μ = 2.49, σ = .882) teacher non-leaders (μ = 2.44, σ = .892) perceived a moderately negative impact of KMAC on the student evaluation ideas impacting the delivery of instruction. Teacher leaders in question 18 were more positive in their responses (μ = 2.70, σ = .936) than the teacher non-leaders (μ = 2.51, σ = .911) regarding KMAC and its classroom impact. The means for both groups are in the moderately positive range. The teacher leaders perceived that the delivery of instruction ideas in KMAC had a statistically (p = .017) higher impact on their delivery of instruction than did the teacher non-leaders.

Teacher leaders in question 34 were more positive in their responses (μ = 2.87, σ = .930) compared to the teacher non-leaders (μ = 2.59, σ = .994) regarding KMAC and its classroom impact. The means for both groups are in the moderately positive range. The teacher leaders perceived that KMAC had a statistically (p = .001) higher impact on how their plans in KMAC accurately reflect the delivery of instruction in the classroom than did the teacher non-leaders. For the classroom impact sub-variable, the teacher non-leaders (μ = 2.42, σ = .908) were moderately negative on question 16 regarding KMAC clarifiers causing a change in the delivery of instruction. The difference between the groups was not statistically significant.

Summary - Delivery of Instruction - Teacher Leader / Teacher Non-leader

An analysis was performed on the teachers' perception of delivery of instruction in KMAC, treating it as a single composite score. Additional analyses were conducted on the sub-variables of the (1) impact on thinking, (2) change in behavior and (3) classroom impact of KMAC within the planning for learning category. Also, each individual question was analyzed within the delivery of instruction category.

As a single composite score, Table 24 shows the teacher leaders perceived that KMAC had a statistically higher (p = .014) impact on delivery of instruction. However the effect size is small (*eta* = .010), indicating the variable of teacher leader by itself accounted for less than 1% of the overall variance. The analysis on the sub-variables in Table 25 indicates a significant difference in the area of the change in behavior (p = .021) and classroom impact (p = .011) with the teacher leaders being more positive, however the effect size is small (*eta* = .008, *eta* = .010), indicating that less than 1% of the overall variance can be attributed to the teacher leader variable.

For each individual survey question for the delivery of instruction category, the teacher leaders were more positive than the teacher non-leaders, with 6 of the 11 questions indicating statistical significance as indicated in Table 26. For the individual questions, both teacher leaders and teacher non-leaders perceived that KMAC has a moderately positive impact on factors relating to impact on thinking. For all three questions for the sub-variable of change in behavior, the teacher leaders perceived KMAC more positively than teacher non-leaders, with statistical significance on two of the questions. For all six questions in the classroom impact sub-variable, the teacher

leaders perceived KMAC more positively than the teacher non-leaders, with statistical significance on four of the questions.

KMAC was not perceived by either teacher leaders or teacher non-leaders as having a highly positive impact on any of the factors. Questions were not asked of the teachers on their perceived ease of use of technology in general, or ease of use of KMAC specifically. A certain personal comfort level of the individuals with technology use may impact the teachers' perceptions of the benefits of KMAC use in their delivery of instruction. Some teachers may or may not feel comfortable with using technology in delivery of instruction and some may need more professional development to feel successful.

Delivery of Instruction: *Group Responses - Grade Level*

Figure 23 with the 95% confidence interval shows the means decreasing for each grade level for the variable delivery of instruction and that the confidence intervals do not overlap within the grade levels, indicating that grade level taught has an effect on the means. Table 27 shows a statistically significant difference (p = .000) in the means between the grade levels. The elementary teachers were more positive than the junior high or high school teachers and the high school teachers were less positive than the elementary or junior high teachers. More analysis would need to be done to determine why these differences exist. Possible reasons could include the collaborative nature of the subjects and grade level taught, administrative support or encouragement of the use of KMAC at the building level, a greater number of specialist/extra curricular teachers at

the secondary level for whom KMAC curriculum is not yet in place or the lack of connection in the minds of the teachers regarding the framework in KMAC and the professional development offered in Katy ISD.

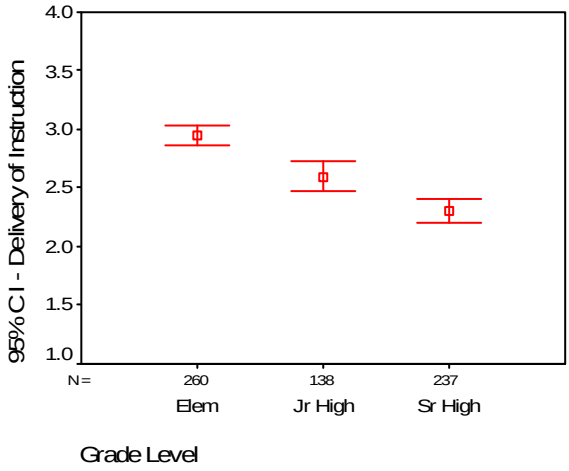

Figure 23: Grade level means for delivery of instruction with 95% confidence interval.

Table 27. Mean, Standard Deviation & ANOVA Statistics of Grade Level Teaching Assignment with Delivery of Instruction

Grade Level	Delivery of Instruction		N
	Mean	Std. Dev.	
Elementary	2.95	.69	260
Junior High	2.60	.768	138
Senior High	2.30	.770	237
Total	2.63	.791	635
F statistic	47.325		
Degrees of freedom	2/634		
P-value	.000		

* Degrees of freedom (num/denom).
* Significant at the .05 level.

Table 28 contains the Bonferroni Post Hoc test for the variables of grade level and delivery of instruction. There is a statistically significant difference (p = .000) between the grade level means of elementary and junior high, between elementary and high school and between junior high and high school in their responses. Grade level taught makes a significant impact in the teachers' perception of the impact of KMAC and the category of delivery of instruction.

Table 28. Bonferroni Post Hoc Test for Grade Level & Delivery of Instruction

Multiple Comparisons

(I) GRLEVEL	(J) GRLEVEL	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Elem	Jr High	.3473(*)	.07785	.000*	.1604	.5341
	Sr High	.6448(*)	.06639	.000*	.4854	.8041
Jr High	Elem	-.3473(*)	.07785	.000*	-.5341	-.1604
	Sr High	.2975(*)	.07915	.0018	.1075	.4875
Sr High	Elem	-.6448(*)	.06639	.000*	-.8041	-.4854
	Jr High	-.2975(*)	.07915	.001*	-.4875	-.1075

* The mean difference is significant at the .05 level.

Delivery of Instruction: Sub-variables - Grade Level - Impact on Thinking

Table 29 contains a report of the descriptive and ANOVA statistics of the survey questions for the delivery of instruction category. The table is grouped by sub-variables, disaggregated by grade level taught. The following narrative discusses the grade level teaching assignment effect on the sub-variables of impact on thinking, change in behavior and classroom impact within the delivery of instruction category.

For the impact on thinking sub-variables, the elementary teachers were more positive in their responses (μ = 3.05, σ = .682) than junior high teachers (μ = 2.70, σ =

.784), with the means for both groups in the moderately positive range. The high school teachers were less positive (μ = 2.43, σ = .855) with means in the moderately negative range. Grade level taught makes a significant impact (p = .000) on the teachers' perception of the impact on thinking regarding KMAC in the delivery of instruction category.

The effect size (*eta* = .114) indicates that approximately 11% of the variability in the means is attributed to grade level. Since power indicated in Table 29 is very high (1.00), we can be certain that a great deal of the differences in the mean is attributed to grade level taught. The Ryan-Einot-Gabrial-Welsch F[a] post hoc tests in Appendix I indicate a significant difference in the response means between elementary and junior high, elementary and high school and between junior high and high school for the sub-variable of impact on thinking in the delivery of instruction category.

Table 29. Delivery of Instruction Category Analysis with Mean, Standard Deviation, P-value, ETA and Power for Grade Level Taught, Subdivided by Sub-variables of Impact on Thinking, Change in Behavior and Classroom Impact

Sub-Variable	Elementary		Junior High		High School				
	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	*p*	ETA	Power
Impact on Thinking	3.05	.682	2.70	.784	2.43	.855	.000*	.114	1.00
Change in Behavior	2.90	.783	2.60	.815	2.28	.849	.000*	.101	1.00
Classroom Impact	2.93	.717	2.56	.795	2.27	.790	.000*	.131	1.00

** Significant at the .05 level.*

Delivery of Instruction: Sub-variables - Grade Level - Change in Behavior

For the change in behavior sub-variables in Table 29, the elementary teachers were more positive in their responses (μ = 2.90, σ = .783) than junior high teachers (μ =

2.60, σ = .815), with the means for both groups in the moderately positive range, indicating both groups were more positive in their responses than the high school teachers. The high school teachers were less positive (μ = 2.28, σ = .849) with means in the moderately negative range. Grade level taught makes a significant impact (p = .000) on the teachers' perception of the change in behavior regarding KMAC in the delivery of instruction category.

The effect size (*eta* = .101) indicates that approximately 10% of the variability in the means is attributed to grade level. Since power indicated in Table 29 is very high (1.00), we can be certain that a great deal of the differences in the mean is attributed to grade level taught. The Ryan-Einot-Gabrial-Welsch F[a] post hoc tests in Appendix I indicate a significant difference in the response means between elementary and junior high, elementary and high school and between junior high and high school for the sub-variable of change in behavior in the delivery of instruction category.

Delivery of Instruction: Sub-variables - Grade Level - Classroom Impact

For the classroom impact sub-variables in Table 29, elementary teachers were more positive in their responses (μ = 2.93, σ = .717) than junior high teachers (μ = 2.56, σ = .795), with the means for both groups in the moderately positive range, indicating both groups were more positive in their responses than the high school teachers. The high school teachers were less positive (μ = 2.27, σ = .790) with means in the moderately negative range. Grade level taught makes a significant impact (p = .000) on

the teachers' perception of the classroom impact regarding KMAC in the delivery of instruction category.

The effect size (*eta* = .131) indicates that approximately 13% of the variability in the means is attributed to grade level. Since power indicated in Table 29 is very high (1.00), we can be certain that a great deal of the differences in the mean is attributed to grade level taught. The Ryan-Einot-Gabrial-Welsch F[a] post hoc tests in Appendix I indicate a significant difference in the response means between elementary and junior high, elementary and high school and between junior high and high school for the sub-variable of change in behavior in the delivery of instruction category.

For each sub-variable, the elementary teachers were more positive in their responses than the junior high or high school teachers with moderately positive means. For each sub-variable, the junior high teachers were more positive in their responses than the high school teachers with moderately positive means. The high school teacher means were in the moderately negative range.

Delivery of Instruction: Individual Question Analysis - Grade Level

Table 30 contains a report of descriptive and ANOVA statistics for the individual survey questions for the grade level taught for the delivery of instruction category, subdivided by the sub-variables of impact on thinking, change in behavior and classroom impact. For each question response for the delivery of instruction category, all of the 14 question responses were statistically significant (p = .000).

Table 30. Delivery of Instruction Individual Question Analysis with Mean, Standard Deviation, F Statistic and P-value for Grade Level Taught, Subdivided by Sub-variables of Impact on Thinking, Change in Behavior and Classroom Impact

Sub-Variable	Question #	Elementary		Junior High		High School		*a*	
		Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	F statistic	*p*
Impact on Thinking	3	3.19	.715	2.79	.832	2.58	.960	33.723	.000*
	5	2.91	.824	2.61	.939	2.27	.949	31.276	.000*
Change in Behavior	25	2.95	.842	2.68	.871	2.31	.923	33.107	.000*
	27	3.01	.865	2.64	.878	2.40	.913	29.430	.000*
	31	2.73	.832	2.46	.889	2.13	.907	29.724	.000*
Classroom Impact	14	3.11	.783	2.70	.948	2.39	.869	44.398	.000*
	15	3.10	.812	2.64	.879	2.42	.947	38.217	.000*
	16	2.80	.852	2.44	.928	2.10	.877	38.819	.000*
	17	2.77	.785	2.40	.876	2.13	.885	36.298	.000*
	18	2.86	.828	2.53	.914	2.25	.922	29.160	.000*
	34	2.97	.900	2.68	.981	2.32	.964	29.792	.000*

a: degrees of freedom = 2/(n-3)=2/(634-3).

Table 30 indicates for each question response, the elementary teachers, with moderately positive responses, perceived that KMAC had a statistically higher impact on planning for learning than the junior high and high school teachers. The junior high teachers, with moderately negative to moderately positive responses perceived that KMAC had a statistically higher impact on delivery of instruction than the high school teachers. The high school teachers had ten moderately negative responses and one moderately positive response. The elementary teachers ($\mu = 2.73$, $\sigma = .832$) were least positive regarding KMAC impacting their learning how to deliver instruction (question 31). The junior high teachers ($\mu = 2.40$, $\sigma = .876$) were least positive regarding the student evaluation ideas in KMAC causing a change in the delivery of instruction (question 17) and the high school teachers ($\mu = 2.10$, $\sigma = .877$) were least positive

regarding the clarifiers in KMAC causing a change in the delivery of instruction (question 16). All grade levels were most positive regarding KMAC's making them aware of research based instructional structures and strategies (question 3).

Summary - Delivery of Instruction - Grade Level

An analysis was performed on the teachers' perception of the concept of the independent variable of delivery of instruction in KMAC disaggregated by grade level taught. This analysis was performed on the variable, treating it as a single composite score. Additional analysis was conducted on the sub-variables of the (1) impact on thinking, (2) change in behavior and (3) classroom impact of KMAC within the delivery of instruction category. Also, each individual question was analyzed within the delivery of instruction category.

As a single composite score, the elementary teachers were more positive than the junior high or high school teachers and the high school teachers were less positive than the elementary or junior high teachers. The analysis on the sub-variables in Table 29 indicates a significant difference ($p = .000$) in all grade levels taught on all sub-variables. Post hoc analysis (Appendix I) indicates significant differences ($p = .000$) between elementary and junior high, elementary and high school and between junior high and high school teachers. Individual question analysis indicates significant differences ($p = .000$) for all 11 questions in the delivery of instruction category. Grade level taught makes a significant impact ($p = .000$) on the teachers' perceptions of the impact on KMAC in the delivery of instruction category.

Research Question Three: Evaluation of Student Learning

Evaluation of Student Learning: Group Responses- Teacher Leaders / Teacher Non-leaders

Figure 24 contains the histograms indicating the survey responses in the category of evaluation of student learning, disaggregated by campus leadership. The teacher leaders ($\mu = 2.59$, $\sigma = .825$) were more positive than the teacher non-leaders ($\mu = 2.50$, $\sigma = .811$), but the difference is not statistically significant ($p = .183$) as indicated in Table 31. The means for the two groups are close; however, visually the response distributions indicate a great variety in their answers.

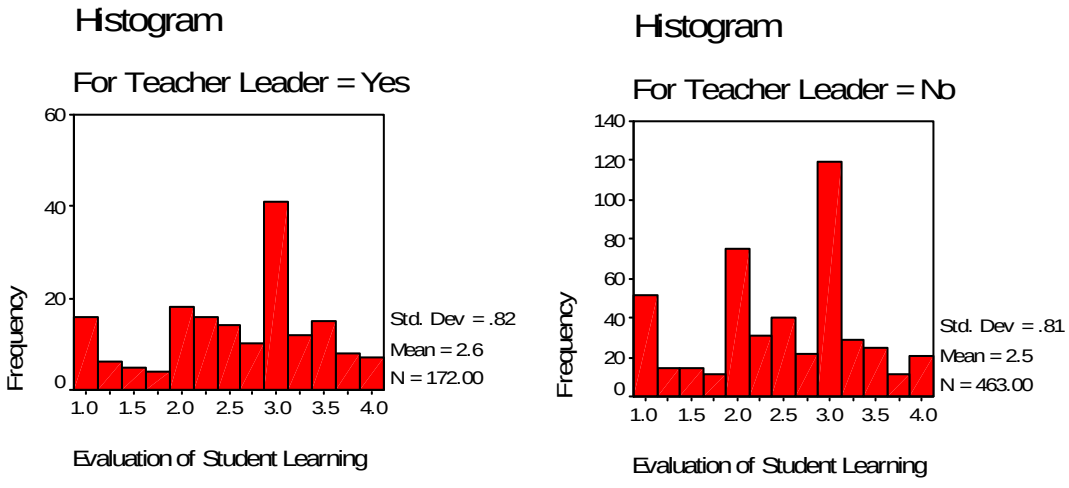

Figure 24: Histograms for teacher leader, teacher non-leader and evaluation of student learning.

Table 31. Mean, Standard Deviation & ANOVA Statistics for Teacher Leader with Evaluation of Student Learning.

Teacher Leader	Evaluation of Student Learning		
	Mean	**Std. Dev.**	**N**
Yes	2.59	.825	172
No	2.50	.811	463
Total	2.52	. 815	635
F statistic	1.777		
Degrees of freedom	1/634		
p-value	.183		

* Degrees of freedom (num/denom).
* Significant at the .05 level.

Figure 25 contains a box plot comparison of teacher leader vs. teacher non-leader showing the teacher leaders with a slightly more positive attitude toward evaluation of student learning.

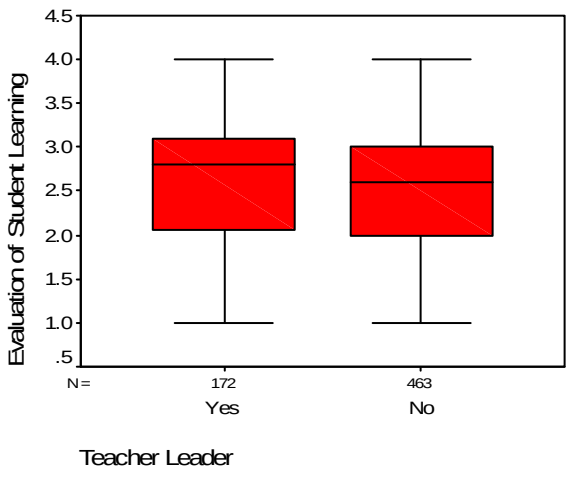

Figure 25: Box plot of teacher leader, teacher non-leader and evaluation of student learning.

Table 32 contains the ANOVA for the variables teacher leader and evaluation of student learning. The difference between the groups is not statistically significant (p = .183). The small effect size (.003) less than .05, and power (.265) less than .80, indicate the results are inconclusive and would indicate further analysis is warranted.

Table 32. ANOVA of Teacher Leader and Evaluation of Student Learning.

Source	Sum of Squares	df	Mean Square	F	Sig.	ETA	Power
Between Groups	1.179	1	1.179	1.777	.183	.003	.265
Within Groups	420.161	633	.664				
Total	421.340	634					

Evaluation of Student Learning: Sub-variables - Teacher Leader / Teacher Non-leader

Table 33 contains a report of the descriptive and ANOVA statistics of the survey questions for the evaluation of student learning category. The table is grouped by sub-variables and disaggregated by campus leadership designation. The answer choices for the survey were “1” highly negative, “2” moderately negative, “3” moderately positive, or “4” highly positive. These answers are categorical ordinal items, not necessarily equal intervals. The responses were considered highly negative in the 1.0 to 1.5 range, moderately negative in the 1.5 to 2.5 range, moderately positive in the 2.5 to 3.5 range and highly positive in the 3.5 to 4.0 range.

Teacher leaders are those teachers who are subject area campus Department Chairpersons, Team Leaders among a grade level or subject area, a member of the district’s Leaders of Learners (LOL) group or serve in other campus leadership areas.

The following narrative discusses the teacher leader effect on the sub-variables of impact on thinking, change in behavior and classroom impact within the evaluation of student learning category. Eta or effect size indicates a measure of strength of the association of the variables (Pierce, 2004) and will also be used in the analyses. Individual question analysis follows each sub-variable discussion.

Evaluation of Student Learning: Sub-variables - Teacher Leader / Teacher Non-leader - Impact on Thinking

Table 33 indicates that for the impact on thinking sub-variable, the teacher leaders were more positive in their responses ($\mu = 2.49$, $\sigma = .976$) than the teacher non-leaders ($\mu = 2.45$, $\sigma = .905$). The means for both groups were in the moderately negative range. The sub-variable of impact on thinking is not statistically significant ($p = .569$) and the effect size is small (*eta* = .001), indicating the variable of teacher leader by itself accounted for less than 1% of the overall variance.

Table 33. Evaluation of Student Learning Category Analysis with Mean, Standard Deviation, P-value, ETA and Power for Teacher Leader Vs. Teacher Non-leader Subdivided by Sub-variables of Impact on Thinking, Change in Behavior and Classroom Impact

Sub-Variable	Teacher Leader		Teacher Non-Leader				
	Mean	Std Dev	Mean	Std Dev	*p*	ETA	Power
Impact on Thinking	2.49	.976	2.45	.905	.569	.001	.088
Change in Behavior	2.54	.873	2.49	.852	.479	.001	.109
Classroom Impact	2.64	.823	2.51	.824	.085	.005	.405

** Significant at the .05 level.*

Evaluation of Student Learning: Question Analysis - Teacher Leader / Teacher Non-leader

Table 34 contains a report of descriptive and ANOVA statistics for the individual survey questions for the teacher leader designation for the evaluation of student learning category, subdivided by the sub-variables of impact on thinking, change in behavior and classroom impact. For each question response for the evaluation of student learning category, the teacher leaders had higher means and were slightly more positive than the teacher non-leaders. Eight of the 10 question responses were not statistically significant; however 2 of the 10 questions responses were statistically significant.

Evaluation of Student Learning: Individual Question Analysis - Teacher Leader / Teacher Non-leader - Impact on Thinking

Table 34 contains the data for the individual question analysis for the following narrative. Although the teacher leaders were more positive than the teacher non-leaders for the impact on thinking sub-variable, the differences were not statistically significant. Both groups were moderately negative in their responses.

Table 34. Evaluation of Student Learning Individual Question Analysis with Mean, Standard Deviation, F Statistic and P-value for Teacher Leader Vs. Teacher Non-leader and Grade Level Taught, Subdivided by Sub-variables of Impact on Thinking, Change in Behavior and Classroom Impact

Sub- Variable	Question #	Teacher Leader		Teacher Non-Leader		*a*	
		Mean	Std Dev	Mean	Std Dev	F statistic	*p*
Impact on Thinking	6	2.49	.976	2.45	.905	.325	.569
Change in Behavior	26	2.53	.888	2.50	.890	.181	.670
	28	2.66	.913	2.55	.905	2.062	.151
	32	2.42	.961	2.41	.895	.024	.878
Classroom Impact	19	2.78	.935	2.62	.889	3.909	.048*
	20	2.70	.942	2.57	.913	2.625	.106
	21	2.55	.969	2.40	.913	3.299	.070
	22	2.47	.875	2.46	.899	.019	.891
	23	2.59	.947	2.48	.899	2.093	.149
	35	2.72	.934	2.53	.960	4.890	.027*

a: degrees of freedom = 2/(n-3)=2/(634-3).
**Significant at the .05 level.*

Evaluation of Student Learning: Sub-variables - Teacher Leader / Teacher Non-leader - Change in Behavior

For the change in behavior sub-variables in Table 33, the teacher leaders were more positive in their responses ($\mu = 2.54$, $\sigma = .873$) than the teacher non-leaders ($\mu = 2.49$, $\sigma = .852$). The means for both groups were in the moderately negative to moderately positive range and were not statistically significant ($p = .479$). The effect size is small (*eta* = .001), indicating the variable of teacher leader by itself accounted for less than 1% of the overall variance.

Evaluation of Student Learning: Individual Question Analysis - Teacher Leader / Teacher Non-leader - Change in Behavior

Table 34 contains the data for the individual question analysis for the change in behavior sub-variable. Teacher leaders for all three questions were more positive in their responses compared to the teacher non-leaders regarding KMAC impacting a change in behavior. The means for both groups are in the moderately negative to moderately positive range with no statistical significance between the groups. Both groups were the least positive regarding KMAC's impacting their learning how to evaluate student learning (question 32). Both groups were moderately negative in their perceptions regarding KMAC impacting a change in behavior regarding the evaluation of student learning.

Evaluation of Student Learning: Sub-variables - Teacher Leader / Teacher Non-leader - Classroom Impact

For the change in behavior sub-variables in Table 33, the teacher leaders were more positive in their responses ($\mu = 2.64$, $\sigma = .823$) than the teacher non-leaders ($\mu = 2.51$, $\sigma = .824$). The means for both groups were in the moderately positive range and were not statistically significant ($p = .085$). The effect size is small (*eta* = .005), indicating the variable of teacher leader by itself accounted for less than 1% of the overall variance.

Evaluation of Student Learning: Individual Question Analysis - Teacher Leader / Teacher Non-leader - Classroom Impact

Table 34 contains the data for the individual question analysis for the classroom impact sub-variable. Teacher leaders in question 19 were more positive in their responses ($\mu = 2.78$, $\sigma = .935$) compared to the teacher non-leaders ($\mu = 2.62$, $\sigma = .889$) regarding KMAC and its classroom impact. The means for both groups are in the moderately positive range. The teacher leaders perceived that KMAC had a statistically ($p = .048$) higher impact on the classroom impact of the curriculum components (standards, goals, resources, objectives) in the evaluation of student learning category than did the teacher non-leaders.

Teacher leaders in question 35 were more positive in their responses ($\mu = 2.72$, $\sigma = .934$) compared to the teacher non-leaders ($\mu = 2.53$, $\sigma = .960$) regarding KMAC and its classroom impact. The means for both groups are in the moderately positive range. The teacher leaders perceived that KMAC had a statistically ($p = .027$) higher impact on how their plans in KMAC accurately reflect the evaluation of student learning in the classroom than did the teacher non-leaders. Both groups were moderately negative regarding the student evaluation ideas in KMAC causing a change in the evaluation of student learning (question 22). Teacher non-leaders were least positive regarding the clarifiers in KMAC causing a change in the evaluation of student learning in the classroom (question 21).

Summary - Evaluation of Student Learning - Teacher Leader / Teacher Non-leader

An analysis was performed on the teachers' perception of evaluation of student learning in KMAC, treating it as a single composite score. Additional analyses were conducted on the sub-variables of the (1) impact on thinking, (2) change in behavior and (3) classroom impact of KMAC within the evaluation of student learning category. Also, each individual question was analyzed within the evaluation of student learning category.

As a single composite score, Table 32 shows no statistical significance (p = .183) between the teacher groups in the evaluation of student learning category. The small effect size (*eta* = .003), indicates the variable of teacher leader by itself accounted for less than 1% of the overall variance. The analysis on the sub-variables in Table 33 indicates no significant difference between the groups. The small effect size (*eta* = .001, *eta* = .001, *eta* = .008), indicates that less than 1% of the overall variance can be attributed to the teacher leader variable.

For each individual survey question for the evaluation of student learning category, the teacher leaders were more positive than the teacher non-leaders, with 2 of the 10 questions indicating statistical significance as indicated in Table 34. For the individual questions, both teacher leaders and teacher non-leaders perceived that KMAC has a moderately negative impact on factors relating to impact on thinking. For all three questions for the sub-variable of change in behavior, the teacher leaders perceived KMAC more positively than teacher non-leaders, with no statistical significance. For all six questions in the classroom impact sub-variable, the teacher leaders perceived KMAC

more positively than the teacher non-leaders, with statistical significance on two of the questions.

KMAC was not perceived by either teacher leaders or teacher non-leaders as having a highly positive impact on any of the factors. Questions were not asked of the teachers on their perceived ease of use of technology in general, or ease of use of KMAC specifically. A certain personal comfort level of the individuals with technology use may impact the teachers' perceptions of the benefits of KMAC use in their evaluation of student learning. Some teachers may or may not feel comfortable with using technology in the evaluation of student learning and some may need more professional development to feel successful.

Evaluation of Student Learning: Group Responses - Grade Level

Figure 26 with the 95% confidence interval shows the means decreasing for each grade level for the variable of evaluation of student learning and that the confidence intervals do not overlap within the grade levels, indicating grade level makes a difference in the teachers' perception. Tables 35 and 36 indicate a statistically significant difference ($p = .000$) between the grade levels of elementary and junior high, between elementary and high school and between junior high and high school in their responses. The elementary teachers were more positive than the junior high or high school teachers and the high school teachers were less positive than the elementary or junior high teachers. Grade level taught does make a difference in the teachers' perception of the relationship of KMAC and the category of evaluation of student learning.

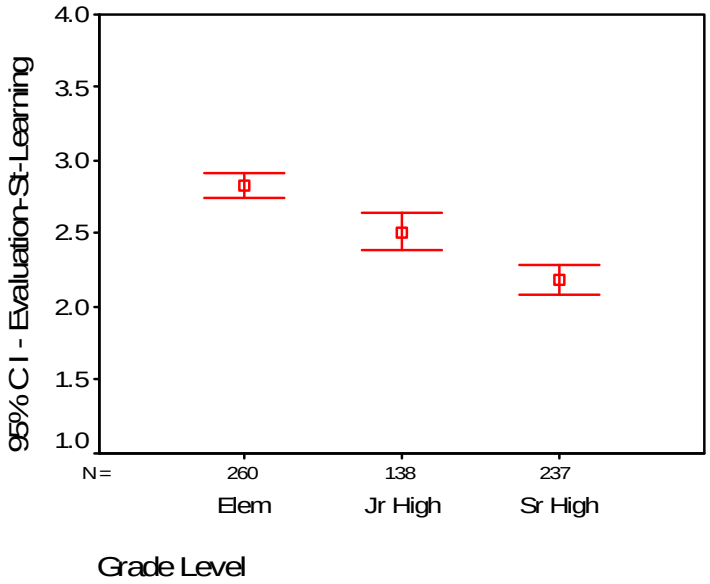

Figure 26: Grade level means for evaluation of student learning with 95% confidence interval.

Table 35. Mean, Standard Deviation & ANOVA Statistics of Grade Level Teaching Assignment with Question Analysis for Evaluation of Student Learning.

Grade Level	**Evaluation of Student Learning**		
& ANOVA	**Mean**	**Std. Dev.**	**N**
Elementary	2.83	.708	260
Junior High	2.51	.777	138
Senior High	2.19	.816	237
Total	2.52	.815	635
F statistic	43.847		
Degrees of freedom	2/634		
P-value	.000*		

* Degrees of freedom (num/denom).
* Significant at the .05 level.

Table 36 contains the Bonferroni Post Hoc test for the variables of grade level and evaluation of student learning. There is a statistically significant difference (p = .000) between the grade level means of elementary and junior high, between elementary and high school and between junior high and high school in their responses. Grade level taught makes a significant impact in the teachers' perception of the relationship of KMAC and the category of evaluation of student learning.

More analysis would need to be conducted to determine why these differences exist. Possible reasons could include the collaborative nature of the subjects and grade level taught, administrative support or encouragement of the use of KMAC at the building level, a greater number of specialist/extra curricular teachers at the secondary level for whom KMAC curriculum is not yet in place or the lack of connection in the minds of the teachers regarding the framework in KMAC and the professional development offered in Katy ISD.

Table 36. Bonferroni Post Hoc Test for Dependent Variable Evaluation of Student Learning

Multiple Comparisons

(I) GRLEVEL	(J) GRLEVEL	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Elem	Jr High	.3170(*)	.08059	.000*	.1236	.5104
	Sr High	.6434(*)	.06872	.000*	.4785	.8084
Jr High	Elem	-.3170(*)	.08059	.000*	-.5104	-.1236
	Sr High	.3264(*)	.08193	.000*	.1298	.5231
Sr High	Elem	-.6434(*)	.06872	.000*	-.8084	-.4785
	Jr High	-.3264(*)	.08193	.000*	-.5231	-.1298

** The mean difference is significant at the .05 level.*

Evaluation of Student Learning: Sub-variables - Grade Level - Impact on Thinking

Table 37 contains a report of the descriptive and ANOVA statistics of the sub-variables for the evaluation of student learning category. The table is grouped by sub-variables, disaggregated by grade level taught. The following narrative discusses the grade level teaching assignment effect on the sub-variables of impact on thinking, change in behavior and classroom impact within the evaluation of student learning category.

Table 37. Evaluation of Student Learning Category Analysis with Mean, Standard Deviation, P-value, ETA and Power for Grade Level Taught, Subdivided by Sub-variables of Impact on Thinking, Change in Behavior and Classroom Impact

Sub-Variable	Elementary		Junior High		High School				
	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	*p*	ETA	Power
Impact on Thinking	2.79	.815	2.42	.958	2.13	.898	.000*	.100	1.00
Change in Behavior	2.81	.769	2.50	.814	2.16	.850	.000*	.110	1.00
Classroom Impact	2.85	.712	2.54	.792	2.21	.831	.000*	.118	1.00

** Significant at the .05 level.*

For the impact on thinking sub-variables, the elementary teachers were moderately positive in their responses ($\mu = 2.79$, $\sigma = .815$) and junior high teachers ($\mu = 2.42$, $\sigma = .958$) were moderately negative. The high school teachers were less positive ($\mu = 2.13$, $\sigma = .898$) with responses in the moderately negative range. Grade level taught makes a significant impact ($p = .000$) on the teachers' perception of the impact on thinking regarding KMAC in the evaluation of student learning category.

The effect size (*eta* = .100) indicates that approximately 10% of the variability in the means is attributed to grade level. Since power indicated in Table 37 is very high (1.00), we can be certain that a great deal of the differences in the mean is attributed to grade level taught. The Ryan-Einot-Gabrial-Welsch F[a] post hoc tests in Appendix J indicate a significant difference in the response means between elementary and junior high, elementary and high school and between junior high and high school for the sub-variable of impact on thinking in the evaluation of student learning category.

Evaluation of Student Learning: Sub-variables - Grade Level - Change in Behavior

For the change in behavior sub-variables in Table 37, the elementary teachers were more positive in their responses (μ = 2.81, σ = .769) than junior high teachers (μ = 2.50, σ = .814), with the means for both groups in the moderately positive range, indicating both groups were more positive in their responses than the high school teachers. The high school teachers were less positive (μ = 2.16, σ = .850) with responses in the moderately negative range. Grade level taught makes a significant impact (*p* = .000) on the teachers' perception of the change in behavior regarding KMAC in the evaluation of student learning category.

The effect size (*eta* = .110) indicates that approximately 11% of the variability in the means is attributed to grade level. Since power indicated in Table 37 is very high (1.00), we can be certain that a great deal of the differences in the mean is attributed to grade level taught. The Ryan-Einot-Gabrial-Welsch F[a] post hoc tests in Appendix J indicate a significant difference in the response means between elementary and junior

high, elementary and high school and between junior high and high school for the sub-variable of change in behavior in the evaluation of student learning category.

Evaluation of Student Learning: Sub-variables - Grade Level - Classroom Impact

For the classroom impact sub-variables in Table 37, elementary teachers were more positive in their responses ($\mu = 2.85$, $\sigma = .712$) than junior high teachers ($\mu = 2.54$, $\sigma = .792$), with the means for both groups in the moderately positive range, indicating both groups were more positive in their responses than the high school teachers. The high school teachers were less positive ($\mu = 2.21$, $\sigma = .831$) with responses in the moderately negative range. Grade level taught makes a significant impact ($p = .000$) on the teachers' perception of the classroom impact regarding KMAC in the evaluation of student learning category.

The effect size (*eta* = .118) indicates that approximately 12% of the variability in the means is attributed to grade level. Since power indicated in Table 37 is very high (1.00), we can be certain that a great deal of the differences in the mean is attributed to grade level taught. The Ryan-Einot-Gabrial-Welsch F^a post hoc tests in Appendix J indicate a significant difference in the response means between elementary and junior high, elementary and high school and between junior high and high school for the sub-variable of change in behavior in the evaluation of student learning category.

For each sub-variable, the elementary teachers were more positive in their responses than the junior high or high school teachers with a moderately positive response. For each sub-variable, the junior high teachers were more positive in their

responses than the high school teachers with a moderately negative or moderately positive response. The high school teacher response means were in the moderately negative range.

Evaluation of Student Learning: Individual Question Analysis - Grade Level

Table 38 contains a report of descriptive and ANOVA statistics for the individual survey questions for the grade level taught for the evaluation of student learning category, subdivided by the sub-variables of impact on thinking, change in behavior and classroom impact. For each question in the evaluation of student learning category, all of the 10 question responses were statistically significant (p = .000).

Table 38. Evaluation of Student Learning Individual Question Analysis with Mean, Standard Deviation, F Statistic and P-value for Grade Level Taught, subdivided by Sub-variables of Impact on Thinking, Change in Behavior and Classroom Impact

Sub-Category	Question #	Elementary		Junior High		High School			
		Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	F statistic	*p*
Impact on Thinking	6	2.78	.815	2.42	.958	2.13	.898	34.959	.000*
Change in Behavior	26	2.79	.809	2.50	.873	2.21	.886	28.459	.000*
	28	2.91	.814	2.56	.855	2.23	.906	38.947	.000*
	32	2.72	.838	2.43	.854	2.05	.896	37.660	.000*
Classroom Impact	19	2.93	.800	2.72	.902	2.33	.907	30.897	.000*
	20	2.93	.798	2.57	.879	2.27	.954	35.379	.000*
	21	2.80	.813	2.46	.945	2.04	.880	48.313	.000*
	22	2.77	.763	2.43	.854	2.15	.934	32.849	.000*
	23	2.81	.810	2.50	.865	2.18	.936	32.929	.000*
	35	2.86	.869	2.54	.968	2.30	.955	23.149	.000*

a: degrees of freedom = 2/(n-3)=2/(634-3).
** Significant at the .05 level.*

Table 38 indicates for each question response, the elementary teachers, with moderately positive responses perceived that KMAC had a statistically higher impact on planning for learning than the junior high and high school teachers. The junior high teachers, with moderately negative to moderately positive responses perceived that KMAC had a statistically higher impact on evaluation of student learning than the high school teachers. All ten questions for the high school teachers had moderately negative responses. All three grade levels were most positive regarding the KMAC curriculum (standards, goals, resources, and objectives) causing a change in the evaluation of student learning (question 19). Elementary teachers also were moderately positive (μ = 2.93, σ = .798) regarding the strategies in KMAC causing a change in the evaluation of student learning (question 21). The high school teachers were least positive regarding the clarifiers in KMAC causing a change in the evaluation of student learning (question 21).

Summary - Evaluation of Student Learning - Grade Level

An analysis was performed on the teachers' perception of the concept of the independent variable of evaluation of student learning in KMAC disaggregated by grade level taught. This analysis was performed on the variable, treating it as a single composite score. Additional analysis was conducted on the sub-variables of the (1) impact on thinking, (2) change in behavior and (3) classroom impact of KMAC. Also, each individual question was analyzed within the evaluation of student learning category.

As a single composite score, the elementary teachers were more positive than the junior high or high school teachers and the high school teachers were less positive than the elementary or junior high teachers. The analysis on the sub-variables in Table 37 indicates a significant difference (p = .000) in all grade levels taught on all sub-variables. Post hoc analysis (Appendix J) indicates significant differences (p = .000) between elementary and junior high, elementary and high school and between junior high and high school teachers. Individual question analysis indicates significant differences (p = .000) for all 10 questions in the evaluation of student learning category. Grade level taught makes a significant impact (p = .000) on the teachers' perceptions of the impact on KMAC in the evaluation of student learning category.

Research Question Four: Between/Among Groups - Teacher Leader and Grade Level

Analysis of the interaction of the variables teacher leader and grade level follows for the categories of planning for learning, delivery of instruction and evaluation of student learning. The mean and standard deviation statistics for the interaction is displayed as well as the 95% confidence intervals. Results of the tests of between subjects effect and significance is displayed and discussed.

Teacher Leaders

Teacher leaders are those teachers who are subject area campus Department Chairpersons, Team Leaders among a grade level or subject area, a member of the district's Leaders of Learners (LOL) group or serve in other campus leadership areas. Tables 39 and 40 describe the responses of teachers considered to be in campus leadership positions. Table 39 indicates that most of the survey respondents were not teacher leaders.

Table 39. Number of Respondents by Teacher Leadership Role

	Yes	No	N
Teacher Leader	27.0% (172)	72.9% (463)	635

Table 40 contains a report of the descriptive and ANOVA statistics of the teachers disaggregated by teacher leadership designation. In the three research categories with all grade level responses grouped together, Table 40 indicates the teacher leaders (2.89, 2.76, 2.59) were more positive for each research question than the teacher non-leaders (2.73, 2.58, 2.50) regarding the impact of KMAC. The teacher leaders perceived that KMAC had a statistically higher impact in the categories of planning for learning (p = .025) and delivery of instruction (p = .014).

Table 40. Mean, Standard Deviation & ANOVA Statistics for Teacher Leader with Question Analysis

Teacher Leader	Planning for Learning		Delivery of Instruction		Evaluation of Student Learning		
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	N
Yes	2.89	.749	2.76	.784	2.59	.825	172
No	2.73	.757	2.58	.790	2.50	.811	463
Total	2.77	.757	2.63	.791	2.52	. 815	635
F statistic	5.053		6.091		1.777		
Degrees of freedom	1/634		1/634		1/634		
P-value	.025*		.014*		.183		

* Degrees of freedom (num/denom).
* Significant at the .05 level.

Grade Level

Grade level taught was a demographic option on the survey. The following narrative describes the results of their responses. Table 41 shows the demographic breakdown of the respondents who completed the survey by grade level taught.

Table 41. Number of Respondents by Grade Level

Source	Elementary	Junior High	Senior High	N
Grade level	40.9% (260)	21.7% (138)	37.3% (237)	635

Table 42 contains a report of the descriptive and ANOVA statistics of the question analysis of mean and standard deviation by grade level teaching assignment. The elementary teachers (3.08, 2.94, 2.83), were more positive toward the perceived relationship of KMAC than the junior high (2.78, 2.60, 2.51) or high school teachers. The senior high teachers had a lower mean for each of the research questions (2.44, 2.30,

2.19), indicating a less positive attitude toward the relationship of KMAC with the variables of planning for learning, delivery of instruction and evaluation of student learning than the elementary or junior high teachers.

Table 42. Mean, Standard Deviation & ANOVA Statistics of Grade Level Teaching Assignment with Question Analysis

Grade Level	Planning for Learning		Delivery of Instruction		Evaluation of Student Learning		
	Mean	**Std. Dev.**	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**	**N**
Elementary	3.08	.661	2.95	.694	2.83	.708	260
Junior High	2.78	.698	2.60	.768	2.51	.777	138
Senior High	2.44	.747	2.30	.770	2.19	.816	237
Total	2.77	.757	2.63	.791	2.52	.815	635
F statistic	52.424		47.325		43.847		
Degrees of freedom	2/634		2/634		2/634		
p-value	.000*		.000*		.000*		

* Degrees of freedom (num/denom).
* Significant at the .05 level.

Table 42 indicates there is a statistically significant difference ($p = .000$) within the grade levels in their response means. Teachers with different grade level teaching assignments differed in their perception of the relationship of KMAC in the categories of planning for learning, delivery of instruction and evaluation of student learning, with all other variables being equal. The Post Hoc tests (Appendix H, I, J) indicated that each grade level differed from the other two, with a statistically significant difference ($p = .000$). In each category, the elementary teachers were more positive than the junior high or high school teachers and the high school teachers were less positive than the elementary or junior high teachers.

Teacher Leader and Grade Level on Planning for Learning

The analysis for teacher leader and grade level on planning for learning is described below. Table 43 shows the between groups comparison of teacher leader and grade level. The teacher leaders at the elementary (μ = 3.20, σ = .626) and junior high (μ = 2.90, σ = .648) were more positive than the teacher non-leaders at elementary (μ = 3.03, σ = .673) and junior high (μ = 2.74, σ = .712). At the senior high level, the teacher non-leaders (μ = 2.44, σ = .750) were slightly more positive than the teacher leaders (μ = 2.43, σ = .745).

Further analysis of the data would need to be performed to determine if years of experience in education or years of experience in Katy ISD were variables which contributed to a difference. A possible reason for the difference could be that the teacher leaders at the secondary levels were successful in their field of expertise for several years before KMAC was in use and therefore did not credit their success in the classroom with any perceived benefits of the product. Another possible factor for the difference in means between grade levels could be the insistence of the use of KMAC of the various school principals. Additionally, any teachers of specialty classes and advanced academic classes at the high school level may not yet have adequate curriculum in KMAC to impact their perceptions. The curriculum for basic courses was the first to be put into KMAC, with specialty courses still being added at this time.

Table 43. Mean and Standard Deviation Statistics for Teacher Leader, Teacher Non-leader and Grade Level with Planning for Learning

Teacher Leader	GRLEVEL	Mean	Std. Deviation	N
Yes	Elem	3.20	.626	81
	Jr High	2.90	.648	35
	Sr High	2.43	.745	56
	Total	2.89	.749	172
No	Elem	3.03	.673	179
	Jr High	2.74	.712	103
	Sr High	2.44	.750	181
	Total	2.73	.757	463
Total	Elem	3.08	.662	260
	Jr High	2.78	.698	138
	Sr High	2.44	.747	237
	Total	2.78	.757	635

Figure 27 shows the means for teacher leader and grade level for planning for learning with 95% confidence interval. The figure shows decreasing means for each grade level among the teacher leaders and the teacher non-leaders. The confidence intervals for the teacher leaders overlap for elementary and junior high, indicating that the variable of teacher leader at those grade levels, when combined with grade level, does not have an effect on the perception of KMAC in planning for learning. The confidence intervals at the senior high level do not overlap with the other two grade levels, indicating that grade level taught has an effect on the teacher leaders' perception of KMAC in planning for learning. The confidence intervals for the teacher non-leaders do not overlap within the grade levels, indicating that grade level taught has an effect on the teacher non-leaders' perception of KMAC in the category of planning for learning.

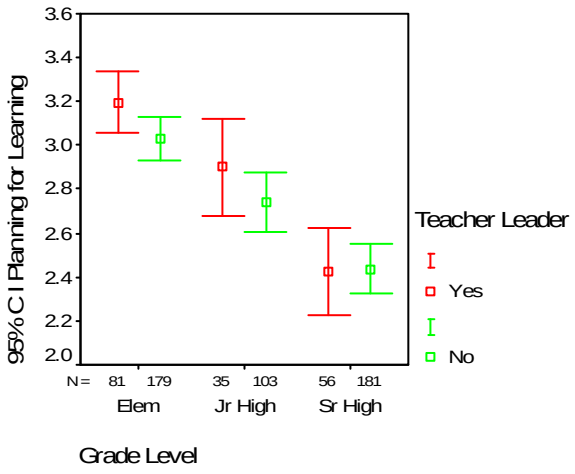

Figure 27: Means for teacher leader, teacher non-leader and grade level for planning for learning with 95 % confidence interval.

Table 44 shows the between-subjects effects of teacher leader and grade level for planning for learning. There are three effects in Table 44: teacher leader, grade level and the interaction between the two. Table 44 shows that in the category of planning for learning, the effect of grade level makes a statistically significant difference (p = .000) however, the effects were not significant for teacher leader (p = .112) or the interaction of grade level and teacher leader (p = .409).

Table 44. Tests of Between-subjects Effects for Teacher Leader and Grade Level with Planning for Learning

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Noncent. Parameter	Observed Power(a)
Corrected Model	53.959(b)	5	10.792	21.930	.000	109.648	1.000
Intercept	3516.814	1	3516.814	7146.375	.000	7146.375	1.000
Teacher Leader	1.243	1	1.243	2.526	.112	2.526	.355
Grade Level	44.857	2	22.428	45.576	.000	91.152	1.000
Teacher Leader * Grade Level	.882	2	.441	.896	.409	1.791	.205
Error	309.538	629	.492				
Total	5253.097	635					
Corrected Total	363.497	634					

a Computed using alpha = .05.
b R Squared = .148 (Adjusted R Squared = .142).

Teacher leaders at the elementary level perceive that KMAC more positively impacts planning for learning than do junior high or high school teacher leaders. Similarly, junior high teacher leaders perceive that KMAC more positively influences/ impacts planning for learning than do senior high teacher leaders. Senior high teachers were the least positive among the grade levels.

Teacher Leader and Grade Level on Delivery of Instruction

The analysis for teacher leader and grade level on delivery of instruction is described below. Table 45 contains the descriptive statistics for teacher leader and grade level with delivery of instruction. At each grade level, the mean for the teacher leader group was more positive than the teacher non-leader.

Table 45. Mean and Standard Deviation Statistics for Teacher Leader, Teacher Non-leader and Grade Level with Delivery of Instruction

Teacher Leader	Grade Level	Mean	Std. Deviation	N
Yes	Elem	3.07	.673	81
	Jr High	2.71	.677	35
	Sr High	2.32	.793	56
	Total	2.76	.784	172
No	Elem	2.89	.697	179
	Jr High	2.56	.796	103
	Sr High	2.29	.765	181
	Total	2.58	.790	463
Total	Elem	2.95	.694	260
	Jr High	2.60	.768	138
	Sr High	2.30	.770	237

Figure 28 shows an enlarged view of the means for teacher leader and grade level for delivery of instruction with 95% confidence interval. The figure shows decreasing means for each grade level among the teacher leaders and the teacher non-leaders. At every grade level, the teacher leaders are more positive as also indicated in Table 45.

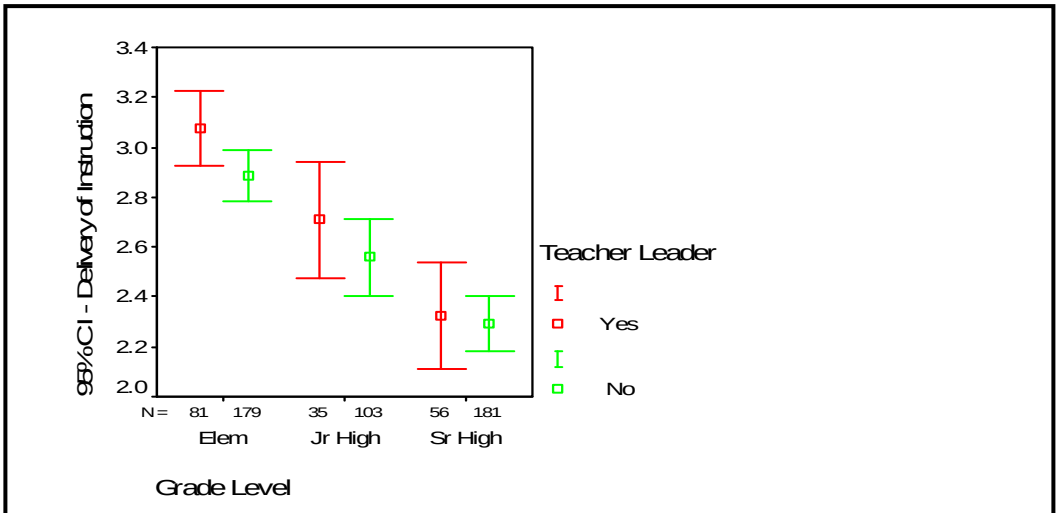

Figure 28: Means for teacher leader, teacher non-leader and grade level for delivery of instruction with 95 % confidence interval.

The confidence intervals for the teacher leaders overlap at each grade level, indicating that the teacher leader variable at those grade levels, when combined with grade level, have no effect on the perception of KMAC in the delivery of instruction. The confidence intervals for the teacher non-leaders do not overlap within the grade levels, indicating that grade level taught has an effect on the teacher non-leaders' perception of KMAC in the delivery of instruction.

Table 46 shows the between-subjects effects of teacher leader and grade level for delivery of instruction. There are three effects in Table 46: teacher leader, grade level and the interaction between the two. Table 46 shows that in the category of delivery of instruction, the effect of grade level makes a statistically significant difference ($p = .000$) however, the effects were not significant for teacher leader ($p = .078$) or the interaction of grade level and teacher leader ($p = .566$). This result for grade level confirms the visual comparison in Figure 28 in which elementary was more positive than junior high and junior high was more positive than high school.

Table 46. Tests of Between-subjects Effects for Teacher Leader and Grade Level with Delivery of Instruction.

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Noncent. Parameter	Observed Power(a)
Corrected Model	54.309(b)	5	10.862	19.933	.000	99.667	1.000
Intercept	3154.230	1	3154.230	5788.609	.000	5788.609	1.000
Teacher Leader	1.698	1	1.698	3.115	.078	3.115	.422
Grade Level	43.992	2	21.996	40.367	.000	80.733	1.000
Teacher Leader * Grade Level	.620	2	.310	.569	.566	1.138	.145
Error	342.744	629	.545				
Total	4784.719	635					
Corrected Total	397.053	634					

a Computed using alpha = .05.
b R Squared = .137 (Adjusted R Squared = .130).

Teacher Leader and Grade Level on Evaluation of Student Learning

The analysis for teacher leader and grade level on evaluation of student learning is described below. Table 47 contains the descriptive statistics for teacher leader and grade level with evaluation of student learning. At the elementary and junior high grade levels, the teacher leaders were more positive than the teacher non-leaders. However, at the senior high level, the teacher non-leaders were more positive than the teacher leaders. Further analysis of the data would need to be performed to determine if years of experience in education or years of experience in Katy ISD were variables which contributed to a difference. A possible reason for the difference could be that the teacher leaders at the secondary levels were successful in their field of expertise for several years before KMAC was in use and therefore did not credit their success in the classroom with any perceived benefits of the product.

Table 47. Mean and Standard Deviation Statistics for Teacher Leader, Teacher Non-leader and Grade Level with Evaluation of Student Learning.

Teacher Leader	Grade Level	Mean	Std. Deviation	N
Yes	Elem	2.91	.689	81
	Jr High	2.56	.743	35
	Sr High	2.15	.859	56
	Total	2.59	.825	172
No	Elem	2.80	.716	179
	Jr High	2.50	.791	103
	Sr High	2.20	.805	181
	Total	2.50	.811	463
Total	Elem	2.83	.708	260
	Jr High	2.51	.777	138
	Sr High	2.19	.817	237
	Total	2.52	.815	635

Figure 29 shows the means for teacher leader and grade level for the evaluation of student learning with 95% confidence interval. The figure shows decreasing means for each grade level among the teacher leaders and the teacher non-leaders. The teacher leaders in the elementary ($\mu = 2.91$, $\sigma = .689$) and junior high ($\mu = 2.56$, $\sigma = .743$)), are more positive than the teacher non-leaders in the elementary ($\mu = 2.80$, $\sigma = .716$) and junior high ($\mu = 2.50$, $\sigma = .791$). However for the senior high, the teacher non-leaders ($\mu = 2.20$, $\sigma = .805$) are more positive than the teacher leader ($\mu = 2.15$, $\sigma = .859$) as indicated in Table 47.

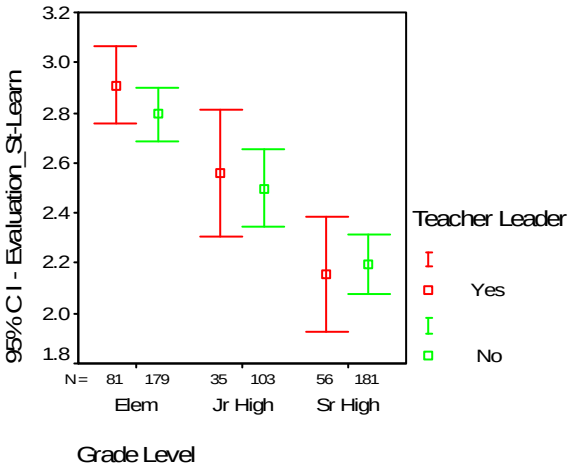

Figure 29: Means for teacher leader, teacher non-leader and grade level for evaluation of student learning with 95 % confidence interval.

Figure 29 shows the confidence intervals for the teacher leaders overlap at every grade level, indicating that the teacher leader variable at those grade levels, when combined with grade level, have no effect on the perception of KMAC in the evaluation of student learning. The confidence intervals for the teacher non-leaders do not overlap within the grade levels, indicating that grade level taught has an effect on the teacher non-leaders' perception of KMAC in the evaluation of student learning.

Table 48 shows the between-subjects effects of teacher leader and grade level for evaluation of student learning. There are three effects in Table 48: teacher leader, grade level and the interaction between the two. Table 48 shows that in the category of evaluation of student learning, the effect of grade level makes a statistically significant difference (p = .000), however, the effects were not significant for teacher leader (p =

.540) or the interaction of grade level and teacher leader (p = .591). This result for grade level confirms the visual comparison in Figure 29 in which elementary was more positive than junior high and junior high was more positive than high school.

Table 48. Tests of Between-subjects Effects for Teacher Leader and Grade Level with Evaluation of Student Learning.

Source	Type III Sum of Squares	df	Mean Square	F	*p*	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	52.261(b)	5	10.452	17.813	.000	.124	89.064	1.000
Intercept	2870.064	1	2870.064	4891.276	.000	.886	4891.276	1.000
TCHLEAD	.221	1	.221	.377	.540	.001	.377	.094
GRLEVEL	44.414	2	22.207	37.846	.000	.107	75.692	1.000
TCHLEAD * GRLEVEL	.618	2	.309	.527	.591	.002	1.054	.137
Error	369.080	629	.587					
Total	4459.390	635						
Corrected Total	421.340	634						

Dependent Variable: EVALSTLN.
a Computed using alpha = .05.
b R Squared = .124 (Adjusted R Squared = .117).

Analysis of Independent Variables by Sub-Variables

The following tables represent the mean and standard deviation for the independent variables of teacher leader, teacher non-leader, elementary, junior high and high school in each of the categories of planning for learning, delivery of instruction and evaluation of student learning, subdivided by the sub-variables of impact on thinking, change in behavior and classroom impact. Table 49 represents the data for the teacher leaders and Table 50 represents the data for the teacher non-leaders. Tables 51, 52 and 53 represent the data for elementary, junior high and high school teachers respectively.

Table 49. Teacher Leader Variable Analysis with Mean and Standard Deviation for Sub-variables of Impact on Thinking, Change in Behavior and Classroom Impact

Sub-Variables	Planning for Learning		Delivery of Instruction		Evaluation of Student Learning	
	Mean	**Std. Dev.**	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**
Impact on Thinking	2.87	.791	2.84	.820	2.49	.976
Change in Behavior	2.96	.852	2.73	.865	2.54	.873
Classroom Impact	2.87	.735	2.74	.801	2.64	.823

Table 50. Teacher Non-Leader Variable Analysis with Mean and Standard Deviation for Sub-variables of Impact on Thinking, Change in Behavior and Classroom Impact

Sub-Variables	Planning for Learning		Delivery of Instruction		Evaluation of Student Learning	
	Mean	**Std. Dev.**	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**
Impact on Thinking	2.72	.758	2.70	.817	2.45	.905
Change in Behavior	2.82	.864	2.55	.851	2.49	.852
Classroom Impact	2.70	.774	2.56	.817	2.51	.824

Table 51. Elementary Teacher Variable Analysis with Mean and Standard Deviation for Sub-variables of Impact on Thinking, Change in Behavior and Classroom Impact

Sub-Variables	Planning for Learning		Delivery of Instruction		Evaluation of Student Learning	
	Mean	**Std. Dev.**	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**
Impact on Thinking	3.07	.672	3.05	.682	2.79	.815
Change in Behavior	3.18	.754	2.90	.783	2.81	.769
Classroom Impact	3.04	.687	2.93	.717	2.85	.712

Table 52. Junior High Teacher Variable Analysis with Mean and Standard Deviation for Sub-variables of Impact on Thinking, Change in Behavior and Classroom Impact

Sub-Variables	Planning for Learning		Delivery of Instruction		Evaluation of Student Learning	
	Mean	**Std. Dev.**	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**
Impact on Thinking	2.76	.728	2.70	.784	2.42	.958
Change in Behavior	2.90	.817	2.60	.815	2.50	.814
Classroom Impact	2.74	.694	2.56	.795	2.54	.792

Table 53. High School Teacher Variable Analysis with Mean and Standard Deviation for Sub-variables of Impact on Thinking, Change in Behavior and Classroom Impact

Sub-Variables	Planning for Learning		Delivery of Instruction		Evaluation of Student Learning	
	Mean	**Std. Dev.**	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**
Impact on Thinking	2.43	.754	2.43	.855	2.13	.898
Change in Behavior	2.47	.847	2.28	.849	2.16	.850
Classroom Impact	2.43	.763	2.27	.790	2.21	.831

For each variable, across all categories and sub-variables, the sub-variable of impact on thinking was the lowest in the evaluation of student learning category. Elementary teachers were moderately positive and teacher leaders, teacher non-leaders and junior high and high school teachers were moderately negative. Within this sub-variable, question 6 was the only question and it had all moderately negative responses except a moderately positive average response for elementary teachers regarding KMAC's providing evaluation of student performance ideas.

The second lowest sub-variable was the change in behavior in the same category of evaluation of student learning. Teacher leaders and elementary and junior high were moderately positive and teacher non-leaders and high school were moderately negative. Question 32 had the lowest response regarding KMAC's impacting learning how to evaluate student learning for all independent variables. All response means were moderately negative except a moderately positive response mean for elementary teachers.

The third lowest sub-variable was the classroom impact in the evaluation of student learning category. Teacher leaders, teacher non-leaders and elementary and junior high were moderately positive; however high school teachers were moderately negative. Question 22 had the lowest response for teacher leader, elementary and junior high regarding the student evaluation ideas in KMAC causing a change in the evaluation of student learning in the classroom. All response means were moderately negative except a moderately positive response mean for elementary teachers. Question 21 had the lowest response for teacher non-leader and high school regarding the clarifiers in

KMAC causing a change in the evaluation of student learning in the classroom. All response means were moderately negative except moderately positive means for elementary teachers and teacher leaders. This result suggests that either the clarifiers are not helpful or the teacher non-leaders and high school teachers do not understand the clarifiers' usefulness.

The fourth and fifth lowest sub-variables were the change in behavior in the delivery of instruction category for teacher leaders, teacher non-leaders and elementary

with moderately positive responses and the classroom impact sub-variable in the same category for junior high with a moderately positive average and high school teachers with a moderately negative average. Question 31 had the lowest response across all independent variables for the change in behavior sub-variable regarding KMAC's impacting the teachers' learning how to deliver instruction. All response means were moderately negative except the moderately positive means for elementary teachers and teacher leaders. Question 17 scored lowest for junior high in the classroom impact sub-variable regarding student evaluation ideas in KMAC causing a change in the delivery of instruction in the classroom. All response means were moderately negative except a moderately positive response mean for elementary teachers. Question 16 scored lowest for high school regarding the clarifiers in KMAC causing a change in the delivery of instruction in the classroom. All response means were moderately negative except moderately positive means for elementary teachers and teacher leaders.

Question 7 in the sub-variable impact on thinking in the planning for learning category had the lowest response across all independent variables. This question measured the teachers' perceptions regarding KMAC enabling them to plan for high student engagement. All response means were moderately positive except a moderately negative mean for high school teachers. Question 5 in the impact on thinking sub-variable in the delivery of instruction category had the lowest response across all independent variables. This question measured the teachers' perceptions regarding KMAC 's providing delivery of instruction ideas. All response means were moderately positive except a moderately negative mean for high school teachers.

The sub-variable with the highest mean is the change in behavior in the planning for learning category across all independent variables. This sub-variable is moderately positive for all independent variables except high school teachers, for which it is moderately negative. Question 30 had the lowest response for all independent variables for this sub-variable regarding KMAC's impacting the teachers' learning how to plan for student learning. All response means were moderately positive except a moderately negative mean for high school teachers.

In the classroom impact sub-variable for planning for learning for all but the high school teachers, question 12 had the lowest response mean regarding the student evaluation ideas in KMAC positively impacting planning for learning in the classroom. All response means were moderately positive except moderately negative means for junior high and high school teachers. For the classroom impact sub-variable in planning for learning for high school teachers and teacher non-leaders, question 11 had the lowest mean regarding the clarifiers in KMAC positively impacting planning for learning in the classroom. All response means were moderately positive except a moderately negative mean for high school teachers.

It is interesting to note that questions which impacted the mean negatively in the change in behavior sub-variable across all categories dealt with KMAC's impacting the teachers learning how to plan, learning how to deliver instruction and learning how to evaluate student learning. Questions dealing with the student evaluation ideas causing a change in planning, delivery and evaluation impacted the mean negatively across all independent variables; however elementary teachers tended to be moderately positive.

The delivery of instruction ideas impacting thinking affected the mean negatively across all independent variables. In all three categories, the teachers did not perceive that the clarifiers helped in planning, delivery or evaluation. For most questions, sub-variables and categories, the elementary teachers tended to be moderately positive and high school teachers tended to be moderately negative.

Unsolicited E-mail Responses from Teachers

The online survey administered to all teachers asked for multiple choice responses only. There was no room given or request for additional open ended responses on the survey from the teachers. There were however, some teachers who felt compelled to give additional personal insight on KMAC. These teachers used the researcher's personal e-mail address given on the survey announcement notice to respond. Five teachers sent personal comments to the researcher. Two of the teacher comments were in regards to the functionality of the survey and three comments were in regards to KMAC.

One unsolicited e-mail from a Career and Technology teacher to the researcher indicated that there was an absence of clarifiers for that particular subject. This absence of clarifiers may have skewed the data from some secondary teachers in their perception of the relationships of KMAC. It is unclear which of the specialist areas are still lacking clarifiers and a robust curriculum within KMAC. It is the understanding of the researcher that the curriculum department in Katy ISD started their work on the

development of the curriculum with the core content areas and continues to expand and improve the product into all areas of the curriculum.

Another unsolicited e-mail to the researcher explained that the teacher saw no direct connect between KMAC and the processes of planning for learning and delivery of instruction. Strategies learned in staff development are reported as used in KMAC. The teacher did not realize that the scaffolding in KMAC drives the staff development in Katy ISD. This difference or lack of understanding of the scaffolding of KMAC may have skewed the secondary results.

The teacher thought KMAC was a good product and was useful in the reporting features for administration but thought KMAC was "over-engineered." With the teacher's personal planning style, she did not like the choosing of lesson options by clicking options with the mouse. She preferred to do unit planning versus daily planning, in that she plans with her colleagues for a unit, identifies objectives then plans at the daily level. At that last stage, the teacher would then input the daily lesson plan into KMAC. She preferred to have KMAC have a unit option and plan on a global basis then breakdown to the specific lesson. At the daily lesson, each lesson is assigned to a specific day. If the teacher needed to change the scheduled day for the lesson to be presented, there were many mouse clicks necessary to assign the lesson to a different day. The teacher suggested a 'drag and drop' movement option for moving the lesson from one day to another.

A third unsolicited e-mail to the researcher from an Early Childhood teacher appreciated KMAC but explained that the structures and strategies within KMAC were

not well suited to her classroom. She thought the structures and strategies were more suited for the K-12 environment and she was concerned with the time it took to input the multiple lessons. The primary teachers must plan for multiple subjects within a day whereas secondary teachers often have one or two subject preparations. This particular teacher thought more work needed to be done to make KMAC more suited to the early childhood teaching/learning environment.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Chapter I of this research study discussed the background of Katy ISD and a statement of the problem of rapid growth and the quest for academic excellence in Katy ISD. Chapter II of this study, *Review of Literature*, discussed the national educational standards movement and the accountability system under which Texas school systems now operate, thus expanding understandings of the push for academic excellence. Also included in the review of literature were discussions of the curriculum management audit and the learning philosophies and instructional practice which guided the work of the curriculum process in Katy ISD. This discussion included curriculum alignment and how the curricular system addresses planning for learning, delivery of instruction and evaluation of student learning. A discussion of Katy ISD's growth challenges, educational goals and curriculum alignment philosophy were included, as were various curriculum management systems that were available for use and consideration as a solution for the district. An in-depth discussion of the Katy Management of Automated Curriculum (KMAC) and its components was also included in the review of literature.

Chapter III discussed the research methodology, instrumentation and procedures. Chapter IV gave the results and analysis of the research data for single composite scores, sub-variables and independent item analysis. Chapter V contains a summary of the purpose, methodology and results of the study. Based on the findings of this study, recommendations for practice and further research are included.

Purpose

The purpose of the study was to determine Katy ISD teachers' perception of the relationship of the Katy Management of Automated Curriculum system (KMAC) and their planning for learning, delivery of instruction and evaluation of student learning in the classroom. English & Steffy (2001) emphasize the importance of deep curriculum alignment between/among the written, taught and tested curriculum, with each aspect incorporating one-third of the process. Therefore, analysis of the data was conducted on the dependent variables of planning for learning (written curriculum), delivery of instruction (taught curriculum) and the evaluation of student learning (tested curriculum). Additional analysis was also conducted on the independent variables that were taken from the demographics of the teacher population. Those variables were teacher leader, teacher non-leader and grade level taught.

The Following Research Questions Guided the Study.

1. What are the perceptions of the teachers in Katy ISD of the relationship between the Katy Management of Automated Curriculum and planning for learning?
2. What are the perceptions of the teachers in Katy ISD of the relationship between the Katy Management of Automated Curriculum and delivery of instruction?

3. What are the perceptions of the teachers in Katy ISD of the relationship between the Katy Management of Automated Curriculum and evaluation of student learning?
4. Are there differences between/among teacher leaders and teacher non-leaders and between/among elementary, junior high and high school teachers in their perceptions of the KMAC on planning for learning, delivery of instruction and evaluation of student learning?

The research study survey was conducted district-wide in December 2007 in Katy ISD using a modified survey which was previously field tested per Isaac and Michael (1995). This survey incorporated an online questionnaire available via the internet. The population surveyed was the district population of teachers (N = 3139), out of which, 635 complete responses were received. Research questions one, two and three were addressed using statistical analysis of descriptive statistics, correlation, skewness, kurtosis, effect size and power. Research question four was addressed using descriptive statistics, ANOVA(s), Bonferroni and REGWF Post Hoc tests, effect size, power and 95% Confidence Interval plots.

Summary of Findings and Conclusions

The survey questions were intended to gauge three aspects of KMAC within each of the categories of planning for learning, delivery of instruction and evaluation of

student learning, i.e. (1) whether there was a change in thinking on the part of the teachers as represented by the "Impact on Thinking" section of the survey, (2) whether there was a change in teacher behavior as represented by the "Change in Behavior" section of the survey and (3) to gauge the impact on teacher behavior as represented by the "Classroom Impact" section of the survey. The process resulted in a total of nine areas of interest (See Appendix D). After correlation tests were run, it was discovered there was a high degree of correlation and reliability among these sub-variables. Analysis was performed on the category variables, treating each as a single composite score. Additional analysis was conducted on the sub-variables of the (1) impact on thinking, (2) change in behavior and (3) classroom impact of KMAC within the three categories. Also, each individual question was analyzed within the categories of planning for learning category, delivery of instruction and evaluation of student learning.

Research Question One: Planning for Learning

Research Question One asked, "What are the perceptions of the teachers in Katy ISD of the relationship between the Katy Management of Automated Curriculum and planning for learning?"

Findings

The data for the variable for planning for learning were first analyzed as a single composite score, as if all other demographic variables were equal. Initial data analysis

showed the teachers' perceptions of KMAC in the category of planning for learning to be positive. Analysis was also conducted on the sub-variables and the individual survey items. The teachers overall were moderately positive regarding KMAC in the planning for learning category.

For all three sub-variables, both teacher leaders and teacher non-leaders had means in the moderately positive range. In the impact on thinking sub-variable, question 7 had the lowest response for both teacher leaders and teacher non-leaders. This question measured the teachers' perceptions regarding KMAC's enabling them to plan for high student engagement.

The teacher leaders and teacher non-leaders were most positive in the sub-variable of change in behavior with a moderately positive mean. In this sub-variable, the teachers were most positive regarding KMAC's impacting their ability to keep track of lesson objectives in question 29. Question 30 had the lowest response in this sub-variable regarding KMAC's impacting the teachers' learning how to plan for student learning. All response means were moderately positive.

In the classroom impact sub-variable for planning for learning, question 12 had the lowest response mean regarding the student evaluation ideas in KMAC positively impacting planning for learning in the classroom. All response means were moderately positive. Question 11 was also low for teacher non-leaders regarding the clarifiers in KMAC positively impacting planning for learning in the classroom. All response means were moderately positive.

While serving in the role of teacher leader was shown to relate to teachers' responses, the grade level taught by the teachers had a significant relationship to the teachers' perceptions of the impact on KMAC in the planning for learning category. Elementary and junior high teachers were moderately positive in the planning for learning category across all sub-variables. The mean was the lowest for elementary and junior high teachers concerning the student evaluation ideas in KMAC positively impacting planning for learning (question 12). The high school teachers were moderately negative across all three sub-variables. High school teachers were least positive concerning the clarifiers (assessment examples) in KMAC impacting their planning for learning (question 11).

Conclusions

The difference in means between teachers and teacher non-leaders was likely affected in part by the answers of the Leaders of Learners (LOL) within the teacher leaders group. This Leaders of Learners (LOL) group meets regularly throughout the school year and was originally focused on KMAC and its implementation in the classroom. It is important to note that across all individual questions both teacher leaders and teacher non-leaders perceived that KMAC had a moderately positive impact on factors relating to impact on thinking, change in behavior and classroom impact. However, KMAC was not perceived by either teacher leaders or teacher non-leaders as having a highly positive impact on any of the factors.

The reason for a lack of a "highly positive" rating may be due to pre-conceived opinions. Upon initial deployment of KMAC in 2002-2003, the technology infrastructure of the district could not handle the load required from so many concurrent users and the system collapsed. The initial deployment led to frustration on the part of some and created a preconceived wariness of KMAC, even on its second deployment. This opinion by the teachers of KMAC during the first roll-out could have influenced their current opinions as reflected in the survey

Another reason for the reserve in providing a "highly positive" impact rating may have been due to the required use of technology by the teachers. Several indicated they had a short time to learn the new product which at first was not as user friendly as more familiar software applications. Questions were not asked of the teachers on the survey of their perceived ease of use of technology in general, or ease of use of KMAC specifically. A certain personal comfort level of the individuals with technology use may have impacted the teachers' perceptions of the benefits of KMAC use in their planning for learning. Some teachers may not feel comfortable using technology in planning for learning and some may need more professional development to feel successful.

According to district administrators, the district has promoted the use of KMAC to their teachers and campus administrators. In this researcher's opinion from communication with teachers and administrators, there seems to be a common understanding throughout the district of the importance of the use of KMAC. However, some teachers may not feel comfortable with technology and may need more staff

development to be proficient with KMAC's functionality. Some teachers may not feel KMAC use is important due to lack of campus emphasis.

The teachers' perception of the relationship between KMAC and planning for learning were moderately positive in this category and seemed to be dependent secondarily on the teachers' involvement in a leadership capacity. Those in a leadership role may have had more involvement, discussions and collaboration regarding KMAC than others. For the impact on thinking and classroom impact sub-variables, there were significant differences between the teacher leaders and the teacher non-leaders, however the power in the statistical tests between these two groups were low with inconclusive results. The perception of KMAC primarily seems to be connected with the grade level taught by the teacher. Elementary and junior high teachers were moderately positive and high school teachers were moderately negative in this category on all sub-variables. It was found that elementary teachers were the most positive and high school teachers were the least positive with statistical significance found on all questions in this category when analyzed by grade level. The questions receiving the lowest ratings by the teachers dealt with KMAC's helping the teachers plan for high student engagement, learning how to plan for student learning and the clarifiers and the student evaluation ideas in KMAC positively impacting planning for learning.

Recommendations for Practice for Planning for Learning

1. The district should create a shared understanding among all teachers of the possibilities and benefits of KMAC. In 14 of the 35 questions on the survey, a statistical

difference exists between the teacher leaders and the teacher non-leaders. Therefore it would appear that the collaboration, input and responsibility that the teacher leaders have been exposed to could be shared with the teacher non-leaders to increase the shared understanding and commitment of KMAC and its potential student and teacher benefits. Shared understanding would lead to building a coalition as described by Schlecty (2001) and lead to professional learning communities as described by DuFour (2007).

Research Question Two: Delivery of Instruction

Research Question Two asked, "What are the perceptions of the teachers in Katy ISD of the relationship between the Katy Management of Automated Curriculum and delivery of instruction?"

Findings

The data for the variable for delivery of instruction were first analyzed as a single composite score, as if all other demographic variables were equal. Initial data analysis showed the teachers' perceptions of KMAC in the category of delivery of instruction to be moderately positive. Analysis was also conducted on the sub-variables and the individual survey items.

For all three sub-variables, teacher leaders, teacher non-leaders and elementary teachers had means in the moderately positive range, with the impact on thinking sub-variable being the strongest, followed by classroom impact then change in behavior. For

junior high and high school teachers, impact on thinking was the strongest sub-variable, then change in behavior, then classroom impact. Junior high teachers were moderately positive and high school teachers were moderately negative across all sub-variables. It was found that the grade level taught had a strong relationship with the teachers' perceptions of the impact on KMAC in the delivery of instruction category.

In the sub-variable impact on thinking, question 5 had the lowest response for all independent variables. This question measured the teachers' perceptions regarding KMAC 's providing delivery of instruction ideas. Response means were moderately positive for all except high school which had a moderately negative response mean.

The change in behavior sub-variable was impacted by the responses for question 31. Question 31 had the lowest response across all independent variables regarding KMAC's impacting the teachers learning how to deliver instruction. All response means were moderately negative except the moderately positive means for elementary teachers and teacher leaders.

The classroom impact sub-variable was impacted by questions 16 and 17. Question 17 scored lowest for teacher leader and elementary and junior high teachers regarding student evaluation ideas in KMAC causing a change in the delivery of instruction in the classroom. Response means for question 17 were moderately negative for all teacher groups except elementary teachers were moderately positive on this question. Question 16 scored lowest for teacher non-leader and high school regarding the clarifiers in KMAC causing a change in the delivery of instruction in the classroom. All

response means for this question were moderately negative except for the moderately positive means for elementary teachers and teacher leaders.

Delivery of instruction appeared to be the second strongest category of KMAC. KMAC was planned as the framework for supporting and promoting staff development courses throughout the district. Katy ISD therefore has aligned district-provided staff development opportunities with the teaching strategies and structures within KMAC. The alignment was designed to guide the teachers in lesson preparation and delivery of instruction within the classroom. In addition, district staff development courses were offered to give teachers a working knowledge of the strategies and components of KMAC. For instance, Project Creating Independence through Student Owned Strategies (Project CRISS) (Resources for Learning, LLC, 2009) was offered as a staff development course. Because district leaders thought these strategies were useful, the strategies were put into KMAC and then district staff development was offered to support implementation.

Schlechty (2001) emphasized that a school system must be aligned and supportive enough to sustain any innovation when introducing and inserting new practices and innovations for systematic improvement. Leadership in Katy therefore, wanted to align both the curriculum and the system such that the randomness of delivery was diminished and student learning was meeting the standards (Clark, 2008a). This goal also aligns with Carter's & Burger's (1994) work that proposed curricular innovation to prepare students for the future by not merely "doing things better," but

differently for educationally justifiable ends and with the guidance of visionary, effective leadership.

Conclusions

From conversations with administrators and e-mails from teachers to this researcher, it appeared that there is a lack of understanding among the teachers that the scaffolding of KMAC drove the district provided staff development opportunities for improved delivery of instruction. The result of this lack of understanding was that teachers were not as positive in their survey responses regarding giving credit to KMAC for the category of delivery of instruction. Katy ISD should continue the staff development emphasis in the district to make all teachers aware of the full capabilities of KMAC.

KMAC was not perceived by either teacher leaders or teacher non-leaders as having a highly positive impact on any of the factors. This difference could be affected in part by the inclusion of the answers of the Leaders of Learners (LOL) within the teacher leaders group. This Leaders of Learners (LOL) group met regularly throughout the school year and originally focused on KMAC and its implementation in the classroom.

The perception of the teacher leaders and teacher non-leaders of the relationship between KMAC and delivery of instruction were moderately positive and seemed to be dependent secondarily on the teachers' involvement in a leadership capacity. For the change in behavior and classroom impact sub-variables, there were significant

differences between the teacher leaders and the teacher non-leaders, however the power in the statistical tests were low with inconclusive results. The perception of KMAC primarily seems to be connected with the grade level taught by the teacher. Elementary and junior high teachers were moderately positive and high school teachers were moderately negative in this category on all sub-variables. It was found that elementary teachers were the most positive and high school teachers were the least positive with statistical significance found on all questions in this category when analyzed by grade level. The questions receiving the lowest ratings by the teachers dealt with KMAC's providing delivery of instruction ideas, KMAC's impacting the teachers learning how to deliver instruction, and the clarifiers and the student evaluation ideas in KMAC causing a change in the delivery of instruction.

Recommendations for Practice for Delivery of Instruction

1. Katy ISD should continue to emphasize the staff development designed to make all teachers aware of the full capabilities of KMAC including the strategies, clarifiers and the collaboration capabilities within and across grade levels and subjects and between campuses.

2. Katy ISD should publicize to the teaching staff that the framework of KMAC supports not only the instruction in the classroom but also aligns the Katy ISD professional staff development at the district level. It is the framework of KMAC that drives the staff development offerings in the district to meet the needs of the teachers for implementing KMAC strategies.

Research Question Three: Evaluation of Student Learning

Research Question Three asked, "What are the perceptions of the teachers in Katy ISD of the relationship between the Katy Management of Automated Curriculum and evaluation of student learning?"

Findings

The data for the variable for evaluation of student learning were first analyzed as a single composite score, as if all other demographic variables were equal. Analysis was also conducted on the sub-variables and the individual survey items. Initial data analysis showed the teachers' perceptions of KMAC in the category of evaluation of student learning to be moderately positive but with more data response variability than the other gestswo categories. When this category is analyzed by sub-variable, the impact on thinking sub-variable had the lowest response mean, followed by the sub-variables of change in behavior and classroom impact. Within the sub-variable of impact on thinking, question 6 was the only question and it had all moderately negative responses except a moderately positive average response for elementary teachers regarding KMAC's providing evaluation of student performance ideas.

The second lowest sub-variable was the change in behavior in the evaluation of student learning category. Teacher leaders and elementary and junior high were moderately positive and teacher non-leaders and high school were moderately negative.

In this sub-variable, question 32 had the lowest response for all independent variables regarding KMAC's impacting learning how to evaluate student learning. All response means were moderately negative except a moderately positive response mean for elementary teachers.

The third lowest sub-variable was the classroom impact in the evaluation of student learning category. Teacher leaders, teacher non-leaders and elementary and junior high teachers were moderately positive; however high school teachers were moderately negative. Question 22 had the lowest response for teacher leaders and elementary and junior high teachers regarding the student evaluation ideas in KMAC causing a change in the evaluation of student learning in the classroom. All response means were moderately negative except a moderately positive response mean for elementary teachers. Question 21 had the lowest response for teacher non-leader and high school teachers regarding the clarifiers in KMAC causing a change in the evaluation of student learning in the classroom. All response means were moderately negative except moderately positive means for elementary teachers and teacher leaders. This result suggests that either the clarifiers (assessment examples) in KMAC are not helpful or the teacher non-leaders and high school teachers do not understand the clarifiers' usefulness.

KMAC was not perceived by either teacher leaders or teacher non-leaders as having a highly positive impact on any of the sub-variables. A certain personal comfort level of the individuals with technology use may have impacted the teachers'

perceptions of the benefits of KMAC use in their evaluation of student learning and some may need more professional development to feel successful.

Conclusions

Within KMAC, the category of student evaluation needs more development. Since the assessment area of KMAC was the last created and is still in the developmental stages, district administrators were aware of this need. The survey responses by the teachers would not be expected to be as positive as the categories of planning for learning or delivery of instruction when addressing this still evolving tool.

Within the student evaluation area of KMAC are placed 'clarifiers' as sample assessment items used for illustrative purposes to enhance the teachers' understanding while planning. These clarifiers used within KMAC are a unique addition created by the district and are examples of the depth and specificity to which an objective should be taught and are used both in planning and assessment. Along with the clarifiers in KMAC, Webcat is an additional online tool available to the teachers to create assessments (Katy ISD, 2007d). These two tools have been specifically placed within KMAC to aid in assessment; however, it is not clear whether the teachers credited KMAC in their responses to this section of the survey.

Evaluation of student learning is the category in which the teachers perceived the least benefit in KMAC. Since evaluation is a critical component of the teaching and learning process, English & Steffy (2001) propose it be given as much weight as planning for learning and delivery of instruction and Carter & Burger (1994) emphasize

the importance of assessment is to monitor and understand the effectiveness of the systemic curricular process. Schlechty (2002) notes that, "[a]ssessment is critical to understanding" and that assessment items can become instructional tools. Therefore, deep curricular alignment, for which Katy ISD is striving, should include assessment for student achievement (English & Steffy, 2001). As noted earlier, the category of evaluation of student learning was the last area to be developed in KMAC and is receiving current district emphasis. Katy ISD should continue development of the evaluation of student learning category.

The teachers' perception of the relationship between KMAC and evaluation of student learning were varied by sub-variable. Both teacher leaders and teacher non-leaders were moderately negative for the impact on thinking sub-variable and moderately positive on the classroom impact sub-variable. For the change in behavior sub-variable, the teacher leaders were moderately positive and the teacher non-leaders were moderately negative. For this category of evaluation of student learning, there were no significant differences between the responses for the teacher leaders and the teacher non-leaders. The perception primarily seems to be connected with the grade level taught by the teacher. Elementary teachers were moderately positive and high school teachers were moderately negative. Junior high teachers were moderately negative on the impact on thinking sub-variable and moderately positive for the other two. It was found that elementary teachers were the most positive and high school teachers were the least positive with statistical significance found on all questions in this category when analyzed by grade level. The questions receiving the lowest ratings by the teachers dealt

with KMAC's providing evaluation of student performance ideas, KMAC's impacting the teachers learning how to evaluate student learning, and the clarifiers and the student evaluation ideas in KMAC causing a change in the evaluation of student learning in the classroom.

Recommendations for Practice for Evaluation of Student Learning

1. Katy ISD should continue development of the evaluation of student learning category of KMAC. The evaluation of student learning category is an area in the Katy Management of Automated Curriculum (KMAC) system which needs more development. This addition would be helpful information as teachers plan their strategies and utilize curricular objectives. Additionally, clear explanations and professional development addressing the current student evaluation ideas in KMAC should be communicated to the teachers.

Research Question Four: Between/Among Groups - Teacher Leader and Grade Level

Research Question Four asked, "Are there differences between/among teacher leaders and teacher non-leaders and between/among elementary, junior high and high school teachers in their perceptions of the KMAC on planning for learning, delivery of instruction and evaluation of student learning?" Teacher leaders were those teachers who were subject area campus Department Chairpersons, Team Leaders among a grade level

or subject area, a member of the district's Leaders of Learners (LOL) group or serve in other campus leadership areas. It is noted that the members of the district Leaders of Learners group met regularly at the district administration building throughout the school year and originally focused on KMAC and its implementation in classrooms throughout the district and may have more training and more investment in the success of KMAC than other teachers.

Findings

There was found to be a statistical significant difference between the teacher leaders and the teacher non-leaders in the planning for learning category sub-variables of impact on thinking and classroom impact. There was also found to be a statistical significance between the teacher leaders and the teacher non-leaders in the delivery of instruction category sub-variables of change in behavior and classroom impact. There was no statistical significance between responses for teacher leaders and teacher non-leaders in the evaluation of student learning category. Additionally, all teacher means for this category of evaluation of student learning were lower than for the other two categories.

The teacher leaders consistently perceived a more positive relationship than the teacher non-leaders regarding KMAC, and in several cases significantly so. The differences in means were likely affected in part by the answers of the Leaders of Learners (LOL) within the teacher leaders group. The LOL is modeled after the group of empowered persons referred to by Schlechty (2001) as the guiding coalition; people who

have power and positions of authority to help accommodate change and action within the larger group.

While LOL and teacher leaders in general affected responses, grade level taught appeared to have a great impact on the teachers' perception of the perceived benefits of KMAC with a statistically significant difference between all grade levels. The elementary teachers were the most positive with all question response means in the moderately positive range. The junior high teachers were slightly less positive with 27 response means in the moderately positive range and only 8 question means in the moderately negative range for all three categories. The high school teachers were the least positive group with 6 moderately positive and 29 moderately negative response means.

Conclusions

Analysis of the interaction of the variables of Teacher Leader and Grade Level taught resulted in the following analysis. In the categories of planning for learning and evaluation of student learning at the elementary and junior high grade levels, the teacher leader group was more positive than the teacher non-leader. However, at the senior high level, the mean for the teacher non-leader group was slightly more positive than the teacher leader group. In the category of delivery of instruction, at all grade levels the teacher leader group was more positive than the teacher non-leader. Analyses indicated that the grade level taught is a greater indicator of teacher perceptions toward KMAC than the position of teacher leader.

An analysis of the grade level responses indicate that the elementary teachers were most positive, followed by the junior high teachers with a slightly lower response and the high school teachers had a slightly lower response than the other two grade levels. There was found to be statistical differences between/among all grade levels in all categories, sub-variables and individual questions. The relationship reflected was that the higher the grade level, the lower the number of positive responses. Further investigation, perhaps as a qualitative case analysis, could help the understanding of the response differences in grade levels and why the position of teacher leader does not have the same impact at the high school level as it does at the elementary and junior high levels.

The teachers' perceptions of the relationships between KMAC and planning for learning, delivery of instruction and classroom impact were affected by differences between/among teacher leaders and teacher non-leaders and between/among elementary, junior high and high school teachers. Teacher leaders were more positive than teacher non-leaders in all nine of the sub-variables across all categories. The differences were statistically significant in four of the nine sub-variables. However, the power in the statistical tests was low with inconclusive results.

The perception of KMAC primarily seems to be connected with the grade level taught by the teacher. Elementary teachers were moderately positive in nine of the nine sub-variables. Junior high teachers were moderately positive in eight of the nine sub-variables and high school teachers were moderately positive in none of the nine sub-variables. The strongest category was planning for learning and the category with the

least positive response from the teachers was the evaluation of student learning. Statistically significant differences were found between elementary and junior high, elementary and high school and junior high and high school on all questions in all sub-variables across all categories. Therefore, it is determined that the differences between/among grade level taught had the greatest impact on the perceived impact of KMAC on planning for learning, delivery of instruction and evaluation of student learning.

Recommendations for Practice

1. Katy ISD should create a shared understanding among all teachers of the possibilities and benefits of KMAC. In 14 of the 35 questions on the survey, a statistical difference exists between the teacher leaders and the teacher non-leaders. Therefore it would appear that the KMAC related collaboration, input and responsibility that the teacher leaders were exposed to could be shared with the teacher non-leaders to increase the shared understanding and commitment of KMAC and its potential student and teacher benefits. Shared understanding would lead to building a coalition as described by Schlecty (2001) and contribute to professional learning communities as described by DuFour (2007).

2. Katy ISD should continue to emphasize the staff development designed to make all teachers aware of the full capabilities of KMAC including the strategies, clarifiers and the collaboration capabilities within and across grade levels and subjects and between campuses.

3. The Katy ISD superintendent should create a district representative panel (curriculum specialists, teachers, administrators, technologists, etc.) to determine future actions to increase the effectiveness of KMAC. Campus based focus groups should also be utilized to determine specific campus based interventions that should be implemented.

Summary

This study showed that the teachers in Katy ISD as a whole were moderately positive about the benefits of KMAC in the category of planning for learning. The teachers were slightly less positive, although still in the moderately positive range about the benefits of KMAC in the category of delivery of instruction. The teachers were the least positive about the benefits of KMAC in the category of evaluation of student learning, although still in the moderately positive range.

Analyses indicated the position of teacher leader was not the major contributing factor, however enough differences existed in the overall population that it would appear that the collaboration, input and responsibility that the teacher leaders were exposed to would have benefited the teacher non-leaders by increasing the shared understanding and commitment to KMAC and its potential student and teacher benefits. The professional learning community philosophy which Katy ISD embraces reinforced this idea of shared professional growth as a positive attribute for schools (DuFour, 2007).

In comparing the variables of grade level and teacher leader, grade level taught made the largest impact on the teachers' perception of KMAC in the categories of planning for learning, delivery of instruction and evaluation of student learning. These results were found to be statistically significant. Further research needs to be done to determine why the response means are trending down for each succeeding grade level.

Teacher leaders seemed more positive in their responses in the categories of planning for learning, delivery of instruction and evaluation of student learning than teacher non-leaders at the elementary and junior high levels. Teacher non-leaders seemed more positive than teacher leaders in the areas of planning for learning and evaluation of student learning at the high school level. These differences between teacher leaders and teacher non-leaders however were not found to be significant.

Analyses indicated that the grade level taught was a greater indicator of teacher perceptions toward KMAC than the position of teacher leader. The response means for the elementary teachers were highest, followed by the junior high teachers with a slightly lower mean and the high school teachers had a slightly lower mean than the other two grade levels. Possible reasons for this difference are the collaborative nature of the subjects and grade level taught, especially at the elementary levels, administrative support or encouragement of the use of KMAC at the building level or the lack of connection in the minds of the teachers regarding the framework in KMAC and the professional development offered in Katy ISD. Other influencing factors may be a continuing wariness of the product since the district technology system collapsed upon KMAC's initial deployment. Additionally, a greater number of specialist/extra curricular

teachers at the secondary level for whom KMAC curriculum is not yet in place may have impacted the results. Teachers of courses with limited curriculum in KMAC would not use KMAC and may have skewed the results of the survey. Also, teachers who were uncomfortable with technology use in general or unfamiliar with all of KMAC's functionality in particular, may have a reluctance to use any but the most basic functions required. An issue which was not surveyed was whether KMAC use was encouraged or required by the campus and/or a part of the teachers' annual appraisal. If KMAC use was not required and was therefore not used, the teachers' perceptions of the benefits of KMAC would be minimal. A research study incorporating these other factors may prove useful to the district.

Further analysis of the data would need to be performed to determine if years of experience in education or years of experience in Katy ISD were variables which contributed to a difference. A possible reason for the difference could be that the teacher leaders at the secondary levels were successful in their field of expertise for several years before KMAC was in use and therefore did not credit their success in the classroom with any perceived benefits of the product. Another possible factor for the difference in means between grade levels could be the insistence on the use of KMAC of the various school principals. Additionally, any teachers of specialty classes and advanced academic classes at the high school level might not yet have adequate curriculum in KMAC to impact their perceptions. The curriculum for basic courses was the first to be put into KMAC, with curriculum for specialty and advanced academic courses still being added at this time.

The questions receiving the lowest ratings by the teachers dealt with KMAC's helping the teachers plan for high student engagement, learning how to plan for student learning, impacting the teachers' learning how to deliver instruction and learning how to evaluate student learning. Additional questions receiving low ratings dealt with providing evaluation of student performance and delivery of instruction ideas. Also, the clarifiers and the student evaluation ideas in KMAC were rated low for positively impacting planning for learning, delivery of instruction and evaluation of student learning.

The questions receiving the most positive responses from the teachers dealt with KMAC's helping the teachers understand the scope and sequence of the curriculum, keeping track of lesson objectives and the curriculum (standards, goals, resources, and objectives) in KMAC impacting planning for learning in the classroom. Additional questions with positive ratings dealt with KMAC's making the teachers aware of research based instructional structures and strategies and the variability of delivery of instruction ideas. Also, the curriculum and strategies were credited with positively impacting a change in the delivery of instruction in the classroom.

This study sought to understand the impact of the Katy Management of Automated Curriculum System on planning for learning, delivery of instruction and evaluation of student learning as perceived by teachers in the Katy Independent School District in Texas. The four research questions were designed to gather data on each of the three research categories and to determine if differences in teacher perceptions existed, and if so were attributable to the variables of teacher leader and teacher non-

leader and the grade levels taught, categorized by elementary, junior high and high school.

The following paragraph indicates that in general, KMAC has had a moderately positive impact on planning for learning, delivery of instruction and evaluation of student learning, however, as noted in Chapter 4 and in the summaries outlined above, there are numerous opportunities for increasing the impact of KMAC on teacher thinking, behavior and classroom instruction within each of the three research categories.

Recommendations for Further Research

The scope of this research project is limited to the information derived from the literature review and the analysis of data collected from the online survey of the teachers in the Katy Independent School District (KISD). This research project surveyed teachers on their perceptions of KMAC, which is one portion of the proprietary software system called CMAC. The review of literature, the analysis of the research data collected and the subsequent findings provide for the following recommendations for further research.

1. Katy ISD should conduct further research and analysis of staff development provided by grade level with respect to the survey questionnaire which could provide insight into gaps in the district staff development program and teacher understanding and utilization of KMAC.

2. Katy ISD should conduct further research to determine those reasons for the perceptions on planning for learning, delivery of instruction and evaluation of student learning that are process related as well as individually related.
3. Katy ISD should conduct further research on the impact of KMAC on teacher practices, such as planning for learning, staff development and collaboration, especially among teachers who have no one else on their campus teaching the same subject. This effort should include exploring the differences attributable to building principals, annual teacher appraisals, grade level taught and subject areas and the impact on annual state test scores. More analysis should be conducted to determine why the differences exist in the responses of the teachers from the various grade level teaching assignments towards the perceived benefit of KMAC. A qualitative study to determine specific issues relating to the impact of KMAC may be appropriate to determine reasons for such wide variability between and among grade levels.
4. Katy ISD should conduct further research of the Leaders of Learners group. The Leaders of Learners (LOL) group responses should be compared against the other teacher leaders to see if a statistical difference exists.
5. Katy ISD should conduct further research of the teachers' familiarity with technology use which may have affected the teachers' perspective of the full functionality of KMAC.

Closing Statement

KMAC was a comprehensive and financially expensive initiative for Katy ISD. This study has attempted to document a segment of this work as it relates to the instructional program. While working to effectively utilize KMAC for student instruction, Katy ISD has also worked to share the components of this innovative blending of technology.

As of March 2007, Katy ISD entered into a partnership with Region IV Educational Service Center (ESC) to incorporate the KMAC system into the Texas Region IV online instructional system called Comprehensive Curriculum Assessment Professional Development (CCAP), a comprehensive product in four modules of Management Resources, Online Professional Development, Special Education, Assessment, Curriculum and Online Instruction. One-third of the Curriculum and Online Instruction module of CCAP now being marketed to the nation's schools is made up of KMAC (Schad, 2007).

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APPENDIX A

KATY ISD - KMAC SURVEY

This survey is intended to be completed by teachers only. This survey is part of a Texas A&M University doctoral research study, not affiliated with Katy ISD. Please fill in the blanks.

Years in Education 0-5_____ 6-11_____ 12-17_____ 18-22_____ 22+_____
Years in Katy ISD 0-5_____ 6-11_____ 12-17_____ 18-22_____ 22+_____

Bil. Ed.___ Sp. Ed. ___ Regular Ed.___ Specialist___ Levels(s) El, JH, HS_ Content areas(s) _
Are you currently in a campus leadership position, i.e. LOL, Dept. Chair, Team Leader, etc? YES_____ NO _____

Indicate your answers to each of the following by selecting a number.
(**1** = Highly Negative, **2**=Moderately Negative, **3**= Moderately Positive, **4**= Highly Positive)

To what extent do you perceive that the KMAC has:

	Hi Neg			**Hi Pos**
1. Helped you understand the scope and sequence of the curriculum you are responsible to teach	1	2	3	4
2. Made you aware of available curriculum resources	1	2	3	4
3. Made you aware of research based instructional structures and strategies	1	2	3	4
4. Encouraged collaborative planning (within your building and/or across the district)	1	2	3	4
5. Provided you with delivery of instruction ideas	1	2	3	4
6. Provided you with evaluation of student performance ideas	1	2	3	4
7. Enabled you to plan for high student engagement	1	2	3	4
8. Enabled you to plan for mastery of content	1	2	3	4

To what extent do you perceive the following components of KMAC positively impact planning for learning in your classroom?

	Hi Neg			**Hi Pos**
9. Curriculum (standards, goals, resources, and objectives)	1	2	3	4
10. Strategies	1	2	3	4
11. Clarifiers	1	2	3	4
12. Student evaluation ideas	1	2	3	4
13. Delivery of instruction ideas	1	2	3	4

To what extent do you perceive the following components of KMAC caused a change in the delivery of instruction in your classroom?

	Hi Neg			**Hi Pos**
14. Curriculum (standards, goals, resources, and objectives)	1	2	3	4
15. Strategies	1	2	3	4
16. Clarifiers	1	2	3	4
17. Student evaluation ideas	1	2	3	4
18. Delivery of instruction ideas	1	2	3	4

(**1** = Highly Negative, **2**=Moderately Negative, **3**= Moderately Positive, **4**= Highly Positive)

To what extent do you perceive the following components of KMAC caused a change in the evaluation of student learning in your classroom?

	Hi Neg			**Hi Pos**
19. Curriculum (standards, goals, resources, and objectives)	1	2	3	4
20. Strategies	1	2	3	4
21. Clarifiers	1	2	3	4
22. Student evaluation ideas	1	2	3	4
23. Delivery of instruction ideas	1	2	3	4

To what degree has the KMAC impacted your:

	Hi Neg			**Hi Pos**
24. Planning for Student Learning	1	2	3	4
25. Delivery of Instruction	1	2	3	4
26. Evaluation of Student Performance	1	2	3	4
27. Variability of delivery of instruction	1	2	3	4
28. Variability of student evaluation activities/methods	1	2	3	4
29. Ability to keep track of lesson objectives	1	2	3	4
30. Learning how to plan for student learning	1	2	3	4
31. Learning how to deliver instruction	1	2	3	4
32. Learning how to evaluate student learning	1	2	3	4

(**1** = Highly Negative, **2**=Moderately Negative, **3**= Moderately Positive, **4**= Highly Positive)

	Hi Neg			**Hi Pos**
33. To what extent do your plans in KMAC accurately reflect how you plan for learning in the classroom?	1	2	3	4
34. To what extent do your plans in KMAC accurately reflect how you deliver instruction in the classroom?	1	2	3	4
35. To what extent do your plans in KMAC accurately reflect how you evaluate student learning in the classroom?	1	2	3	4

APPENDIX B

KATY ISD - PROFESSIONAL EDUCATORS SURVEY

Please help us serve you better by completing this short survey. All of your answers are confidential. Complete the top portion by filling in the blanks. Indicate your answer to each question by selecting a number. (1 being low and 5 being high)

_____Teacher _____Counselor _____Assistance Principal _____Principal _____Other

Years in Education 0-5____ 6-11____ 12-17____ 18-22____ 22+____

Years in Katy ISD 0-5____ 6-11____ 12-17____ 18-22____ 22+____

_____Bilingual Education _____Special Education _____Regular Education

Grade level(s)_____ Content area(s)_____

1. To what degree have the following technology tools/solutions facilitated the educational process at your campus:

	Low				**High**	
KMAC – Katy Management of Automated Curriculum	1	2	3	4	5	NA
PLUS – Professional Learning User System	1	2	3	4	5	NA
KRONOS	1	2	3	4	5	NA
eSembler	1	2	3	4	5	NA
Zangle	1	2	3	4	5	NA
Projection Devices	1	2	3	4	5	NA
Overhead projectors	1	2	3	4	5	NA
Computers	1	2	3	4	5	NA
Instructional Software	1	2	3	4	5	NA

2. To what degree have the following departments, at the Central Level, been responsive and/or approachable to campus needs:

	Low				**High**	
Reading/ELA	1	2	3	4	5	NA
Math	1	2	3	4	5	NA
Science	1	2	3	4	5	NA
Social Studies	1	2	3	4	5	NA
Bilingual	1	2	3	4	5	NA
ESL	1	2	3	4	5	NA
Dyslexia Intervention	1	2	3	4	5	NA
REACH	1	2	3	4	5	NA
Career and Technical Education	1	2	3	4	5	NA
Compensatory Education	1	2	3	4	5	NA
Title I	1	2	3	4	5	NA
Transportation	1	2	3	4	5	NA
Human Resources	1	2	3	4	5	NA
Assessment	1	2	3	4	5	NA
Gifted and Talented	1	2	3	4	5	NA

Staff Development	1	2	3	4	5	NA
Special Education	1	2	3	4	5	NA
Fine Arts	1	2	3	4	5	NA
Health/Physical Education	1	2	3	4	5	NA
Technology	1	2	3	4	5	NA
Counseling	1	2	3	4	5	NA
Educational Technology	1	2	3	4	5	NA
Elementary Instruction	1	2	3	4	5	NA
Secondary Instruction	1	2	3	4	5	NA
Other_____	1	2	3	4	5	NA

3. What degree of effective communication do you have with the following:

	Low				**High**	
Building Principal	1	2	3	4	5	NA
Department Chair/Team Leader	1	2	3	4	5	NA
Teachers	1	2	3	4	5	NA
Parents/Community	1	2	3	4	5	NA

4. What degree of support do you have from the following:

	Low				**High**	
Building Principal	1	2	3	4	5	NA
Department Chair/Team Leader	1	2	3	4	5	NA
Teachers	1	2	3	4	5	NA
Parents/Community	1	2	3	4	5	NA

5. To what degree has an online curriculum:

	Low				**High**	
Helped you understand the scope and sequence of the curriculum you are responsible to teach	1	2	3	4	5	NA
Made you aware of available curriculum resources	1	2	3	4	5	NA
Made you aware of research based instructional structures and strategies	1	2	3	4	5	NA
Helped you plan for student learning	1	2	3	4	5	NA
Encouraged collaborative planning	1	2	3	4	5	NA

6. To what extent is each of the following a source of information or help in curriculum planning:

	Low				**High**	
Textbook	1	2	3	4	5	NA
Professional Development	1	2	3	4	5	NA
KMAC	1	2	3	4	5	NA
Colleagues	1	2	3	4	5	NA
Specialists	1	2	3	4	5	NA
Internet/Web Site	1	2	3	4	5	NA
Professional conferences	1	2	3	4	5	NA
Instructional software	1	2	3	4	5	NA
ITFs - Instructional Technology Facilitators	1	2	3	4	5	NA
PLCs – Professional Learning Communities	1	2	3	4	5	NA

7. How effective is each of the following in facilitating student learning at your campus:

	Low				**High**	
COTs – Campus Objective Tests	1	2	3	4	5	NA
DOTs – District Objective Tests	1	2	3	4	5	NA
Benchmark Tests	1	2	3	4	5	NA
PLCs	1	2	3	4	5	NA
Curriculum (standards, goals, resources, and objectives)	1	2	3	4	5	NA
Strategies	1	2	3	4	5	NA
Clarifiers	1	2	3	4	5	NA
SAP – Student Assistance Program	1	2	3	4	5	NA
Block Math (Jr. High)	1	2	3	4	5	NA
Inclusion Model	1	2	3	4	5	NA
Science Lab	1	2	3	4	5	NA

APPENDIX C

KATY ISD - KMAC SURVEY WITH IDENTIFYING RESEARCH QUESTION CORRELATION

Questions dealing with research questions-
(R1) Research question 1
(R2) Research question 2
(R3) Research question 3

This survey is intended to be completed by teachers only. This survey is part of a Texas A&M University doctoral research study, not affiliated with Katy ISD. Please fill in the blanks.

Years in Education 0-5_____ 6-11_____ 12-17_____ 18-22_____ 22+_____
Years in Katy ISD 0-5_____ 6-11_____ 12-17_____ 18-22_____ 22+_____

Bil. Ed.___ Sp. Ed. ___ Regular Ed.___ Specialist___ Levels(s) El, JH, HS_ Content areas(s) _

Are you currently in a campus leadership position, i.e. LOL, Dept. Chair, Team Leader, etc? YES_____ NO _____

Indicate your answers to each of the following by selecting a number.
(**1** = Highly Negative, **2**=Moderately Negative, **3**= Moderately Positive, **4**= Highly Positive)

To what extent do you perceive that the KMAC has:

	Hi Neg			**Hi Pos**
1. Helped you understand the scope and sequence of the curriculum you are responsible to teach (R1)	1	2	3	4
2. Made you aware of available curriculum resources (R1)	1	2	3	4
3. Made you aware of research based instructional structures and strategies (R2)	1	2	3	4
4. Encouraged collaborative planning (within your building and/or across the district) (R1)	1	2	3	4
5. Provided you with delivery of instruction ideas (R2)	1	2	3	4
6. Provided you with evaluation of student performance ideas (R3)	1	2	3	4
7. Enabled you to plan for high student engagement (R1)	1	2	3	4
8. Enabled you to plan for mastery of content (R1)	1	2	3	4

To what extent do you perceive the following components of KMAC positively impact planning for learning in your classroom?

	Hi Neg			**Hi Pos**
9. Curriculum (standards, goals, resources, and objectives) (R1)	1	2	3	4
10. Strategies (R1)	1	2	3	4
11. Clarifiers (R1)	1	2	3	4
12. Student evaluation ideas (R1)	1	2	3	4
13. Delivery of instruction ideas (R1)	1	2	3	4

To what extent do you perceive the following components of KMAC caused a change in the delivery of instruction in your classroom?

	Hi Neg			**Hi Pos**
14. Curriculum (standards, goals, resources, and objectives) (R2)	1	2	3	4
15. Strategies (R2)	1	2	3	4
16. Clarifiers (R2)	1	2	3	4
17. Student evaluation ideas (R2)	1	2	3	4
18. Delivery of instruction ideas (R2)	1	2	3	4

(**1** = Highly Negative, **2**=Moderately Negative, **3**= Moderately Positive, **4**= Highly Positive)

To what extent do you perceive the following components of KMAC caused a change in the evaluation of student learning in your classroom?

	Hi Neg			**Hi Pos**
19. Curriculum (standards, goals, resources, and objectives) (R3)	1	2	3	4
20. Strategies (R3)	1	2	3	4
21. Clarifiers (R3)	1	2	3	4
22. Student evaluation ideas (R3)	1	2	3	4
23. Delivery of instruction ideas (R3)	1	2	3	4

To what degree has the KMAC impacted your:

	Hi Neg			**Hi Pos**
24. Planning for Student Learning (R1)	1	2	3	4
25. Delivery of Instruction (R2)	1	2	3	4
26. Evaluation of Student Performance (R3)	1	2	3	4
27. Variability of delivery of instruction (R2)	1	2	3	4
28. Variability of student evaluation activities/methods (R3)	1	2	3	4

29. Ability to keep track of lesson objectives (R1)	1	2	3	4
30. Learning how to plan for student learning (R1)	1	2	3	4
31. Learning how to deliver instruction (R2)	1	2	3	4
32. Learning how to evaluate student learning (R3)	1	2	3	4

(**1** = Highly Negative, **2**=Moderately Negative, **3**= Moderately Positive, **4**= Highly Positive)

	Hi Neg			**Hi Pos**
33. To what extent do your plans in KMAC accurately reflect how you plan for learning in the classroom? (R1)	1	2	3	4
34. To what extent do your plans in KMAC accurately reflect how you deliver instruction in the classroom? (R2)	1	2	3	4
35. To what extent do your plans in KMAC accurately reflect how you evaluate student learning in the classroom? (R3)	1	2	3	4

APPENDIX D

QUESTION TREE - PLANNING FOR LEARNING

Question 1:
To what extent do teachers in Katy ISD perceive that the Katy Management of Automated Curriculum positively impacts planning for learning?

Impact on Thinking	**Change in Behavior**	**Classroom Impact**
To what extent do you perceive that the KMAC has:	**To what degree has the KMAC impacted your:**	**To what extent do you perceive the following components of KMAC positively impact planning for learning in your classroom?**
1. Helped you understand the scope and sequence of the curriculum you are responsible to teach	24. Planning for Student Learning	9. Curriculum (standards, goals, resources, and objectives)
2. Made you aware of available curriculum resources	29. Ability to keep track of lesson objectives	10. Strategies
4. Encouraged collaborative planning (within your building and/or across the district)	30. Learning how to plan for student learning	11. Clarifiers
7. Enabled you to plan for high student engagement		12. Student evaluation ideas
8. Enabled you to plan for mastery of content		13. Delivery of instruction ideas
		33. To what extent do your plans in KMAC accurately reflect your planning for learning in the classroom?

APPENDIX D (CONT'D)

QUESTION TREE - DELIVERY OF INSTRUCTION

Question 2:
To what extent do teachers in Katy ISD perceive that the Katy Management of Automated Curriculum causes a positive change in delivery of instruction?

Impact on Thinking	**Change in Behavior**	**Classroom Impact**
To what extent do you perceive that the KMAC has:	**To what degree has the KMAC impacted your:**	**To what extent do you perceive the following components of KMAC caused a change in the delivery of instruction in your classroom?**
3. Made you aware of research based instructional structures and strategies	25. Delivery of Instruction	14. Curriculum (standards, goals, resources, and objectives)
5. Provided you with delivery of instruction ideas	27. Variability of delivery of instruction	15. Strategies
	31. Learning how to deliver instruction	16. Clarifiers
		17. Student evaluation ideas
		18. Delivery of instruction ideas
		34. To what extent do your plans in KMAC accurately reflect your delivery of instruction in the classroom?

APPENDIX D (CONT'D)

QUESTION TREE - EVALUATION OF STUDENT LEARNING

Question 3:

To what extent do teachers in Katy ISD perceive that the Katy Management of Automated Curriculum causes a positive change in the way they evaluate student learning?

Impact on Thinking

To what extent do you perceive that the KMAC has:

6. Provided you with evaluation of student performance ideas

Change in Behavior

To what degree has the Katy Management of Automated Curriculum impacted your

26. Evaluation of Student Performance

28. Variability of student evaluation activities/methods

32. Learning how to evaluate student learning

Classroom Impact

To what extent do you perceive the following components of KMAC caused a change in the evaluation of student learning in your classroom?

19. Curriculum (standards, goals, resources, and objectives)

20. Strategies

21. Clarifiers

22. Student evaluation ideas

23. Delivery of instruction ideas

35. To what extent do your plans in KMAC accurately reflect your evaluation of student learning in the classroom?

APPENDIX E

E-MAIL MESSAGE FROM ASSISTANT SUPERINTENDENT'S OFFICE

TO SECRETARIES

Campus Secretary,
The Katy Instructional Department (KID) met and approved a survey request from Sharon Hogue. She will be sending the survey to you as the campus secretary. Please forward her e-mail to **ONLY** campus teachers **as a BLIND CC:** Teacher participation in this survey is voluntary not required.

If you have any questions, please feel free to contact me at ------ or email ------

Thanks,

APPENDIX F

E-MAIL MESSAGE FROM RESEARCHER TO SECRETARIES

E-MAIL REQUEST

Subject: Request for Participation

In body of email – "Memo: Request for Survey Participation" with survey link

Memo: Request for Survey Participation

To: Katy ISD Teachers

From: Sharon L Hogue, Doctoral student, Texas A&M University

Subject: Texas A&M University doctoral study

Re: My study of Katy Management of Automated Curriculum (KMAC)

Dear Teacher,

As a TAMU doctoral student, I am conducting an independent research study to determine the perceived impact of the Katy Management of Automated Curriculum (KMAC) in Katy ISD in the areas of planning for learning, delivery of instruction and evaluation of student learning. While Katy ISD has approved the administration of this questionnaire, the district has no control over the study or its contents or input into the final results.

As a teacher in Katy ISD, your input into this research is extremely important. You will find a survey at: http://www.surveymonkey.com/s.aspx?sm=waZ04vibsca6neiIDO4QOQ_3d_3d. You are requested to provide your responses to the survey in the two week window of **December 3, 2007 – December 14, 2007**. Survey responses are anonymous and all data will be aggregated in the analysis phase of research. No responses will be reported separately.

This study will involve teachers over eighteen years of age. The survey will take approximately 6 minutes to complete. Do not add your name or other identifying data to the survey.

Please note the following characteristics of this study:

- Your participation is voluntary;

- Your identity will remain anonymous;
- The IP address of your computer will not be recorded;
- You can elect to withdraw at any time without penalty;
- There are no positive or negative benefits from responding to this survey;
- There is no compensation;
- The survey will be used for research;
- The results will be printed and kept for 18 months in a locked file and then destroyed;
- The data obtained from the survey may be published;

The data will be reported as groups of teachers, not as individuals. No teacher names will be used in the Record of Study.

If you have any questions, you can contact Sharon Hogue, slhogue@earthlink.net and/or Dr. Virginia Collier, vcollier@tamu.edu.

This research study has been reviewed by the Institutional Review Board-Human Subjects in Research, Texas A&M University. For research-related problems or questions regarding subjects' rights, you can contact the Institutional Review Board through Ms. Melissa McIlhaney, IRB Program Coordinator, Office of Research Compliance, (979) 458-4067, mcilhaney@tamu.edu.

If you agree with the above information, please access the link to complete the survey.

It is hoped that this research will provide guidance for other districts that choose to implement automated curriculum management systems, provide data to enable Katy ISD to continue to improve the KMAC system and support and facilitate teachers in their quest to meet student needs.

Thank you in advance for your participation in this survey,

Sharon Hogue

http://www.surveymonkey.com/s.aspx?sm=waZ04vibsca6neiIDO4QOQ_3d_3d

If the link does not work, please copy & paste into the address bar of your internet browser.

APPENDIX G

REMINDER MESSAGE FROM RESEARCHER TO SECRETARIES TO BE BCC FORWARDED TO TEACHERS

Dear secretaries,
Would you please forward the following reminder message?
Thanks,
Sharon Hogue
****

To: Katy ISD Teachers

From: Sharon L Hogue, Texas A&M University

Subject: KMAC survey reminder

Dear Teacher,

Your responses to the KMAC survey are critical. Thank you to those of you who have completed the survey. If you have not taken the survey yet, would you please take 5 minutes to complete it? Please click "**NEXT"** at the end of each page.

As a reminder, I am a TAMU doctoral student conducting an independent research study to determine the perceived impact of the Katy Management of Automated Curriculum (KMAC) in Katy ISD in the areas of planning for learning, delivery of instruction and evaluation of student learning. While Katy ISD has approved the administration of this questionnaire, the district has no control over the study or its contents or input into the final results.

As a teacher in Katy ISD, your input into this research is extremely important. You will find a survey at: http://www.surveymonkey.com/s.aspx?sm=waZ04vibsca6neiIDO4QOQ_3d_3d. You are requested to provide your responses to the survey in the two week window of **December 3, 2007 - December 14, 2007**. Survey responses are anonymous and all data will be aggregated in the analysis phase of research. No responses will be reported separately.

The data will be reported as groups of teachers, not as individuals. No teacher names will be used in the Record of Study.

If you have any questions, you can contact Sharon Hogue, slhogue@earthlink.net and/or Dr. Virginia Collier, vcollier@tamu.edu.

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questions regarding subjects' rights, you can contact the Institutional Review Board through Ms. Melissa McIlhaney, IRB Program Coordinator, Office of Research Compliance, (979) 458-4067, mcilhaney@tamu.edu.

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Sharon Hogue

http://www.surveymonkey.com/s.aspx?sm=waZ04vibsca6neiIDO4QOQ_3d_3d

If the link does not work, please copy & paste it into the address bar of your internet browser.

APPENDIX H

POST HOC TESTS: HOMOGENEOUS SUBSETS

GRADE LEVEL AND PLANNIG FOR LEARNING

Planning for Learning - Impact on Thinking

Ryan-Einot-Gabriel-Welsch F

		Subset for alpha = .05		
Grade Level	N	Elem	Jr High	High School
High School	237	2.4253		
Jr High	138		2.7551	
Elem	260			3.0677
Sig.		1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

Planning for Learning - Change in Behavior

Ryan-Einot-Gabriel-Welsch F

		Subset for alpha = .05		
Grade Level	N	Elem	Jr High	High School
High School	237	2.4684		
Jr High	138		2.9010	
Elem	260			3.1808
Sig.		1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

Planning for Learning - Classroom Impact

Ryan-Einot-Gabriel-Welsch F

		Subset for alpha = .05		
Grade Level	N	Elem	Jr High	High School
High School	237	2.4269		
Jr High	138		2.7440	
Elem	260			3.0423
Sig.		1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

APPENDIX I

POST HOC TESTS: HOMOGENEOUS SUBSETS

GRADE LEVEL AND DELIVERY OF INSTRUCTION

Delivery of Instruction - Impact on Thinking

Ryan-Einot-Gabriel-Welsch F(a)

		Subset for alpha = .05		
Grade Level	N	Elem	Jr High	High School
High School	237	2.4262		
Jr High	138		2.6993	
Elem	260			3.0500
Sig.		1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

Delivery of Instruction - Change in Behavior

Ryan-Einot-Gabriel-Welsch F(a)

		Subset for alpha = .05		
Grade Level	N	Elem	Jr High	High School
High School	237	2.2799		
Jr High	138		2.5966	
Elem	260			2.8974
Sig.		1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

Delivery of Instruction - Classroom Impact

Ryan-Einot-Gabriel-Welsch F(a)

		Subset for alpha = .05		
Grade Level	N	Elem	Jr High	High School
High School	237	2.2679		
Jr High	138		2.5640	
Elem	260			2.9333
Sig.		1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

APPENDIX J

POST HOC TESTS: HOMOGENEOUS SUBSETS

GRADE LEVEL AND EVALUATION OF STUDENT LEARNING

Evaluation of Student Learning - Impact on Thinking

Ryan-Einot-Gabriel-Welsch F(a)

		Subset for alpha = .05		
Grade Level	N	Elem	Jr High	High School
High School	237	2.1266		
Jr High	138		2.4203	
Elem	260			2.7846
Sig.		1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

Evaluation of Student Learning- Change in Behavior

Ryan-Einot-Gabriel-Welsch F(a)

		Subset for alpha = .05		
Grade Level	N	Elem	Jr High	High School
High School	237	2.1632		
Jr High	138		2.4976	
Elem	260			2.8064
Sig.		1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

Evaluation of Student Learning - Classroom Impact

Ryan-Einot-Gabriel-Welsch F(a)

		Subset for alpha = .05		
Grade Level	N	Elem	Jr High	High School
High School	237	2.2096		
Jr High	138		2.5374	
Elem	260			2.8506
Sig.		1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

VITA

Sharon Lea Hogue
c/o Texas A&M University, Dept of EAHR, College Station, TX 77843-4222
slhogue@earthlink.net

EDUCATION:

Doctor of Educational Administration
Major: Educational Administration
Texas A&M University; College Station, TX

Master of Business Administration
Major: Management & Management of Information Systems
University of Houston; Houston, TX

Bachelor of Music Education
Major: Music Education
Sam Houston State University; Huntsville, TX

CERTIFICATION: All-Level Music (PK-12) (Life): Principal (EC-12) (Standard): Mathematics (4-8) (Standard): Superintendent (EC-12) (Standard): Texas

EXPERIENCE:

2010 — Cyber Coordinator, Online Principal Academy
Region IV Education Service Center
Houston, TX

2005-2010 — Manager of Instructional Technology, Systems Applications
Dickinson ISD
Dickinson, TX

2001-2005 — Distance Learning Facilitator, Mathematics Teacher
Westchester Academy for International Studies, Spring Branch ISD
Houston, TX

1999-2000 — Facilitator for MastersOnLine degree program
MastersOnLine, Houston Baptist University
Houston, TX,

1998-2001 — Choir Director, Instructional Technology
Spring Oaks M.S., Spring Branch ISD
Houston, TX

1980-1998 — Teacher, Choir Director
Housman Elem., Shadow Oaks Elem. Spring Branch ISD
Houston, TX