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Financial Adequacy and the True Cost of Curriculum in a Central Texas School District

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**Financial Adequacy and the True Cost of Curriculum in a Central
Texas School District**

by

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Dedication

This work is dedicated to my husband, David. Without his love, encouragement and patience this could not have happened. To my mother, who is the inspiration that led me to education and, to my father whose persistent questioning helped me to persevere.

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Financial Adequacy and the True Cost of Curriculum in a Central Texas School District

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Financial adequacy states that because different campuses hold different populations of students, and the needs of those students differ from one another, different campuses should receive not equal funding (as determined by the state of Texas) but, equitable and adequate funding. This study illustrates the differences between the students' needs in two different mathematics departments, in two different high schools, in the same public school district, in central Texas. Through focus groups and interviews the perceived needs of these students are discussed and resources that may fulfill these needs are listed. The resources are then costed-out using the district's financial information. What is found is that although the two school's mathematics departments are within \$66,000 of each other the teachers ask for very different resources and, even when the resources are similar, the teachers of each mathematics department want them to be used in different ways.

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Chapter 1: Introduction

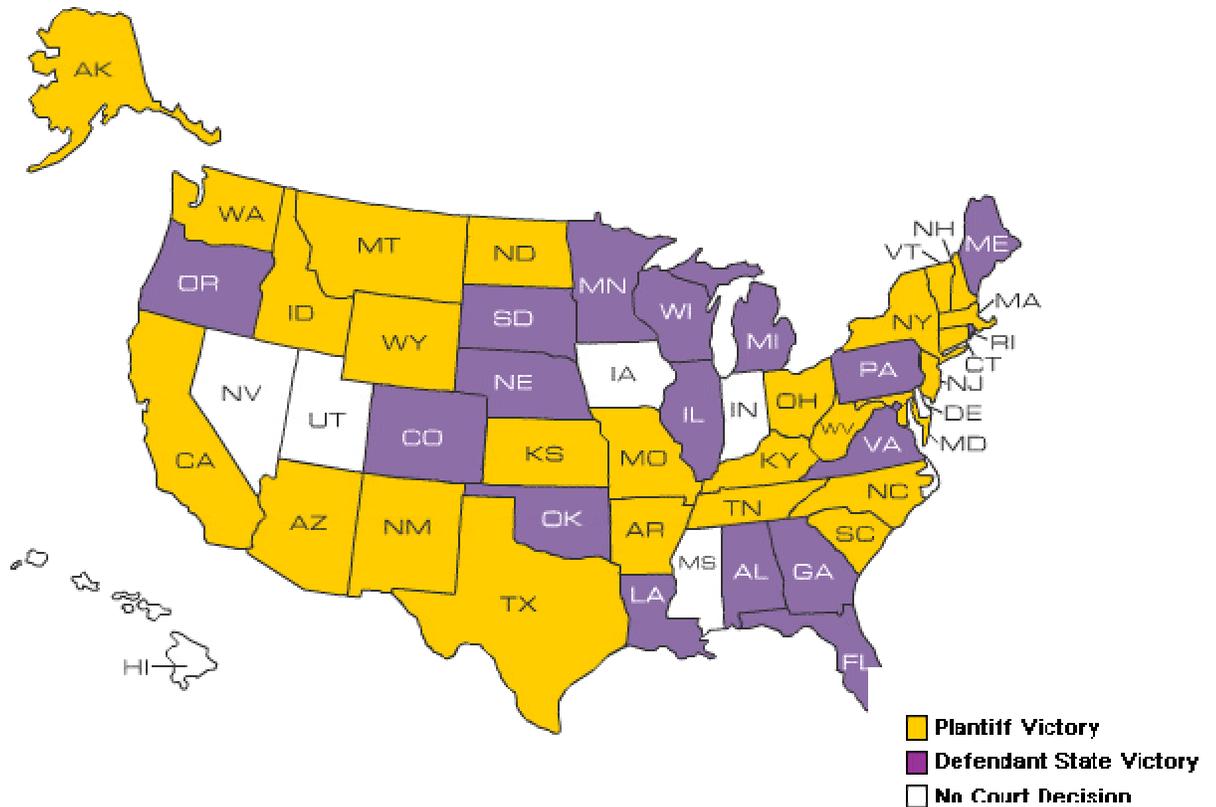
Public school finance is a topic that has been in the spotlight for the past decade. Because tax dollars pay for public education in the United States residents feel they deserve a return on their investment. Since the passage of the No Child Left Behind Act (NCLB 2002) schools have been more aggressively scrutinized than ever before. With this scrutinizing comes a focus on school funding and how the public money is being spent. In the state of Texas, a series of court battles have taken place that emphasize this acute focus on schools, results and accountability.

The true cost of curriculum includes tangibles and intangibles, explicit and implicit, counted and uncounted. The theory of how to determine the cost of curriculum gives educators a good idea how education budgets should be planned. Allen Odden and Arthur Foshay state that the true cost of curriculum is not just the tangibles of books, technology, and teachers' salaries but also the teacher's time and training and the effort put forth by paraprofessionals on the campuses (Clune 1994; Foshay 2000; Odden 2003). This idea is based in the understanding that different campuses, in the same districts may need different resources and funding.

The legal ideas behind the true cost are presently being fought out in state supreme courts all over the United States. Financial adequacy has replaced financial equity as most plaintiffs argue that different populations of students need different amounts of monies for different resources all based on students' needs and how prepared those students are when entering the public education system. While this argument is being successfully utilized around the country (see Figure 1.1), the financial studies completed for many of the court cases are almost always completed at the state level and

do not dig deeply enough to impact classrooms in the direct way the parties in each case argue.

Figure 1.1: Education Finance Litigation Based on the Financial Adequacy Argument¹



Texas is at the end of a series of lawsuits challenging the public school finance system. Beginning with *San Antonio vs. Rodriguez* (San Antonio ISD v. Rodriguez 1973) and finally ending in 2006 with the Texas Supreme Court decision on *West-Orange Cove CISD* (West-Orange Cove CISD v. Neeley 2003) the legal arguments have shifted from financial equity to financial adequacy. Many plaintiffs have used Allen Odden's simple and clear theory of financial adequacy: students, school and districts

¹ This figure can be found at: <http://www.schoolfunding.info/index.php3>

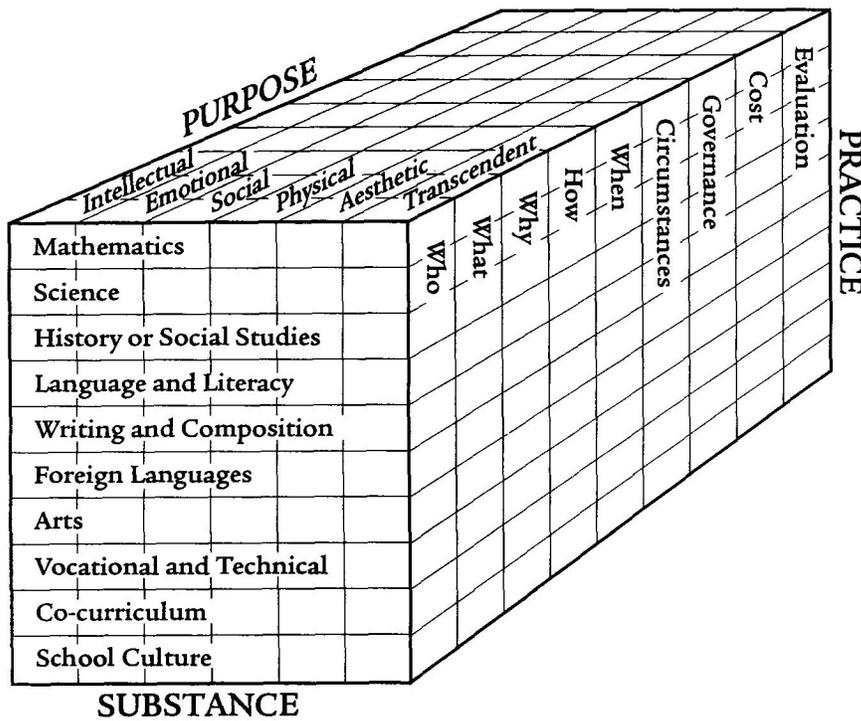
must be given the money they need to help students succeed. Presently, success is defined as passing the TAKS test, Texas' state mandated, standardized test

Odden states that without determining need, more money will not be effective. For implementation to succeed, the true cost of curriculum must be determined. To determine the true cost of curriculum for any campus or district, the needs of students must be discussed and only then will the appropriate curriculum be developed and the correct resources purchased. If students' needs are not taken into account no amount of money will help them reach their goals, or the school reach its goal. This parallels what Arthur Foshay has been discussing since his curriculum matrix was introduced in 2000.

To determine the true cost of curriculum the expenditure of funds and implementation of monies must be studied. While politicians try to find easy ways to reform education by passing laws and executive orders like the one passed on August 22, 2005 by the governor of Texas, Rick Perry stating that "65 percent of school district funds be expended for instructional purposes".(Perry 2005) there is no indication that politicians are studying or completing any research to find what is really needed in schools.

Using financial adequacy as the baseline and Foshay's curriculum matrix (see figure 1.2) as a way to organize ideas and supplement Odden's financial theories and, lastly a central Texas school district as the working example, this research will exercise Allen Odden's model for finding the true cost of curriculum for the high school classroom.

Figure 1.2: Arthur Foshay's Curriculum Matrix (Foshay 2000)



The research will utilize Allen Odden's financial adequacy theory and Arthur Foshay's theory of the cost of curriculum. Based on Texas' recent school finance court case, the legal argument of financial adequacy will be utilized and the methodology of this study will follow Allen Odden's implementation ideas for a financially adequate education. Lastly, the practice of school budgets will be utilized to cost out the data gathered by the researcher and find the true cost of high school math curriculum.

The theory of financial adequacy is presently being argued in state supreme courts all over the country. It is important to understand how this argument developed in Texas to understand how it fits with this research therefore, the first section of this research will

be a review of the cases that have brought Texas from the 1973 US Supreme Court hearing forward to where we are presently with the most recent Texas Supreme Court decision in finding Robin Hood (Senate Bill 7) unconstitutional. The second section of this research will be the data collection following Odden's methodology (Odden and Archibald 2001). The third section of this research is the results and discussion of data. I will illustrate that mathematics departments in different schools need different resources regardless of how similar their students population appears.

Chapter 2: Review of Literature

With the most recent Texas State Supreme Court decision about public school finance, the state legislature is in a unique position to consider a radical change in the way public schools are funded. The first section of this chapter chronicles the court cases that brought Texas to this point. The second section reviews the shift in thought and court cases from the argument of financial equity to the argument of financial adequacy. Lastly, the chapter discusses the theory of financial adequacy.

THE PATH TO WEST ORANGE-COVE V. NEELEY

November 22, 2005 was a day that individuals interested in Texas public school finance had been waiting for impatiently. On this day the Texas Supreme Court put to rest the constitutionality of Senate Bill 7 (Robin Hood). The court found the state to be illegally taxing property and effectively ended the so-called Robin Hood process. The Texas state legislature had until June 1, 2006 to remedy the situation. While this decision did not find the recapturing and distribution of property taxes unconstitutional, it still forces the Texas legislature to make radical changes to public school finance. Starting in the 1970s, it has been a long and winding road to this decision but the focus has always been the need of public school students in Texas.

Since the 1970's many public school districts have been fighting for financial equity in order to close the funding gap between poor and rich districts. In 1971, after years of neglecting the problems of public education in Texas, a US District Court declared Texas' financial system unconstitutional. The state appealed and the case was heard by the US Supreme Court in 1973 (Walker and Casey 1992; Fulton and Long

1993). *San Antonio ISD v. Rodríguez* (San Antonio ISD v. Rodriguez 1973) was the beginning of numerous cases involving financial equity and adequacy in Texas. The court concluded that while the Fourteenth Amendment (*14th amendment to the US Constitution* 1997) did apply, the argument that the poor people of the San Antonio Independent School District were a “suspect” class being denied the fundamental right of education did not apply because poor people could not be defined as a “suspect” class (411 U.S. 1 1973; Fulton and Long 1993; San Antonio ISD v. Rodriguez 1973).

Although the United States Supreme Court closed the door for any other school districts wanting to challenge their state’s own public school finance system at the federal level, Justice Marshall, in his dissent, opened the door to all state supreme courts writing that the plaintiffs should seek redress through “review of state educational funding schemes under state constitutional provisions” (San Antonio ISD v. Rodriguez 1973). Since this US Supreme Court decision, forty-five of the fifty states have had school districts heed Justice Marshall’s dissent and take their public school systems to court (ACCESS 2004).

In January of 1987, the *Edgewood Independent School District v. Kirby* case (originally *Edgewood v. Bynum*) began. Sixty-eight districts sued Texas to overhaul the public school finance system (Edgewood I 1989). On June 1, 1987 District Court Judge Harley Clark found the current finance system violated Article I, Section 3² and Article VII, Section 1³ of the Texas Constitution (Edgewood I 1989).

² “All free men, when they form a social compact, have equal rights, and no man, or set of men, is entitled to exclusive separate public emoluments, or privileges, but in consideration of public services. Equality under the law shall not be denied or abridged because of sex, race, color, creed, or national origin. This amendment is self-operative.” (<http://www.capitol.state.tx.us/txconst/toc.html>)

³ “A general diffusion of knowledge being essential to the preservation of the liberties and rights of the people, it shall be the duty of the Legislature of the State to establish and make suitable provision for the

The state immediately appealed and, in 1988, the Texas State Court of Appeals reversed Judge Clark's ruling. The court of appeals found that the school finance system was inequitable but still constitutional because it met a "rational basis" test of maintaining local control of schools (Walker and Casey 1992; Fulton and Long 1993).

After the appeals court ruling, the plaintiffs appealed to the Texas Supreme Court. Finally, on October 2, 1989 the Texas Supreme Court unanimously ruled in favor of Edgewood ISD thereby reversing the appeals court decision (Edgewood I 1989). In its decision the Texas Supreme Court also made some modifications. The Texas Supreme Court agreed with the district court that the finance system violated Article VII, Section 1 of Texas' Constitution⁴ but the court did not agree with nor address the equal protection aspects of the argument focusing on Article I of the Constitution.

Although overturned, the decision made by the appeals court was important. Finding that Texas' public school finance system was inequitable but not unconstitutional forced plaintiffs and the lawyers working for them to begin looking to arguments other than those focused on financial equity between the public school districts within Texas. In 1990, after the Texas legislature made substantial changes to Texas school finance by passing Senate Bill 1 (*Senate Finance Committee Approves Budget 2001*) *Edgewood I* was retried in district court. On September 24th of the same year the district court found that the finance system was still unconstitutional (Edgewood II 1991).

The district court granted the legislature until September of 1991 to pass laws ensuring the finance system was constitutional and the plaintiffs again appealed to the Texas Supreme Court. The court heard arguments beginning in November of 1990 and in January of 1991 found that the district court had erred in its judgment (Walker and

support and maintenance of an efficient system of public free schools."
(<http://www.capitol.state.tx.us/txconst/toc.html>)

Casey 1992; Fulton and Long 1993). In addition to over-turning the district's action, the Texas Supreme Court found the finance system to still be unconstitutional even with the passing of Senate Bill 1 (Edgewood II 1991).

The Texas Supreme Court's strong decision forced the state legislature into action. During the regular and four special sessions of the 72nd Texas Legislature a plan was framed to recapture local tax dollars on a regional basis. Bypassing some of the obvious unconstitutionality of this decision, the legislature created county education districts (CED)⁵. For two years CEDs levied property taxes for the benefit of all schools within each county but CEDs were challenged in the Texas Supreme Court and found to be unconstitutional during the *Edgewood III* case (Edgewood III 1992). The Texas legislature was given until June 1, 1993 to develop yet another system that would be constitutional according to the Texas Constitution.

In response to the Texas Supreme Court, the legislature acted swiftly by approving three constitutional amendments and, just as swiftly, the voters rejected all three amendments. After the election, the legislature passed Senate Bill 7. Once again the Edgewood plaintiffs immediately challenged Senate Bill 7 in *Edgewood IV* (Edgewood IV 1995). This time the plaintiffs maintained that "SB 7 did not make suitable provision for public education as required by the Texas Constitution" (Walker and Casey 1992). This argument was based on financial adequacy. District Court Judge F. Scott McCown found Senate Bill 7 constitutional as long as it was fully funded by the legislature. The plaintiffs appealed to the Texas Supreme Court and the district court's ruling was immediately over turned (Edgewood IV 1995; Fulton and Long 1993).

⁴ See <http://www.capitol.state.tx.us/txconst/toc.html>

⁵ County Education Districts were part of Senate Bill 351, enacted in 1991. (<http://www.capitol.state.tx.us/>)

In 1999 the final Edgewood case, Edgewood V, was dismissed after the district court postponed their ruling until after the 1999 legislative session. The court dismissed the case because the state legislature made the necessary changes in the public school finance law for Texas (Edgewood V 1998; Jepson 2002). Although this case was dismissed, school districts did not stop challenging Senate Bill 7 now known publicly as Robin Hood.

In 2001 wealthy districts (Chapter 41 districts) sued the state of Texas but, like the Edgewood V case, the 2001 case was dismissed. The third appellate court dismissed the case finding no evidence that any district must tax at the \$1.50 cap to provide a minimum accredited education (West-Orange cove CISD v. Alanis 2001). On May 29, 2003, the Texas Supreme Court reversed the two lower courts' dismissals and remanded the case to the Travis County District Court (Blair 2004; Fulton and Long 1993). The Supreme Court stated that a single district is entitled to a day in court if it alleges that it is constrained by the state to tax at a particular rate (West-Orange Cove CISD v. Neeley 2003).

State District Judge John Dietz issued his final judgment on Texas' public school finance system on November 30, 2004. After hearing the most recent court case filed against the state Judge Dietz found that the state of Texas failed to provide access to funds sufficient to provide a constitutionally adequate education (West-Orange Cove CISD v. Neeley 2003). Part of Judge Dietz's ruling stated that a new finance system had to be in place by October 1, 2005. Unfortunately, that date has come and gone but, because the district court's ruling was under appeal to the Texas Supreme Court, Judge Dietz has postponed this section of his unprecedented ruling.

Judge Dietz based most of his decision on the costing-out studies conducted by both the plaintiffs and the state⁶. Both sides chose the cost-function methodology (See Appendix A) for their costing-out studies although the plaintiffs also completed a professional-judgment study that was rejected by the court (*ACCESS* 2004). After extensively studying both cost-out studies, Dietz found overwhelmingly in favor of the plaintiffs

“...the Texas Constitution requires a public school finance system that (1) provides districts access to funds sufficient to provide a general diffusion of knowledge, i.e., a constitutionally adequate education (Article VII, section 1), (2) within an equalized system that still leaves districts ‘meaningful discretion’ to raise their tax rates in order to provide local enrichment programs to their students, if they so choose (Article VIII, section 1-e). The current system is in violation of both of these requirements.” (Dietz 2004)

The shift in legal argument from financial equity to financial adequacy is what made a ruling like Judge Dietz’ possible.

Although financial adequacy has been argued in the courts in Texas because of the Edgewood IV case in 1995 (Edgewood IV 1995) no unbiased group has done a comprehensive costing-out study. Only three costing-out studies have been completed at the state level in Texas, all during the recently decided *West Orange-Cove v. Neeley* case of 2004. Of these three studies, only two were accepted by the Travis County District Court as evidence.

⁶ “The first study, undertaken for the Legislature’s Joint Select Committee on Public School Finance by Lori Taylor and other researchers at Texas A& M University, concluded that, for 2004, current aggregate spending in the state was at a level sufficient to provide all districts in the state the resources needed to allow 55% of their students to meet the state performance targets for that year; if no funds were to be re-distributed away from districts spending at levels higher than the adequacy level designated by the study, an additional \$226-\$408 million would be needed. The cost function analysis prepared by Andrew Reschovsky and Jennifer Imazeki for the plaintiffs, which used 3 differing outcome standard definitions and a number of different policy judgments, concluded that between \$1.65 billion and \$6.17 billion would be needed to meet the 55% successful performance measure.” (*ACCESS* 2004)

District Judge John Dietz did not accept the plaintiff's professional judgment costing-out study for reasons to be discussed later, but he did accept the other two studies; one produced by each party in the case (*ACCESS* 2004). Both were cost function studies. Although both studies utilized the same data, provided by Lori Taylor of Texas A&M, the conclusions of each were very different. Using the same data, the only reason the results could have been different is if different methodological choices were made in the data gathering or analysis stages of the cost function studies.

Both studies developed their statistical model using a 55% passing rate. This rate was chosen because according to *No Child Left Behind* (NCLB 2002), for the 2004-2005 school year 53% of students need to pass a state's Reading or English/Language Arts test and 42% of students need to pass a state's mathematics standardized test to show adequate yearly progress (Shade 2005). As well, according to the Texas Education agency (TEA) 50% of students must pass the Reading or English/Language Arts TAKS tests and 35% of students must pass the mathematics TAKS test for the school to earn a rating of "academically acceptable" (TEA 2005). Because the NCLB standards are higher, both legal parties chose to use a passing rate that would include the passing rates for both NCLB and Texas.

Table 2.1 explains the differences in methodological choices made in the state's cost out study and the plaintiff's cost out study.

Table 2.1: Methodological choices of the cost out studies done by the state and by the plaintiffs during the West Orange Cove v. Neeley Case*

<i>School Outcomes and School Costs: the Cost Function Approach (from now on referred to as the Gronberg-Taylor study)</i>	<i>Estimating the Costs of Meeting the Texas Educational Accountability Standards (from now on to be referred to at the I&R study)</i>	Problems
Did not use weighted calculations (each district is weighted by number of pupils) ⁷ .	Used weighted calculations.	With the non weighted calculations, large districts are being under-emphasized while small districts are being over-emphasized.
Did not take into account many of Texas' accountability system requirements.	Took in to account all Texas' accountability system requirements	With either methodological choice, this decision can skew the outcome to favor one party or the other.
Did not utilize drop-out rates of state alternative assessment tests in any of their calculations.	Used drop-out rates in their calculations	With either methodological choice, this decision can skew the outcome to favor one party or the other.
Does not take into consideration requirements of the NCLB Act.	Reports on not only the cost of a 55% passing rate (the 2006 passing rate needed according to NCLB) but also the increased passing rate of future years.	Because states must start meeting the passing rates laid out by NCLB, this federal law must be taken into account. While the 2006 passing rate must meet 55% for AYP to be met. That percentage increases every year.
Ran the cost-function analysis and then applied the TEA conversion scores (converting TAAS scores to TAKS scores).	Converted the TAAS score to TAKS scores and then ran the analysis.	With either methodological choice, this decision can skew the outcome to favor one party or the other.

*West Orange Cove Consolidated Independent School District et. al. v. Shirley Neeley, Commissioner of Education, et. al. 2003. Travis County Court

Judge Dietz's final decision in favor of the plaintiff discussed, in detail, both cost function cost out studies accepted during the trail (Dietz 2004). The judge identified the methodological choices made by the state as flaws although I believe that each party interpreted the data to best suit their argument. Although this creates two bias studies,

⁷ "Pupil weight" allows for a more accurate picture of the type of students in any given state. Some see weighting pupils as an incentive to label more students (in need of special education or bi-lingual services, etc.) but in statistical modeling it is used simply to obtain a more accurate picture of the types of students a state or district has to service.

that is not remarkable; most lawyers, during a court case focus on information beneficial to their party's case. An objective costing-out study must be completed for the state of Texas if effective reform is to happen. Not only does an objective study need to be completed but a methodology that education experts agree with must be utilized to complete the study.

The goal of public school reforms taking place from financial adequacy rulings is this: by understanding the differences between schools and between districts, schools will be able to offer suitable funds for adequate strategies to be offered to students in order that those students have the opportunity to successfully meet state-mandated standards. To understand the needs of different schools within the same district, a theoretical statistical model can not be used and the cost function model is nothing more, "The statistical analyses undertaken to equate levels of expenditure with specified outcome targets are quite complex and often are difficult for policy makers to understand. For these reasons, cost function analyses to date have mostly been theoretical modeling exercises rather studies that are ordered or utilized by legislatures or courts." (ACCESS 2004).

FROM EQUITY TO ADEQUACY: THE COURTS

Until *Edgewood IV* court cases surrounding public school finance focused on financial equity. During this generation of court battles, equity was based on the idea that all children in a given state should have equal access to educational resources, including equal spending or a guaranteed tax base (Clune 1993). In Texas, the *Edgewood I* case of 1987 successfully argued financial equity and the court ruled that children throughout the state should have the same opportunity to make effective use of educational resources (Clune 1993; Kahlenberg 2001/02). The Texas Supreme Court agreed with the plaintiffs,

ruling that an efficient public school system must provide “substantially equal access to similar revenues per pupil at similar levels of tax effort” (Edgewood I 1989). Although the case was won, this interpretation of equity focuses on input (the resources going into schools) and the gap between wealthy and poor districts in the state of Texas remained.

Responding to the 1989 ruling and rethinking their arguments, Edgewood ISD was back in court in 1991 with *Edgewood I.S.D. v. Kirby (II)* and again in 1992 with *Edgewood III*. This time, a new strategy was utilized by the plaintiffs. The argument of adequacy was used. Adequacy focuses on student achievement by identifying whether or not a district or school can provide funding to help students reach the state-mandated standards (Clune 1993). The Texas Supreme Court again ruled for the plaintiffs, only this time because the ruling of the court discussed financial adequacy instead of equity, many districts could take much needed steps forward towards closing “the achievement gap”. Districts were required to have “substantially equal access to the funds necessary to provide an accredited education” (Edgewood III 1992). Districts now had to look at the population of each school and how they were offering education to that population. As well, budgets had to be modified to ensure each subgroup of student was being adequately supported.

The move towards state-mandated, standards-based education prompted the shift in thinking from financial equity to financial adequacy. Financial equity is based only on input, i.e., money going into a school district. Financial adequacy is also focused on input but, more importantly, adequacy focuses on input leading to processes and results (Odden 2001; Minorini 1994; Kahlenberg 2001/02).

Two clear questions arise from the goals and demands of standards-based education. One: based on students’ needs, are adequate funds available to obtain and

utilize educational strategies to help students reach the state-mandated standards? School districts in a single state will have very different responses to this question based on the school's size, demographics (sub-groups), and socioeconomic make-up.

From this initial question the second question is a framework for the legal argument of financial adequacy. Two: is the state's school finance system providing sufficient revenues for the average school to teach students to meet state-determined performance standards and, do sufficient funds exist to provide extra help such that special-needs students will achieve the same high standards? (Odden 2001). The delineation of state-mandated standards into concrete, educational objectives allows people to ask these questions and receive concrete answers. If the answer to either of these questions is "no", then the state's schools have legal recourse and the finance system must be reformed until the answers to the two questions is "yes".

Legal challenges based on financial adequacy focus on the level of educational opportunities offered to students throughout the state. Districts may not be able to provide students an adequate education because of lack of funds or because of the high needs of the student population in a district (Minorini 1994). Although it is not the first time this idea has been used legally, the most recent court case in Texas against Senate Bill 7, *West Orange-Cove Consolidated I.S.D. v. Neeley et. al.*(2004) made a successful argument based on financial adequacy. District Court Judge John Dietz ruled that Texas' school finance system fails to provide an adequate, suitable education as required by Article VII, section 1⁸ of the Texas Constitution (*West-Orange Cove CISD v. Neeley*

⁸ "A general diffusion of knowledge being essential to the preservation of the liberties and rights of the people, it shall be the duty of the Legislature of the State to establish and make suitable provision for the support and maintenance of an efficient system of public free schools."
(<http://www.capitol.state.tx.us/txconst/toc.html>)

2003). Although this decision was immediately appealed, many saw it as the beginning of real finance reform for Texas public schools.

The challenge for an idea such as financial adequacy is to determine the costs required to finance the programs offered by each district and each campus within a given district. William Clune and Allan Odden have spent much time on the idea of financial adequacy and, instead of defining it, they both have discussed how the reform of public school systems may need to look to reach financial adequacy. Their ideas are similar and simple: budgets for schools must be developed from the ground up. Each school must look at its population of students (sub-groups) and that group's needs deciding what educational strategies and curriculum programs are needed for those students to meet the state-mandated standards. Most important, information about the schools' populations must be accurate, for that becomes the basis of need in the school which then becomes the basis of the school's budget (Clune 1993; Odden 2001; Koski and Levin 2000).

FINANCIAL ADEQUACY: THE THEORY

The Problems

The theory of financial adequacy is an ongoing evolution of ideas that began in the early nineties with Allan Odden and William Clune. Clune focused on financially disadvantaged students and bringing adequate funding to this population (Clune 1994, 1994). Odden focused on the implementation of financial adequacy and how to raise the productivity of students with ever decreasing funds (Odden 1998, 1994; Odden and Archibald 2001; Odden and Clune 1998, 1995; Odden 1994, 2001). This section discusses the different themes emphasized by Clune and Odden in their analysis of the present problems with most public school funding systems, the solutions that financial

adequacy may present and the implementation of financial adequacy that Allan Odden describes as the reallocation of funds.

When discussing the problems of the present school funding systems, three themes emerge: A failure to focus on results, the disadvantages of bureaucracy, and money. The failure to focus on results is the primary theme discussed in many of the early articles (Odden and Clune 1995; Odden and Archibald 2001; Odden and Clune 1998; Odden 1994, 2001). Odden and Clune quote Diane Ravitch's *National Standards in American Education* also published in 1995, "Without clear goals, specification of educational standards and good measures of them, it is impossible to be productive"⁹.

Lack of focus has been partially answered in recent years with the beginnings of standards and high stakes testing. In 2001, after the passing of the *No Child Left Behind Act* states and school districts reacted swiftly by creating standardized tests in multiple subject areas and for multiple grade levels. Presently, all fifty states now have standardized assessments whereas, in 1995, only a handful a states chose to test its students in this way (Odden and Clune 1995).

American schools are bureaucracies which are characterized by heavy middles. This approach to administration and fund allocation puts school districts at a disadvantage in two primary ways: there is an overwhelming focus on service and there exist practices that drive up cost rather than productivity. It is estimated that consistently 60% of each education dollar is spent on instructional services that include regular instruction for all students and extra help for special education students, students with limited English proficiency and low-achieving students (Odden and Monk 1995). While 60% of each education dollar goes directly to classroom instruction, the rest of each

⁹ Diane Ravitch's *National Standards in American Education* can be found at <http://www.brookings.edu>

dollar goes towards student nutrition, parental involvement, child care, and other services focused on a student's well being rather than direct educational services (Odden and Clune 1995). Although these services are noteworthy, they do not directly effect student achievement. The bureaucratic approach to public school funding allows the focus on services to continue. As well, it allows those services to drive up costs for individual public school campuses and entire districts.

As with most bureaucratic entities, the allocation of funds to campuses and school districts is based on whether programs are needed and how effectively said programs are run. Because of this mind set public school campuses have a tendency to respond to issues and concerns by developing and adding new programs and adding new administrators for each of these new programs. As well, all current programs need continually to raise their standards insuring that they do not become obsolete (Odden and Clune 1995; Odden 1994; Odden and Monk 1995). The result of this bureaucratic mindset is a self perpetuating cycle: the constant need for more people and more money for services that, again, only indirectly raise student achievement and productivity.

Odden and Clune discuss how poor funding decisions lead to low productivity from students: "In the period 1960-90, inflation-adjusted revenues per pupil rose by slightly more than 200%...student achievement in core subject areas during the same period rose only modestly" (Odden and Clune 1995). In general, the discussion revolves around the idea that the present school finance structures are disconnected and diverging from the newer standards based policies. Specifically, problems with funding decisions fall into two main categories: resources distribution and use of money.

Poor resource distribution is a key concern when discussing the theory of financial adequacy, specifically in the implementation of the theory, which will be

discussed in more detail in the next section. The federal distribution of funds across states, districts, schools and even students is extremely uneven. As well, the mechanics of distributing funds usually provide higher levels of funding to socio-economically advantaged and high-achieving areas, the opposite of what one would expect (Odden 1994; Odden and Clune 1995, 1998). Exacerbating this poor distribution of resources is the unimaginative use of money that goes on in most public school districts and on most campuses.

Monies are not used in ways that directly effect student achievement and raise student productivity. Instead, education dollars are used in the same way over and over. New dollars are used to raise teacher salaries or to expand services for special education students. Even those states undergoing school finance reform (Texas being one among the list) described the use of new monies, especially in poor districts, to build and maintain facilities, buy supplies and fund health and social services before it is used to directly address student achievement issues (Odden and Clune 1995, 1998; Odden 1994; Odden and Monk 1995). Teachers' salary and compensation is the last key component of the theme of money.

Teacher compensation is seen as a detriment to a quality education. "Across the country there is rising evidence that education generally is not getting its share of bright, able individuals" (Odden 2003). Presently the teacher compensation system minimally rewards teachers for learning new skills or earning higher level degrees. Teachers have no incentive to learn new skills, seek out professional development, or work towards more advanced academic degrees (Odden 1994; Odden and Clune 1995; Odden 2003). Teachers' salaries consume almost 50 percent of each education dollar spent (Odden 1998) and is the major formal extrinsic reward incentive for teachers (Odden and Clune

1998). For these two reasons, teachers' compensation must be at the top of the list when considering a systematic reform of education.

Suggested Solutions

The solutions for the present school funding system are organized into four major themes: decentralization, professional development, teacher compensation and focusing on results. The last of these themes has already been discussed to some degree. In the mid-nineties, a revolt took place against increasing property taxes for direct use in public schools. Since then schools have had to continually increase productivity while dealing with stagnant or decreasing funds. Creating state and local standards for students to reach is a way to focus on results and raise the productivity of students but, that is just the first step (Odden 1994, 1994, 2001; Odden and Clune 1998; Odden 1998).

Professional development is the second of the three major themes emerging from the research of financial adequacy. It is somewhat difficult to determine what the average expenditure is for professional development because each campus and district has their own way of categorizing and reporting professional development within their own budgets (Odden and Monk 1995). Although it is difficult to track the money spent on professional development the type of professional development that should be taking place is a more straight forward discussion and goes hand in hand with the third theme: decentralization.

Decentralization is split into two main categories: the decentralization of money and the decentralization of power. The decentralization of money is essential to the theory of financial adequacy. In this decentralization, the school becomes the key organizational unit (Odden and Monk 1995; Odden 1994; Odden and Clune 1995, 1998; Odden 1998, 1994). Giving each campus control over its own budget and monetary

decisions would allow personnel in each school to take control over the school's future. Having control over the money inherently gives one a position of power.

The decentralization of funding decisions brings with it the decentralization of power. Allowing each campus control over its own budget also gives each campus control over its personnel, professional development, supplies and services (Odden 1994, 2001, 1998, 1994; Odden and Clune 1995). To take successful control of the decision making administrators on each campus have to decide what skills they are lacking and seek out the information they will need to help make these decisions.

The skills and knowledge school personnel need can be best split into four areas: information, knowledge, power and rewards. Information about the goals of the school and the funds associated with those goals is crucial to the decision making process. Interpersonal and team skills, technical knowledge and business knowledge and skills are examples of the types of knowledge school personnel will have to contribute to the decision making process. Power has already been discussed; the authority to make decisions about the direction the campus will take is integral and, lastly, a reward or compensation system for all school personnel based on performance will help personnel to be more invested in each decision made at the campus level (Odden 1994; Odden and Monk 1995). Heavy initial and ongoing professional development for all school personnel must focus on these four categories for an efficient decision making process to occur at the campus level.

Implementing these changes means an almost total overhaul of present public school finance systems in the United States. The decentralization of money and power would lead to a break down in the bureaucratic organization of the school systems. As well, all school personnel would have to commit to intense initial and ongoing

professional development to ensure an understanding of what types of decisions would have to be made and how to make those decision in the most efficient and effective way possible. Allan Odden and Sarah Archibald describe what the implementation of such a process may look like on an individual campus (Odden and Archibald 2001).

Teacher compensation is the last large piece of the decentralization of money and power. Districts and campuses must be permitted to pay their teachers what they view is the teacher's worth, not what the state's salary ladder mandates must be paid based on years experience and degrees earned (Clune 1994; Clune 1993; Odden 1994; Odden and Archibald 2001; Odden 2003).

Suggested Implementation Procedures

Because of the scarcity of new education funds and the continuing trend of an ever increasing responsibility on local tax payers to fund public schools, the implementation of the theory of financial adequacy has become synonymous with the reallocation of funds (Odden 1994). Step one, laying the foundation for change, has already been discussed within the suggested solutions sections of this chapter. The foundation of change is the most important step. To create real change the foundation must not be shaky or school personnel will be unwilling to take risks with their decisions.

Defining a new educational strategy is step two in this process and is the focus of this research and discussed more specifically in the methodology chapter. Within this decision must be strategies for helping struggling students. Last, ongoing professional development must be decided upon so teachers and other campus personnel understand the changes that have been made and the new goals being reached for (Odden and Archibald 2001).

Hiring and organizing teachers and other school staff (e.g. teacher assistants, specialized experts and volunteers) who will support the new educational strategy is the next step in the implementation process. Logistic decisions such as school size, class size, and time for planning and professional development must be taken into consideration (Odden and Archibald 2001). As well, teachers and other school personnel must agree to these logistic decisions.

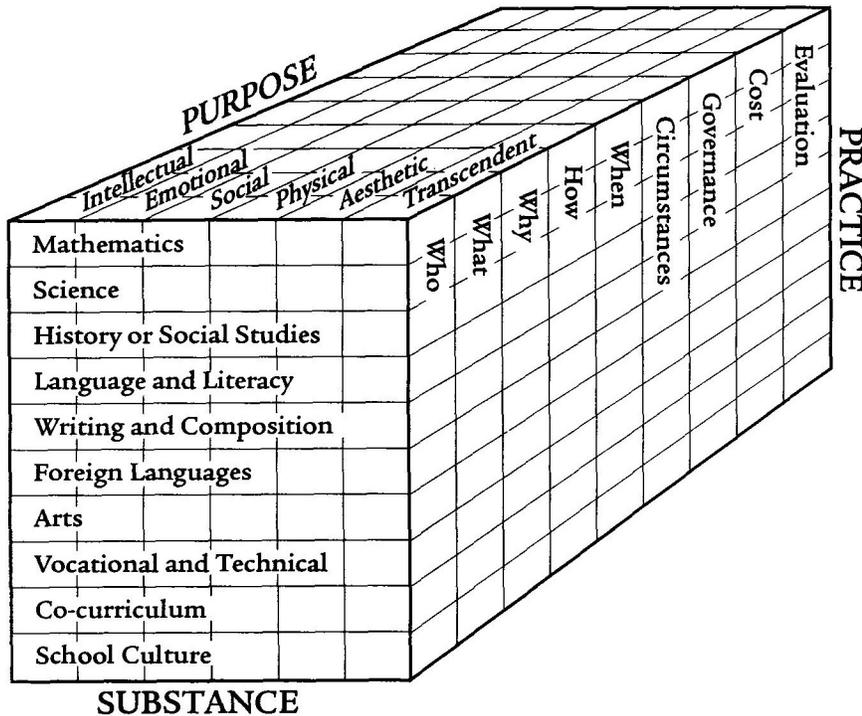
Lastly, and most importantly, the funds for these changes must be found or funds must be redistributed. At the district and campus level resources can be added and reallocated. Other sources of funds should also be considered especially with the trend of community back lash towards rising property taxes (the primary source of school funding). Once all these decisions have been made, they must be revisited on a regular basis. The ever changing population of students means changes may have to be made to programs, curriculum may have to be tweaked and funds reallocated.

COSTS AND THE CURRICULUM

The understanding of the needs in each school helps to drive curriculum decisions. It is the only way efficiently to implement financial adequacy. As well, the true cost of the chosen curriculum must be assessed to effectively implement financial adequacy. The need in each school helps decide what curriculum to offer and how it should be offered, but the cost of curriculum can be difficult to determine. The total cost of curriculum is explicit: textbooks, software and technology costs and implicit: training, preparation, and opportunity costs. Foshay states that the total cost of curriculum is textbooks and supplemental materials along with teachers and other specialists, each teacher's time and training, supplies for students, equipment the school will not supply and, if needed, substitutes for teaching training time (Foshay 2000).

As Foshay describes in the figure below, each subject area has its own unique costs to consider (Foshay 2000).

Figure 2.1: Foshay’s Curriculum Matrix



Questions in each cell must be answered in order to obtain a complete picture of the cost of the curriculum. The cost of curriculum falls within the dimension labeled practice. The reason for this placement is that the cost of curriculum, as with all nine sections of the practice dimension, is nonnegotiable. The nine elements that constitute the practice dimension are the same in all curricula even though emphasis and some details within each may differ substantially (Foshay 2000). In this study I have chosen to focus only on the mathematics curriculum.

Foshay’s model illustrates the nine practice categories for mathematics. Cost is one of those categories but the other eight sections of practice must be agreed upon

before cost can be discussed. Based on the needs of the students the practice questions are answered. The remaining eight questions will be answered with the help of the high school mathematic teachers at Central Texas Independent School District (CT-ISD). Once all eight sections of practice have been responded to, the question of cost can be analyzed and decisions derived.

Developing the cost of curriculum is critical to the success of any educational program. From Foshay, we see that the cost of instruction is not only a matter of money but also a matter of time and staff, “If there is no time for an activity, or if there is not enough time, either it will not be offered or its quality will suffer. Also, if you cannot staff it, you cannot teach it. Staffing has very often been overlooked in the enthusiasm for an offering...The practical necessities of money, time, and staff must always be met, or the program will fail” (Foshay 2000).

In order for the model to hold true as it is implemented, a public school campus must know what its students’ needs are and what curricular decisions will help to fulfill these needs. Although any given district in Texas can estimate its population for the coming year (barring a large increase or decrease in population or a re-drawing of district boundaries), because of Senate Bill 7, districts’ budgets can be modified until the beginning of the school year and, then, again, after the official count of enrolled students is taken during the third week of school. Therefore, district employees find themselves racing to react to budget changes rather than focusing on planning for the upcoming school year.

Under Senate Bill 7, excessive wealth is recaptured from property wealthy districts (Chapter 41 districts) and redistributed to property poor districts (Chapter 42 districts) throughout the state. Districts can have as much as 80% of their district’s

budget recaptured and sent back to the state for redistribution. Property values are assessed by the county every year. Each school district is then able to estimate how much of their budget will be recaptured by the state based on a state provided formula. In this system districts are able to do very little other than react.

The recapturing of funds becomes top priority for the Chapter 41 districts and it impacts almost every aspect of their decision making. The impact on curriculum can be great. Personnel is one of the first places districts cut, but cutting even one teacher in a small school can impact curriculum in the entire school. After personnel sections of the curriculum can be lost. These cuts in personnel and curriculum can be the beginning of schools and districts not being able to compete with other districts at the state and national level. If enough money is recaptured by the state, the district may not be able to offer a financially adequate education to its students. My research will develop a model for schools in Texas to analyze what their financial needs are based on the school's students' needs.

Financial adequacy is an educational theory being used as a legal argument, a new way of deciding on and funding curriculum. Implementing financial adequacy means changing the process public schools presently use to make curricular decisions.

TEXAS' DECISION MAKING PROCESS FOR SCHOOL FUNDING

As Odden and Clune theorize, the bottoms up approach to implementing financial adequacy focuses on student needs as the independent variable and funding needs as the dependent variable (Clune 1994; Odden 2001). Presently, the state of Texas, as well as most other states in the country, uses a top-down approach to school funding, where monies are the independent variable decided on by the state legislature and resources for students become dependent on available money.

Within the Texas state legislature, students' needs are discussed in only one way, weighting students based on overall characteristics. Texas House Bill 72, signed by Governor Mark White in 1984, developed funding formulas for districts and students. These weights still apply today. Table 2.2 shows the student groups impacted by HB 72 and if the formulas have changed since the passing of the bill. The weights are compared to an "average student" in an average size district who would be weighted 1.0.

Table 2.2: Adjustments For Student Costs¹⁰

Program	Description	Changes over time	Present weight
Special Education	Weights are dependent on services provided.	In 1993, graduated weights were added to include about a dozen different settings.	Mainstreamed students are weighted 1.1 - homebound students weighted 5.0.
Compensatory Education	Provides extra funding for at-risk students who are performing below grade level.	No changes since 1984	2.0
	Non-disabled students living in residential placement facilities.	No changes since 1984	0.2
	Remedial and support programs for pregnant students.	No changes since 1984	2.41
Career and Technology Education (Originally vocational education)	Provides extra funding for students in grades 7-12 to learn career and vocational skills.	In 1984 the weight was 1.45 but was reduced to 1.37 in 1989. In 2003 the weight was reduced again to 1.35.	1.35
Bilingual education	Funds bilingual and ESOL programs	No changes since 1984	0.1
Gifted and Talented Education	Extra funding for programs and services for GT students.	In 1984 the weight was 0.032 but steadily increased until 1991 and has remained at 0.12 since then.	0.12

Much debate over the weighting formulas has occurred since accountability, funding equity and financial adequacy have entered into the spotlight of funding public education. Researchers have been trying to determine whether or not adding more funds to programs for specific populations of students will yield improved student performance (Jepson 2004).

¹⁰ Table 2.2 has been modified from the Texas House of Representatives Focus Report #78-15

As researchers try to answer this complex question, the national school finance debate has shifted from a debate over inputs (resources) to a debate over outputs (student achievement/productivity). Still, equating student weights to resources is incorrect because the student weights only answer the question of how much money per pupil districts are receiving from the state. To study how resources affect student achievement, the theory of financial adequacy must be implemented. Only then will the appropriate resources (teachers, time, training, and curriculum) and the costs associated with supplying those resources be determined. At that point, future research more effectively can correlate resources against student achievement.

The accountability portion of NCLB (Section 1111(b)) is based on an ever increasing percentage of sub-groups of students passing the state assessments. Three of the student groups impacted by HB 72, Special Education, Compensatory Education, and Bilingual Education match the sub-groups in the NCLB. Racial subgroups listed by NCLB are not listed by the state of Texas. All the sub-groups impacted by the NCLB are listed below:

- White
- African-American
- Native American
- Asian/Pacific Islander
- Hispanic
- Katrina and Rite survivors¹¹
- Multicultural
- Limited English Proficient
- Students with Disabilities
- Economically Disadvantaged Students

¹¹ Subpart 4, section 6161 of the *No Child Left Behind* Act can be found at <http://www.ed.gov/index.jhtml>. Because of the 2005 Hurricanes Katrina and Rita the number of displaced students is numerous times larger than normal and there has been some concern about AYP for the states taking in the majority of these displaced students. Secretary of Education Margaret Spellings has given two options to address concerned states one of which is the creation of a new “displaced students” sub-group. Please see <http://www.ed.gov/policy/elsec/guid/secletter/050929.html> for more information on this topic.

For this study, the NCLB sub-groups will be used to facilitate two focus groups, one for each high school in the CT-ISD. Each focus group will be asked to produce a list of perceived needs of the school's populations of students. Using the list of perceived needs developed by each group has developed, a master list of resources needed to teach each of the different student sub-groups will be produced. As well, school and district administrators will be interviewed to determine their decision making process to determine if and how it differs from classroom teachers. This discussion is the first of many steps described by Odden in the implementation of financial adequacy.

CONCLUSION

This research focuses on the implementation position of financial adequacy. Teachers, campus administrators and district administrators will be asked to design a new educational strategy for high school mathematics in a fast growing, rural, central Texas district. Through focus groups and interviews what school and district personnel believe is best for students within their district will be determined and then, these changes will be budgeted out using existing school and district budgets. This will be discussed in detail in the methodology chapter for this research project.

This chapter reviews the legal aspects of financial adequacy and how Texas has found itself in district or state court fighting against local school districts over the finance system that fund the public schools. As well, the theory of financial adequacy is discussed in its three major sections: The problems, the suggested solutions, and the suggested implementation procedures. Lastly, Foshay's curriculum matrix is taken into consideration during the theoretical discussion of financial adequacy. Foshay's ideas on

the true cost of curriculum must be taken into account as Odden's financial adequacy model is discussed.

The methodology chapter will bring in the other aspect of this research: NCLB and specifically adequately yearly progress. Brining all three ideas; financial adequacy, the curriculum matrix and AYP will allow for a full discussion of the implementation ideas for two high school mathematic departments in a central Texas district.

Chapter 3: Methodology

Since the late 1980's, policymakers, researchers and attorneys in Kentucky, Massachusetts, Kansas, Texas and other states have been using ideas such as those of Odden's about financial adequacy in debates about public school funding (Rebell 2002). This research project combines ideas from NCLB, Allen Odden and Arthur Foshay, as well as with the implementation ideas of the two leading researchers in the field of financial adequacy to help illustrate what the implementation process looks like within the mathematics departments in the high schools of a small, suburban, public school district in central Texas.

RESEARCH QUESTION

Based on NCLB sub-groups (e.g. racial groups, Special education, Economically disadvantaged) (NCLB 2002), what do experienced mathematics teachers, campus and district administrators, and mathematics curriculum specialists report that they need to offer an adequate curriculum to their students and what costs are associated with those specific needs?

CONCEPTUAL FRAMEWORK

Three major components make up this research: financial adequacy and the implementation of adequacy, the reallocation of funds and Foshay's curriculum matrix. Financial adequacy as an educational theory and a legal argument is the core of this research. During the 1990's, two factors help complete the shift in thinking from financial equity to financial adequacy. With the push towards standards and standardized

testing in public education lead policymakers and researchers increased their focus on how well more money spent per pupil correlated with increases in student learning. Secondly, any evaluation of programs had to prove that an increase in spending was positively correlated with student learning and, more importantly in the mind of the policymaker, positively correlated with an increase in test scores (Odden 2003). Researchers such as Odden and Archibald (Odden and Archibald 2001) are trying to answer these questions to determine if implementation of financial adequacy in public school systems is a feasible position. Policymakers and lawyers have latched onto financial adequacy as a way to argue for school funding increases or decreases in states throughout the nation.

Usually linked to one or more state education clauses, districts have taken states to court using the argument of financial adequacy in order to force states to increase the level of school funding. The state attempts to use the same argument to convince the courts that “the state’s finance system provides adequate revenues for the average school to teach the average student to state-determined performance standards, *and* whether adequate additional revenues are provided for the extra help students with special needs require to also achieve to those performance levels” (Odden 2003). As discussed in chapter two, a judge’s decision usually is based on the cost-out studies each party completes.

The implementation of financial adequacy is the second part of the first concept on which this research focuses. Implementation of this educational theory has been discussed by many but few “worked examples” are available. Many researchers have theorized about the implementation of financial adequacy. Every cost-out study

conducted as evidence in a court case could be called a theory in the implementation of financial adequacy. Allan Odden, Sarah Archibald and, William Clune are the three main researchers who willingly discuss financial adequacy at the theoretical level but only Odden and Archibald have experimented with it at a campus level. Their ideas will be discussed in great detail in this chapter.

Second, because of what many of the public view as indiscriminant increases in public school funding over the past three decades and the backlash precipitated by this perception Odden initiated a discussion that revolves around the reallocation of funds (Odden and Archibald 2001). The reallocation of funds is linked directly to financial adequacy but, instead of modifying the existing school finance system, Odden argues for a full overhaul and dismantling of the bureaucratic school finance systems around the country (Odden and Archibald 2001).

Last, Foshay's curriculum matrix will be utilized in the analysis process. The data collected from the focus groups, interviews and artifacts will be organized to answer the nine questions on the practice axis of Foshay's matrix. Only when the first eight questions are answered will the question of cost be analyzed.

RESEARCH METHODOLOGY

This section will focus on the steps and procedures in data collection and analysis. The focus group meeting is the primary research methodology to be used in this research. Interviews and the artifacts collected will be used to help triangulate data collected during the focus groups.

Focus groups are used for a variety of reasons and for this research the nature of the data being gathered lends itself to data gathering via focus group (Krueger and Casey 2000). The focus group setting allowed for interaction between participants which lead to a much richer dialogue. Teachers were able to ask each other to elaborate and then agree or disagree in a comfortable environment. Because of the intimate relationship and expert knowledge the mathematics teachers held about their students, their campus, and their district, the resultant data was much richer and deeper than any survey or interview could have accomplished.

In addition to gathering data about student needs, this research determined which factors influenced the mathematics teachers perceived needs of their students (Krueger and Casey 2000). Teachers' comments helped triangulate the data collected and added a much deeper understanding of how curriculum cost decisions were made (or not made) at the teacher/classroom level. In addition to the research based reasons for the utilization of focus groups, the small number of research projects already conducted on implementing financial adequacy have all used focus groups as a data collection procedure.

Taken directly from Robert Salvin's *Success for All Program*¹², used in Texas to help increase scores for the state assessment of reading (TAAS), William Clune discusses his ideas for the implementation of financial adequacy. This first step, which already has been completed in Texas, is for each district to adopt a set of high minimum goals. The second step is for "schools to identify a set of additional resources necessary for

¹² More information about the Success for All program can be found at: <http://www.successforall.net/>

achieving these goals...there would be no predetermined budget cap, and the local needs should be expected to differ” (Clune 1994).

Odden also describes the use of focus groups when discussing the implementation of financial adequacy and, the more ambitious, reallocation of funds, “The process of resources reallocation begins with an analysis of school data by the faculty members...the faculty members than search for better strategies” (Odden 2001). While both Clune and Odden wrote of groups at the school level (not the department level) making curricular decisions, the focus groups conducted in this research will be at the departmental level.

DATA COLLECTION

Data collection occurred during January and February, 2006. All data gathered from participants and participant resources were collected with the explicit permission from the participants and in full compliance with The University of Texas at Austin Institutional Review Board (IRB) guidelines.

Focus Group Procedures

Question 1: *What do experienced mathematics teachers report they need in order for them to offer an adequate curriculum to their students and what costs are associated with those needs?*

Before organizing either focus group, a list of questions and topics was developed. This list should assist focus groups in their task. As the result of a conversation with a mathematics instructional specialist working at a central Texas high school campus, the list of topics below emerged:

- What would your ideal classroom look like?
 - Materials (and staff development)
 - Number of students
 - Grouping or non-grouping of students.
- What personnel are needed to adequately offer the mathematics curriculum to all students?
- How might/should teachers focus on students who have not passed the middle school mathematics TAKS test but have still been promoted to 9th grade.
 - Pull out classes
 - One on one tutoring during school hours
 - More or less involvement in the ‘regular’ mathematics classes.

Conversation in the focus groups focused on different NCLB sub-groups, these and similar topics to be identified later, were utilized to help initiate and stimulate deliberation of focus group members and help bring group members back to the topic at hand when they began to veer off course during the conversation.

Step One

As a whole, the focus groups were a multiple-category design (Krueger and Casey 2000). This allowed the researcher to compare responses from each high school’s mathematics department and will be discussed further in the *data analysis* section of this chapter. Two focus groups of high school mathematics teachers were formed, one from each CT-ISD high school. The study participants are explained in more detail in the *study participants* section of this chapter.

Step Two

Step two was the facilitation of the two focus groups, one each for two high schools. For the convenience of the participants focus groups took place at each of the two high schools and they were the primary means of data collection.

Each focus group was asked to produce a list of perceived needs of the school's populations of students. As expected, most of these needs were phrased as resources. Using the list of perceived needs, each focus group produced a master list of resources needed to teach first, all students in general and second, each of the different student sub-groups. See Appendix B for a draft of the two worksheets each focus group will use. The sub-groups of students are those taken directly from the *No Child Left Behind Act of 2001*. They are:

- White
- African-American
- Native American
- Asian/Pacific Islander
- Hispanic
- Multiracial
- Limited English Proficient
- Students with Disabilities
- Economically Disadvantaged Students
- Displaced students (from Hurricanes Rita and Katrina)¹³

During the data analysis not only the NCLB sub-groups but also some aspects of the Texas Education Code must be considered. For a full list of these parameters considered from the Texas Education Code see Appendix C.

Step Three

After both focus groups met and completed their work, the master list for each subgroups' needs were related to the costs for high school mathematics instruction for their respective schools. Public Electronic Information Management System (PEIMS)

¹³Subpart 4, section 6161 of the *No Child Left Behind Act* can be found at <http://www.ed.gov/index.jhtml>. Because of the 2005 Hurricanes Katrina and Rita the number of displaced students is numerous times larger than normal and there has been some concern about AYP for the states taking in the majority of these displaced students. Secretary of Education Margaret Spellings has given two options to address concerned

data and the current budget for each campus, the needs and resources specified by each focus group were matched to allocations in the budget. See Appendix D for the worksheet used by the researcher to analyze the budgets of each campus.

PEIMS data will be utilized for its demographic and enrollment information. The needs of each high school's students will be broken up by the same sub-groups the student populations are broken into. Because these needs must be costed-out by student sub-group the mathematics enrollment and demographics of the students in each high school must be utilized.

The main goal of the budget analysis was to determine which resources identified by each focus group already were covered by the high school's general and departmental budgets as well as those resources that were not covered by these budgets.

Step Four

For resources that were not covered by the high school's general budget, the researcher estimated costs for each non-covered resources, for each NCLB sub-group. Estimates of cost were made by utilizing the CT-ISD salary ladder and vendor lists. When resources were not available from the vendors, the researcher used the same process as did by the district to obtain estimates of cost. See Appendix D for the worksheet that was used to gather specific budget information. A non-statistical comparison of resources covered and not covered by each high school's budget was made.

states one of which is the creation of a new "displaced students" sub-group. Please see <http://www.ed.gov/policy/elsec/guid/secletter/050929.html> for more information on this topic.

Interviews Procedures

Interviews were conducted for two reasons. The first was to help triangulate data collected during the focus groups. Five interviews were conducted and artifacts referred to in each interview were collected. Interview questions were designed to help triangulate the data collected from each focus group and were written once the focus groups are analyzed to ensure triangulation.

Second, interviews were being conducted to help illustrate how curriculum decisions are presently made at the department, campus, and district levels. To understand the groundbreaking ideas of financial adequacy and reallocation of funds, it is imperative to have a full understanding of how funds are presently allocated, deemed necessary and utilized by districts, individual campuses and departments within each campus. Interviews took place in February, 2006. They were audio taped and transcribed using digital media.

DATA ANALYSIS

Data analysis was different for each type of data collected. This section explains the different types of data analysis completed and how these forms will be organized and reported in the two results chapters.

Focus Groups

Video or audio taping is the best way to analyze the data from focus groups but the presence of a either can be distracting (Krueger and Casey 2000). The researcher chose to video the focus groups, reassuring participants that the tapes would kept

confidential and the consent form pointedly reiterates that confidentiality (See Appendix E). A selective transcript of the eight hours of focus group meetings was constructed by the researcher to help further analyze the data.

The transcription of the focus groups was first organized by student need. For every perceived student need and wanted resource mathematic teachers discussed during the focus groups their reasoning was transcribed. After that organization was complete, the master list of perceived student needs (now with the teachers' discussions attached) was coded to see if the Odden's themes emerged (Odden and Monk 1995; Odden and Clune 1998, 1995; Odden and Archibald 2001; Odden 1994, 2001).

Once the focus group transcript was coded for Odden's themes the quotations selected from the transcripts will be categorized as illustrating the problems the mathematics teachers see with the present funding system, a suggested solution for the perceived problems, or an idea for implementing the suggested solution. The focus groups discussed perceived needs of students as opposed to systemic problems therefore the hypothesis is that most of the focus groups' transcripts will focus on suggested solutions and ideas for implementing those solutions.

Although all nine of NCLB's subgroups were discussed in the focus groups only those that are reported to the district and state for adequate yearly progress (AYP) qualification were discussed in the results chapters. NCLB mandates that each state supply their own equation for the "minimum number of students in a subgroups required for reporting purposes" (Texas Consolidated State Application Accountability Workbook 2003). Texas created an equation that is statistically valid and reliable by taking into consideration both small and large schools as well as significantly small groups of students in an particular sub-group. For campuses with more than forty students enrolled on the day of testing each sub-group must contain 50 or more individual students and

represent more than ten percent of the tested grade's student count or the sub-group must have more than two hundred individual students (50/10%/200 rule). This equation means something different for each of the high schools taking part in this study. The following two results chapters (chapters four and five) present details about each school's demographic information.

Interviews

Interviews were audio taped and transcripts were constructed to further help in the analysis. Once the focus group transcript was coded for Odden's themes the quotations selected from the transcripts were categorized as illustrating the problems campus and district administrators saw with their funding system, a suggested solution for the perceived problems and, an idea for implementing the suggested solution. The interviewees discussed their part in the decision making process as well as the flow of information having to do with mathematics curriculum between the state, district and campus. Unlike the focus groups, specific NCLB subgroups were not discussed in the interviews.

After reviewing all the data: focus group and interview tapes, focus group and interview transcripts, school and district budgets, PEMIS demographic data, and other artifacts, the pieces were coded based on themes found in the literature. Each high school's data will stay separated for comparison purposes.

Built into this multi-layered approach to data collection was a focus on triangulation of data. Triangulation is extremely important for clarification of meaning and verification of information. If no triangulation occurs with a specific piece of datum it may still be shared but it will also be described as an anomaly.

CONTEXT OF RESEARCH SITES

A small, suburban district, CT-ISD is a smaller district (~ 200 square miles) than many other districts in the central Texas region. The two high schools (HS1 and HS2) enroll a suitable number of students for this exploratory research. CT-ISD is also experiencing rapid population growth as the district changes from a rural to a suburban status. The information gathered in this study should help the district's high schools plan for the improvement of their mathematics curriculum and instruction. Table 3.2 describes the demographics of each high school, the district and the state.

Table 3.1: Selected demographics from TEA 2004-2005 campus, district and state profiles*

		HS1	HS2	CT-ISD	State
Racial demographics	African American	3.4%	7.0%	4.2%	14.2%
	Hispanic	47.5%	63.8%	53.9%	44.7%
	White	48.6%	28.3%	41.2%	37.7%
	Native American	0.2%	0.3%	0.2%	0.3%
	Asian/Pacific Islander	0.4%	0.6%	0.6%	3.0%
Other demographics (NCLB subgroups)	Economically Disadvantaged	26.0%	47.1%	40.2%	54.6%
	Limited English Proficient (LEP)	3.0%	4.6%	10.0%	15.6%
	Special Education Students	13.9%	16.7%	11.9%	11.6%

*Data obtained from the TEA. Please see: <http://www.tea.state.tx.us/perfreport/aeis/>

Each high school has significantly different demographics, advantageous for this research because one of the goals was to show that different populations of students have different needs and therefore require different amounts of funding. During the 2004-05 school year, HS2's first year of operation, HS2 housed only ninth and tenth grade students totaling 526. HS1, in operation since the 1967-68 school year, had a total of 1908 high school students for the 2004-05 school year.

Needs and resources identified by focus groups must respond within the legal requirements contained in the Texas Education Code. Listed below are TEA policies and assumptions that will be utilized in this research.

- Texas has a state adoption policy for textbooks. Therefore the only textbooks that can be used are those now being used in classrooms (they are listed along with resources provided from the publishers on your worksheets). Assume that the textbooks in quality and quantity are consistent with those provided for by the state.
- High school for this focus group include grades 9-12
- The school year is a minimum of 180 days. The minimum school day is seven hours per day. Any considerations for professional development should consider these as the base number and length of instructional days.
- We are assuming that all personnel are state-certified in mathematics. For cost analysis purposes, the salary ladder for the district studied will be utilized.
- Facilities are in place and funding for facilities improvements are not part of analysis. If, however, the needs of students require any major changes of facilities in the district, please briefly note what those changes would be.
- Do not assume that the school presently has the amount of supplies that are needed. List all supplies needed for each student sub-group.
- Funding of administrative personnel is not part of this project. However a list of all personnel (e.g. teacher aids) that teachers believe may be necessary for a particular sub-group will be part of the master resource list¹⁴.

¹⁴ Some of these parameters were taken directly or modified from MAP's *Estimating the Cost of Meeting State Educational Standards*.

RESEARCH PARTICIPANTS

Focus groups will be constituted from the mathematics faculties from each of the two high schools in CT-ISD. The consent form that will be given to each study participant, see Appendix E. Participation is on a voluntary basis. HS2 has fifteen teachers within their mathematics department and thirteen participated in the focus group meetings. The teachers had an average of 2.6 years of teaching mathematics at the high school level and taught all mathematics courses offered at HS2:

- Algebra I
- Geometry
- Geometry Pre AP
- Math Modeling
- Algebra II
- Algebra II Pre AP
- Algebra II Alpha-H/Pre AP
- Pre-Calculus
- Pre-Calculus Pre AP
- Pre-Calculus Alpha H/Pre AP
- Independent Study Math
- Calculus AP AB
- Calculus AP BC
- AP Statistics
- TAKS Math Credit

The HS1 mathematics department has a total of sixteen teachers, and fifteen participated in the focus group meetings. The average years of experience is 19.4 years at the high school level and all mathematics courses offered at HS1 are taught by study participants:

- Algebra I
- Geometry
- Geometry Pre AP
- Geometry Alpha H/Pre AP
- Math Modeling
- Algebra II
- Algebra II Pre AP
- Algebra II Alpha-H/Pre AP
- Pre-Calculus
- Pre-Calculus Pre AP
- Pre-Calculus Alpha H/Pre AP
- Independent Study Math
- Calculus AP AB
- Calculus AP BC
- AP Statistics
- TAKS Math Credit

The interview participants are administrators at the campus and district level. Five interviews in total will take place. Although the names of the interview participants are confidential their positions are:

- Mathematics department head at HS2 and HS1
- Instructions Specialist at HS2
- Assistant principal in charge of students at HS1
- Math and Science Strategist (K-12) for CT-ISD

LIMITATIONS

One of the limitations of this dissertation is the lack of teaching experience in the mathematics department in HS2. The new teachers may not yet know what resources are even on their campus. The same can be said of the more experienced teachers on this campus simply because HS2 has only been opened for one full school year.

A second limitation is the knowledge (or potential lack there of) of needs and resources that the teachers participating in the focus groups. Teachers are so busy with students on a daily basis that they may not have the time or the access to research cutting edge resources that may help their students.

Chapter 4: HS1 Results

This chapter reports on the results from the HS1's mathematics department's focus groups and interviews. The chapter will be framed within Foshay's curriculum matrix, Odden's theory of financial adequacy, and ideas for the implementation of the redistribution of funds to promote adequacy and the NCLB sub-groups.

Foshay asks nine questions within the practice dimension of his matrix. The ninth question can not be answered properly until the first eight questions are thoroughly addressed. Because of the importance of Foshay's nine questions, the chapter is organized using the nine questions. Each section is on of Foshay's questions and interwoven into the response are ideas from the focus group participants along with how Foshay's ideas relate to Odden's theory of financial adequacy.

The chapter concludes with an answer to the ninth of Foshay's questions. A simple cost analysis of the focus groups' ideas will be completed and discussed. Each of the two high schools studied received it's own results chapter. A comparison of both high schools will be done in the discussion chapter (chapter six).

ODDEN'S THEORY

The theory of financial adequacy is an ongoing evolution of ideas that began in the early nineties with Allan Odden. Focused on the implementation of financial adequacy and how to raise the productivity of students with ever decreasing funds (Odden 1998, 1994; Odden and Archibald 2001; Odden and Clune 1998, 1995; Odden 1994, 2001) Odden concluded that a redistribution was key to the success of his financial adequacy theory.

Implementing these changes means an almost total overhaul of present public school finance systems in the United States. The decentralization of money and power would lead to a break down in the bureaucratic organization of the school systems. As well, all school personnel would have to commit to intense initial and ongoing professional development to ensure an understanding of what types of decisions would have to be made and how to make those decision in the most efficient and effective way possible. Allan Odden and Sarah Archibald describe what the implementation of such a process may look like on and individual campus (Odden and Archibald 2001).

Teacher compensation is the last large piece of the decentralization of money and power. Districts and campuses must be permitted to pay their teachers what they view is the teacher's worth, not what the state's salary ladder mandates must be paid based on years experience and degrees earned (Clune 1994; Clune 1993; Odden 1994; Odden and Archibald 2001; Odden 2003).

Because of the scarcity of new education funds and the continuing trend of an ever increasing responsibility on local tax payers to fund public schools, the implementation of the theory of financial adequacy has become synonymous with the reallocation of funds (Odden 1994). Step one, laying the foundation for change, has already been discussed within the suggested solutions sections of this chapter. The foundation of change is the most important step. To create real change the foundation must not be shaky or school personnel will be unwilling to take risks with their decisions.

Defining a new educational strategy is step two in this process and is the focus of this research and discussed more specifically in the methodology chapter. Within this decision must be strategies for helping struggling students. Lastly, ongoing professional development must be decided upon so teachers and other campus personnel understand

the changes that have been made and the new goals being reached for (Odden and Archibald 2001).

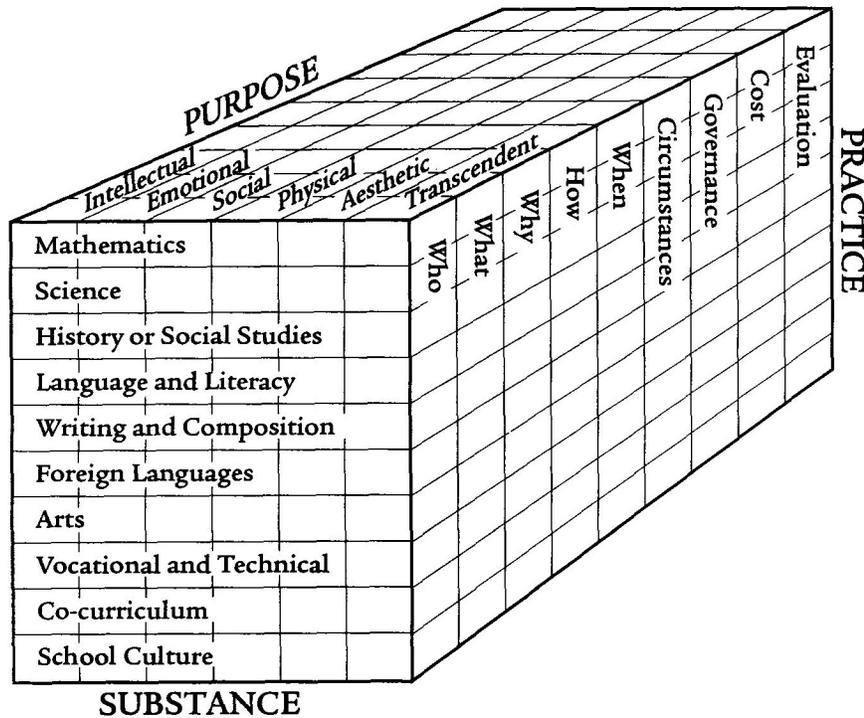
Hiring and organizing teachers and other school staff (e.g. teacher assistants, specialized experts and volunteers) who will support the new educational strategy is the next step in the implementation process. Logistic decisions such as school size, class size, and time for planning and professional development must be taken into consideration (Odden and Archibald 2001). As well, teachers and other school personnel must agree to these logistic decisions.

Lastly, and most importantly, the funds for these changes must be found or funds must be redistributed. At the district and campus level resources can be added and reallocated. Other sources of funds should also be considered especially with the trend of community back lash towards rising property taxes (the primary source of school funding). Once all these decisions have been made, they must be revisited on a regular basis. The ever changing population of students means changes may have to be made to programs, curriculum may have to be tweaked and funds reallocated. Chapter four and five, the results chapters, focus on these last two steps. I do not go as far as finding new sources of funding but gain a greater understanding of what teachers and campus administrators view as the needs of their students. As well, the resources needed to focus on these needs are costed out to the best of my ability. Odden's themes and his idea of redistribution as a form of implementation for financial adequacy line up nicely with Foshay's curriculum matrix.

FOSHAY'S CURRICULUM MATRIX

Arthur Foshay discusses his view of curriculum by using what he calls the curriculum matrix (see Figure 4.1)

Figure 4.1: Foshay's curriculum matrix¹⁵



The matrix has three dimensions. I am studying the practice of teaching mathematics therefore, the purpose of mathematics will not be addressed. The practice dimension is what will be focused on in this research. There are nine aspects to Foshay's practice dimension and none are negotiable (Foshay 2000). As well, before the aspect of cost can be discussed the other eight aspects within the practice dimension must be addressed.

The first two questions are where Foshay's ideas on curriculum diverge from Odden's theory of financial adequacy. They focus on the individuality of students and importance of that individuality when thinking of curriculum (Foshay 2000). While that is crucial when discussing theory, Odden's theory of financial adequacy is focused on

¹⁵ This figure is taken directly from Arthur Foshay's *The Curriculum: Purpose, Substance, Practice* (2000)

practice. As well understanding the overwhelming burden of NCLB, Odden allows campus' to think of adequacy and implementation ideas in terms of sub-groups. Foshay's last seven questions (including the cost analysis question) are in agreement Odden's financial adequacy theory.

Who Is The Student?

The students discussed for the purposes of this study are all high school mathematics students (grades 9-12). If a student at HS1 was not taking a mathematics course, they were not considered by the focus group participants. The demographics of HS1 for the 2004-2005 school year are summarized in Table 4.1

Table 4.1: Demographics of HS1 for the 2005-2006 school year¹⁶

NCLB sub-groups	# of students / % of students at HS1	Reported for AYP?¹⁷
White	802 / 53.7%	Yes
African-American	40 / 2.7%	No
Native American	4 / 0.3%	No
Asian/Pacific Islander	11 / 0.7%	No
Hispanic	638 / 42.7%	Yes
Multiracial	Demographic not used by CT-ISD	N/A
All Students	1495 / 100%	Yes
Limited English Proficient	35 / 2.3%	No
Students with Disabilities	169 / 11.3%	Yes
Economically Disadvantaged Students	392 / 26.2%	Yes
Displaced Students ¹⁸ (Hurricane Katrina)	0 / 0%	No
Displaced Students (Hurricane Rita)	5 / 0.03%	No
Non-racial sub-groups	601 / 40.2%	N/A

¹⁶ All demographic information was part of the Academic Excellence Indicator System report for this high school. All AEIS reports can be found at the Texas Education Agency website: <http://www.tea.state.tx.us/>.

¹⁷ In order to determine if a NCLB sub-group is reported for Adequate Yearly Progress the state of Texas uses the 50/10%/200 rule. For campuses with more than forty students enrolled on the day of testing each sub-group must contain 50 or more individual students and represent more than ten percent of the tested grade's student count or the sub-group must have more than two hundred individual students

¹⁸ Subpart 4, section 6161 of the *No Child Left Behind* Act can be found at <http://www.ed.gov/index.jhtml>. Because of the 2005 Hurricanes Katrina and Rita the number of displaced students is numerous times larger than normal and there has been some concern about AYP for the states taking in the majority of these displaced students. Secretary of Education Margaret Spellings has given two options to address concerned states one of which is the creation of a new "displaced students" sub-group. Please see <http://www.ed.gov/policy/elsec/guid/secletter/050929.html> for more information on this topic.

Although Foshay speaks directly against this type of stereotyping, “we group students according to some criterion...thus stereotyping them, and then teach toward the stereotype...What, exactly, would we need to know to fit the curriculum to each individual? Nobody knows.” (Foshay 2000), the omnipresent nature of the No Child Left Behind Act of 2001 and the Texas Assessment of Knowledge and Skills (TAKS) forces educators into a discussion about helping students based on the student’s demographic information instead of each student’s individual strengths and weaknesses.

The participants focused on the demographic groups with which they had the most daily interaction.

Participant: Some of these groups...we have so few Asian and Native American that it’s...we probably wouldn’t have much insight.

Participant: I have 180 students and [only] three or four Black students.

Although there is racial diversity within HS1, as table 4.1 shows, the majority of students fall into the Hispanic or White racial groups. During this portion of the discussion I asked the focus group participants to discuss what, if any, resources were needed to help the perceived needs of each of NCLB’s six racial groups.

One group of students the mathematics teachers, in fact, all teachers at HS1, have daily interaction with are students that categorize themselves as Hispanic. Almost 50% of the student population categorize themselves as Hispanic and the teachers in the focus group admit, they do not have a complete understanding of some of the cultural differences that may exist:

Participant: I definitely think the Hispanics have needs we don’t address...I think some of it is cultural – and I’m just speaking for myself. I want to make that clear – there are some things that go on in the Hispanic culture that I think, I know, I don’t understand. Some of the terminologies, some of their...the way they do things. I mean, um, when I

work with groups, especially the lower level, some of their needs I just don't understand. I don't understand that they think it's ok that if they want to help their friend with the test, they should and some of them try to explain to me that that's the way their culture is, they're just always helping and I see it as total insubordination and cheating and it's difficult for me as an instructor, as a teacher to not just address it as cheating and try to address it as cultural but it still can't happen. I notice that often when I work with Hispanics.

It must be noted that part of the issue, when dealing with the needs of different racial and cultural groups, is how difficult it is for people to talk about race and culture. This participant seemed more focused on making sure the rest of the participants understood she was only speaking for herself and there was an obvious sense of embarrassing uneasiness as she discussed her self-confessed ignorance that was not apparent when discussing NCLB's non-racial sub-groups.

Economically Disadvantaged Students are a large minority at HS1. The teachers realize the needs of these students may be greater than many other students at the school and this became apparent when they began discussing them as a group. Instead of perceived needs, teachers began immediately listing ways to help these students. This illustrates the intense needs these students have for things as simple as notebooks, pencils and backpacks.

Limited English Proficient (LEP) students are an even smaller minority within HS1. Only 2.3% of the student population is categorized as LEP but participants in the focus groups discussed how isolated each individual student seemed to be because of the language barrier:

Participant: I've had years where half my class was limited English. I don't know any Spanish, I'm handicapped in trying to say it so they can know what to do...

As well, there was much discussion of how many of these students were not placed in the correct classes because of the language barrier and many were placed in classes correctly labeled “dumping grounds” by many teachers. These classes are not core classes (English, Mathematics, Social Studies and Science) and do little to help LEP students advance towards graduation. These students are only in a holding pattern until they choose to drop out or the court orders them into GED classes.

What Experiences Should the Students Have?

When Foshay discusses experiences he is not describing curriculum, tests, labs or field trips. In fact, he discusses what experiences students should have by describing what is presently not happening in classrooms: “Since we do not know how to discover the individuality of the student, we do not really know what experiences the student should have” (Foshay 2000).

In disagreement with Foshay but, again, because of the No Child Left Behind Act, this research is focused on different student demographic groups. The experiences discussed by the mathematics teachers during the focus groups discuss not experiences for students but the curriculum that needs to be focused on to help the students within each demographic group reach the state standards thereby helping their school achieve adequate yearly progress. This will be discussed further in the next question.

Some of the teachers participating in the focus groups discussed their frustration with the NCLB sub groups and how they affected the experiences of students not falling into any subgroup:

Participant: If you don't fall into a special groups, that's got a special program such as ESL, economically disadvantaged, the migrant talent searches, you're left out.

Participant: We need to communicate with the elementary and middle schools the needs...they're coming here not knowing how to multiple not knowing anything about fractions...I'd like to see more action, stop talking about it and let's do something about it.

The experience many of these teachers are presently having seems to be one of frustration. They have admitted that the frustration trickles down to their students and affects everything in the classroom. As student's experience hinges on the atmosphere in the classroom. While the NCLB sub-groups exist, I am not sure the experience Foshay talks about is a realistic goal.

The next two questions will be discussed together. These two questions are where the focus group participants spent most time and the master needs and resources pages developed by the focus groups answer these two questions.

In What Circumstances? Where? Material?

Foshay lists the answer to these three related questions as: how much space is needed, the availability of special facilities and the materials available to teachers (Foshay 2000). By looking at this question and pairing it with the next question the focus groups helped develop a better understanding of what a high school mathematics program could be and how it could benefit more students.

Focus groups participants discussed how to better utilize material and space they already had available to them as a department and as individual teachers. As well, they discussed what they believed was still needed to help more students in a timely, more relevant manner.

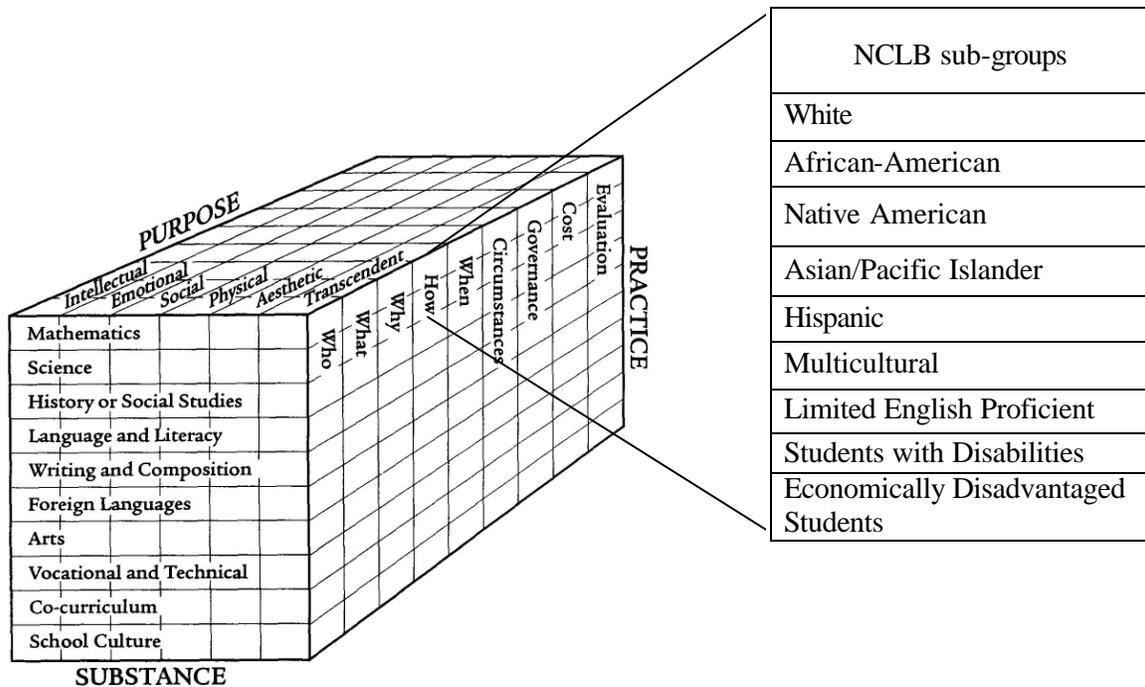
How Shall it Be Experienced?

Also encompassing one of the main objectives of the focus groups, participants were asked to discuss the perceived needs of their students and began to discuss topics related to making curriculum more relevant and allowing their students to “make” mathematics instead of just the drill and kill of memorization.

Foshay discusses the importance of John Dewey and his idea: “you learn what you do” (Foshay 2000). Foshay has turned the “do” into a “make” but the concept is the same. Students must be more active in their learning environments for the curriculum, the subject, the learning experience to have any relevance to them.

During the focus groups the perceived needs of students and the resources needed to alleviate those needs were discussed per NCLB subgroup. As figure 4.2 illustrates, the answer to the question ‘how shall it be experienced?’ can be organized in the same way.

Figure 4.2: Foshay’s matrix and the NCLB sub-groups



All Students

At the beginning of the focus group meeting the teachers understood the importance of the NCLB sub-groups for testing and reporting purposes. However, they still wanted to make clear that there were some things: supplies and services, that all of their students needed.

More supplies and equipment were high on the list of needs for the mathematics teachers. The need for more class sets of calculators, more computers, and more manipulatives were all discussed. The need for this equipment was explained clearly and concisely from all the teachers:

Participant: They can't picture it

Participant: They've got to be able to touch it.

Participant: If they're lower level, they've got to be able to see it and feel it.

Along with supplies a clear focus on results was apparent when the idea of using professional development days to modify the curriculum was brought up. Because of all the extra days built into the schedule the idea of one planning day every six week grading period was brought up.

Participant: If we had more professional development days I would say not so...people standing up, telling us things we already know, showing us power points that we can read. More time to just: Just get out of my face and let me work with the people I need to work with. I need some time to put together some good worksheets and talk and brainstorm and not give me more training...

Participant: We have an Algebra I team, a geometry team, a pre-calc team...

Participant: ...but that's basically on our time...rather than school time

Participant: ...right, we have to come early or stay late or meet during lunch...

Participant: We already have seven, eleven extra days in the school year and seven or eight of them are garbage that we already have heard a hundred times. If we could eliminate the garbage and give us this time that she's talking about people wouldn't hate these days.

Participant: Once every six weeks would be great even if it was just half a day.

Participant: I think part of the issue here too is the ability to really, really work with your team and spend that time developing the needs and the curriculum and your own resources as opposed to the meetings that we don't, where we can't do work...

Lastly, the idea of tutoring for all students emerged. Teachers saw it as a way to help students that may need some remediation without having to pull them out of class. The tutoring could focus on TAKS preparation or mathematics class remediation. After deciding what was needed for all students the different NCLB sub-groups were where the teachers focused starting with the racial sub-groups.

Racial Sub-Groups

The focus groups from HS1 discussed the different racial groups in their classrooms and concluded that the vast majority of students could be broken up into two large groups: White students and Hispanic students. African-American students are the third largest racial group at HS1 but only make up 2.7% of the student population (see Table 4.1).

Participant: I have 180 students and three or four Black students.

The other racial sub-groups named by NCLB: Native Americans, Asian/Pacific Islanders and Multicultural students are so few in number that the teachers did not see the necessity of discussing their needs.

Participant: Some of these groups...we have so few Asian and Native American that it's...we probably wouldn't have much insight.

Foshay discusses viewing each student as individuals (Foshay 2000) and the focus group participants agree but NCLB does not allow this to happen. Test results are

delineated and reported by population sub-group therefore schools and teachers must focus on the sub-groups. The teachers participating in the focus groups focused on their Hispanic students and their White students and what their needs were.

The discussions pertaining to these two racial groups did not include Limited English Proficient students (LEP), Special Education students or Economically Disadvantaged students therefore, focus group participants were speaking only about the differences in culture, race, and ethnicity and how that could impact need and resources. Specifically in the mathematics department the perceived needs of the Hispanic students were not clear, what was clear was that there was a lack of understanding.

Participant: I definitely think the Hispanics have needs we don't address...I think some of it is cultural – and I'm just speaking for myself. I want to make that clear...there are some things that go on in the Hispanic culture that I think, I know, I don't understand...some of the terminologies, some of their...the way they do things. I mean, um, when I work with groups, especially the lower level, some of their needs I just don't understand. I don't understand that they think it's ok that if they want to help their friend with the test, they should and some of them try to explain to me that that's the way their culture is, they're just always helping and I see it as total insubordination and cheating and it's difficult for me as an instructor, as a teacher to not just address it as cheating and try to address it as cultural but it still can't happen. I notice that often when I work with Hispanics.

This participant began to discuss professional development opportunities that were needed as a way to help alleviate her attitude towards her Hispanic students. While she did not get into specifics about the professional development other teachers began to discuss and agree. Within the theory of financial adequacy and it's themes there is an emphasis on using professional development (Odden and Archibald 2001; Odden 1998, 1994) as a way to decentralize management from the district level to the campus and/or department. Specific and unique professional development needs must be met at each campus ensuring the more efficient use of funding.

Most of the participants in the focus groups were White teachers therefore, not much was discussed about the perceived needs of White students (who were not LEP, special education or economically disadvantaged) but, there were concerns about all racial group whom did not fall into and of the “special groups”.

Teachers were concerned that students who were not LEP, Special Ed or Economically disadvantaged were missing out on many of the opportunities that they should be receiving and that, these “normal kids” would be the ones to start falling through the cracks. Teachers were concerned about future planning, something which the students in “special groups” get walked through step by step but,

Participant: Some of these other kids, they miss out of some of the extra stuff because they aren't in these special groups...like they don't have access to mission control and all these other things...they need some general future planning...they don't have all the opportunities that shows them, like...I've got kids in mission control that, like, are applying for culinary school and they're applying to JCs. I mean, they've got a lot of people helping them figure out what they're going to do and where they need to be and what they need to do to get there and a lot of these kids just don't have that. Even though their parents are successful, their parent might not really know what's going on.

Aside from giving access to all future planning programs to all students, mentoring was discussed in the form of homeroom and Southwest Texas State College Students.

Participant: I was in a school and we were assigned students like that and we met with them like once every six weeks and went over stuff with them to make sure...

Participant: I've been in a school like that too.

Participant: Any time there was an important decision to be made.

Participant: I know seniors who on their own to get their stuff done and I'm talking seniors in the top 10%..."part of the kids you teach are the kids that get lost.

Participant: Aren't there grad students who are interested in education...I mean, we're in a situation where we've got a lot of colleges in our area. I feel like we don't utilize them in order to get help from those people like we could.

Participant: What about the interns we have...they say they do a lot of wasted stuff and they have class on campus...and do observations on campus...

Participant: It would be nice if their curriculum included some interaction with our kids besides observing in our classroom, which they do a wonderful job with.

Participant: The interns we had, my kids really loved it. It's someone who's not a teacher and not a parent. They liked talking to them and interacting with them.

Mentoring and future planning is a good start to ensure these students do not fall through the cracks of the public education system but, the mathematics teachers did not stop there. A very animated discussion began when the sequencing of classes and the correct placement of students came up as a topic of conversation.

Participant: I mean, half the time these kids aren't even in the right class. They're the kids that truly just get left.

Participant: There's no one watching out for them.

Participant: Counselors need to know the curriculum and they don't

Participant: Counselors are too busy doing paper work.

Participant: They [counselors] don't see anything wrong with having a child in Algebra II who has never passed Algebra I.

Participant: It seems like it would be easy to fix.

Participant: There should be a policy put into place that is not deviated from. I suggested getting teacher's signatures when they do registration if they don't have time to check.. I'm an Algebra II teacher and I know they are going to fail so I'm not going to sign for them to go into pre-calc.

Although the teachers realized by implementing this idea would mean giving themselves more work, the advantages outweighed that single disadvantage. This focus on results and attention to the individual student are the ideas that Odden and Foshay are arguing must take place to run a successful school and build a successful curriculum.

The next group discussed was Special Education students. Teachers brought up perceived needs and ideas for resources that covered two of the major themes of Allen Odden's theory of financial adequacy and what a successful implementation of that theory would look like.

Special Education Students

The decentralization of power is one of the keys to Odden's ideas and the mathematics teachers I spoke with communicated ideas and fell neatly into this theme. Many of the mathematics teachers thought that more special education personnel was needed to help in mathematics classes. Mathematics resource classes, which are specifically for special education students are over-crowded.

Moderator: How many people work in your department?

Participant: We're dwindling. In math, it's just me.

Participant: I have classes that are bigger than some of these classes. I have fourteen some people have eighteen. We have such huge resource classes....I have an MR who might know how to multiple some things and then I have kids who've passed algebra I but can't hang with geometry...it so many levels...and if I try to split them up...you can't leave these kids...what they're doing is getting rid of more special ed teachers so we've been told we are going to have bigger classes and in fact we may have to do math and reading or math and science. We were told that last year and this year...that's crazy, if I'm trying to do math and our SDAA tests [alternative to the TAKS for Special Education students] looks almost like this TAKS test now and yet, you also want me to teacher English tell me how I'm going to do that in 45 minutes?

Participant: They go from being in an on level math class, mainstreamed, to way below what they are capable of doing. There's nothing in between offered. There's not a resource geometry class where if they passed Algebra I but they just can't quite get the regular geometry, they go all the way back down to resource math and it's below Algebra I

Participant: No, we don't have any of that [resource Algebra I or Geometry] and we've been asking for something in between because I have kids that need a little bit of help, aren't quite ready for maybe a regular math class so they're stuck with me and I then I have kids that are MR and can't even multiply or add and they're all mixed together and they're telling me 'make due'.

As well as mathematics resource classes, which would require more teachers certified in special education, teaching assistants were discussed to help the special education students being mainstreamed into regular education mathematics classes.

Participant:...Not necessarily a resource class. It could be a mainstream class but, have someone whose maybe certified in regular ed and special ed or one or the other, but it's not necessarily a resource class.

The mathematics teachers did not stop at classroom teachers when discussing the needs for more personnel. Communication was a high need talked about at great length by all the focus group participants.

Participant: ...we get these papers, these forms, you know, their ARD papers, and it says RE or SE and so your going, 'ok why is he with you, why is he there?' Some of the paperwork we get from junior high, I mean, you can almost guarantee that [they] will send us incorrect paperwork.

Participant: When you have a student that you know has an IEP and you're trying to deal with that it's very helpful when you talk to the teacher from before and find out more specifics. So if we had some kind of paperwork not just when there's a bunch of checks on a form but a statement from a previous teacher."

Participant: ...Oh, regular ed teachers should do that. I agree, we [SPED Folder teachers] do that.

Participant: Even if we could just see their schedules form the year before...

SPED: ...what I've been told, the junior high teachers do not want to discuss with us anything. That's what we've been trying to get...about, 'OK, we're getting these kids now I need to know where they are, what they can do, what are some issues, is there money for it.'

Participant: Which is why so many are misplaced at the beginning.

Participant: Yes, we have a huge problem with our special ed students.

Odden's ideas on the decentralization of power and money as a major theme in the implementation of financial adequacy was practiced during the focus groups. Ideas the mathematics teachers had about communication and personnel needs fit directly into the theme of decentralization. Conversations must be had and decisions need to be made at the most local of levels for the decisions to be effective.

A focus on results was another theme of Odden's that the mathematics teachers' focus group discussions fell into. The focus on results includes not only testing and the

gathering of data but also supplying students with the tangible resources needed to help them succeed, reach the state mandated standards and pass the TAKS test. Teachers thought there were a few items that filled the needs of the special education students.

Participant: A little mini lab in my room. Have like 4 or 5 computers where you could have a station for some of those kids [SPED] you could have a sketch pad on there that would and have something where they could manipulate it right there, see it right there without have to schedule lab time, have the whole class in there...but actually use it to manipulate...

All these needs and resources would allow the special education students to be helped the way the teachers and special education experts believe they should be helped.

Limited English Proficient Students

While Limited English Proficient or LEP students only make up 2.3% of the HS1 population the anecdotal evidence is that there may be many more that have not been tested or have been pushed out of the program. The focus of the mathematics teachers at HS1's was to get their LEP students the tangible resources needed to help their students reach the state standards and pass the mathematics TAKS test.

Bilingual texts, teachers, and classroom supplies were the primary focus of the focus group discussions and Spanish was the language focused on. Bilingual teachers were spoken of as a way for students to receive the individualized, extra attention needed.

Participant: That was my concern, more Spanish speaking teachers because what happens is all these kids that they have come to me and want me to help explain it to them because I speak Spanish.

Participant: That was going to be my suggestion was bilingual classes. See, what they typically do now is they stuff these kids...like I had one that had two math classes because they figure, 'oh, well they can do that even if they can't speak English'.

Teachers, bilingual mentors and tutors were also discussed at great length.

Participant: If they have someone who speaks Spanish to work with them and let them [the student] work through the problem but help them see the context and the syntax and all that stuff that's different from one language to another.

Participant: Of course, it could be a peer. I've had some very successful peer tutoring from the ESL students.

Participant: I think we are under utilizing our bilingual kids.

As well as more teachers, mentors, and tutors the mathematics teachers focused on classroom supplies that are in Spanish and English, side by side. This would allow Spanish speaking students to recognize the English words that they already know in Spanish. Wall charts, Spanish/English dictionary use during tests and translated worksheets were all discussed.

Participant: I've had years where half my class was limited English. I don't know any Spanish, I'm handicapped in trying to say it so they can know what to do but if there's some thing with math terms...

TAKS preparation supplies were also discussed. In a surprising statement the mathematics teachers all agreed that students need access to Spanish language test preparation materials *before* the TAKS test is failed for the first time.

Participant: [Students] didn't see it [Spanish texts] before they failed it [TAKS test].

The idea that students who do not speak English are not given access to Spanish TAKS preparation supplies until they fail the TAKS test for the first time is a lack of focusing on results and counterproductive.

All of these tangible needs and resources are part of what Foshay states must be focused on to ensure results. Odden also states that these needs and resources must be taken into consideration when focusing on results. This theme of focusing on results leads directly to Odden's other major theme of decentralizing money and power.

Campus staff must be able to make decisions about what resources are needed in the classroom and for specific students.

Economically Disadvantaged Students

Economically Disadvantaged Students are categorized in three different ways in the state of Texas¹⁹:

1. Eligible For Free Meals (code 01) – Eligible for free meals under the National School Lunch and Child Nutrition Program.
2. Eligible for Reduced Meals (code 02) – Eligible for reduced-priced meals under the National School Lunch and Child Nutrition Program.
3. Other Economically Disadvantaged (code 99) – This category includes:
 - a. students from a family with an annual income at or below the official poverty line
 - b. students eligible for Temporary Assistance to Needy Families (TANF) or other public assistance
 - c. students that received a Pell Grant or comparable state program of need-based financial assistance
 - d. students eligible for programs assisted under Title II of the Job Training Partnership Act (JTPA)
 - e. students eligible for benefits under the Food Stamp Act of 1977

In HS1 economically disadvantaged students are the third largest NCLB sub-group. 26.2% of HS1's population is categorized as economically disadvantaged. Mathematics teachers at HS1 focused on this sub-group of students by discussing their tangible needs.

¹⁹ The three criteria for Economically Disadvantaged Students in Texas can be found at: <http://www.tea.state.tx.us/adhocrpt/abteco06.html>

Odden describes these tangible needs as a focus on results, Foshay states that it is necessary to discuss the tangible needs of all students.

Teachers focused on the need for extra time and extra help for the majority of economically disadvantaged students. The extra time and extra help equated to before or after school tutoring but there were disadvantages to this idea.

Participant: One of the issues that I've found is that they can't stay late and they can't come early. They don't have a car, their parents...it's a bus issue. They had the ability of a late bus ride or even an early bus ride they could be at the school because many, many of them want to be up here but just can't be.

To help alleviate these problems the focus group decided on a late or early (activity) bus. As well, the tutoring would have to include teachers to run the tutoring, supplies for students and possibly of snacks for students.

As well as supplies for the tutoring general school supplies for this group of students was another focus of the focus group. There were serious concerns that students did not have the general supplies needed for a successful year in a mathematics classroom. Teachers discussed the need for supplies such as pencils, pens, notebooks and even backpacks that could be handed out when asked for.

Participant: Something that the kids would have that they need every day whether it's in our room and it's there for them or...with the kids I have, I had them bring all that stuff [pen, pencil, binder] at the beginning of the year and I just have it there for them but I make them bring it in and that's not fair to some of the others because they can't afford it so I'm taking money out of my own pocket to make sure some kids have what they need.

Moving away from supplies for individual students and towards what most students in the sub-group need many of the teachers participating in the focus group began to discuss the TAKS test and the difficulties many of the economically disadvantaged students have on the TAKS test.

Participant: I don't think it's all mathematical. We had a benchmark last semester that said 'cantankerous'...if it was a real test, and some kid raised their hand 'Ms X what does cantankerous mean?' we can't tell them.

Participant: For English they let 'em use a dictionary, don't they?

Participant: Yes but it was a math question about a cantankerous machine that would not take dimes and some of the kids figured out, 'oh well, it must mean...cantankerous must mean it doesn't take dimes...

Participant: Can we give them dictionaries during the math test?

Participant: No.

Participant: Vocabulary's a big reason why they don't pass. They don't understand what the question is...

Vocabulary was discussed at length. The stereotypical students in this sub-group may need some extra help with vocabulary when taking standardized mathematics tests. Wall charts and worksheets with math vocabulary words illustrated and defined were discussed along with the idea of using dictionaries on the math tests.

The final need that many teachers discussed was the fact that, because of embarrassment, not all eligible students were filling out the paperwork necessary to be counted as an economically disadvantaged student. The teachers focused on communication.

Participant: Lots of kids won't apply for it. They're embarrassed to bring the forms back and so they are not getting the resources they need and the school is not getting the extra resources.

Participant: I think a flyer attached to free and reduced lunch [application] that gives a list of all the advantages if you qualify for that...

Participant: Yeah, that's good.

Participant:...Like, scholarship opportunities, they pay for testing....then even the kids could see...even if, for the first year, we read it in our classes, you know, 'this is what advantages you get. Please take it seriously.'

Teachers focused on better communication to the entire student body to help make sure students who were eligible for free and reduced lunch (and all the academic benefits that come with that eligibility) were receiving those resources.

Deciding how the new curriculum should be experienced was the primary goal of the focus groups. This goal was accomplished because the mathematics teachers took the time needed to discuss what they believed were the needs of their individual students. Foshay and Odden discuss the importance of focusing on the individual student and, although the NCLB sub-groups hinder that idea, the mathematics teachers at HS1 were still able to push through and see their students as individuals.

Why Experience It?

As with the first two of Foshay's questions about who the student is and what experiences that student should have, this question has highly individualized answers. Why a student should experience (or learn) a subject is based on what that individual student seeks to be able to accomplish in the future (Foshay 2000).

In regards to the NCLB demographics used by the states the answer becomes a somewhat cynical one: students experience learning to pass tests and master objectives. Although the focus group participants were more theoretical than that, they do recognize the influence NCLB and the TAKS has over the answer to this question.

When Shall It Be Offered?

Foshay focuses on the idea that this question is almost always incorrectly answered by focusing on students' ages instead of ability level (Foshay 2000). The participants in the focus groups were also less focused on age and more focused on ability level. Mathematics is heavily reliant on cumulative knowledge; age is of little importance.

The focus groups rallied around the idea of a sequencing plan and a permission slip for students to move onto the next, more complex, mathematics offering instead of counselors, some of whom know very little about the mathematics class sequence, deciding what classes their students were ready for.

Participant: I mean, half the time these kids aren't even in the right class.

Participant: Counselors need to know the curriculum and they don't

Participant: Counselors are too busy doing paper work

Participant: It seems like it would be easy to fix.

Participant: There should be a policy put into place that is not deviated from...I suggested getting teacher's signatures when they do registration if they don't have time to check.. I'm an Algebra II teacher and I know they are going to fail so I'm not going to sign for them to go into pre-calc.

Math is a sequenced subject; there are topics that must be learned first in order to learn more complicated concepts. While the idea of a sequencing policy seems like tracking the mathematics teachers believe it is not fair to the students to place them in mathematics classes they are not ready for.

Under What Governance?

“The farther away authority is from the immediate instructional situation, the more it should be concerned with policy, and the closer the decision maker is to the point of action, the more the decision should be concerned with practice” (Foshay 2000). This is the focus for many of the changes participants wanted to make. Allowing teachers, the individuals closest to the action to make decisions about student placement, curriculum choices, and textbooks.

On this point, Allen Odden, Arthur Foshay, and all the focus group participants agree and, there was much discussion during the focus groups about decentralizing the

decision making process. This discussion has been written about in the proceeding sections of this chapter.

Evaluated How and By Whom?

Although Foshay debates this topic in his book and discusses the importance of both teacher evaluation and self-evaluation (Foshay 2000) the present education world is much different. Although teacher evaluations are still happening in all the participants' classrooms, the TAKS test is the main focus of the year.

At What Cost?

Described as “not only money, but also time and staff” (Foshay 2000) Foshay illustrates and solidifies the importance of brining all items into consideration when discussing coast. One can not discuss cost without knowing how many students will be present on a daily basis. One can not discuss cost without considering professional development time, paid and unpaid, spent by the teachers to learn to software, become familiar with texts and textbooks, and write and plan out curriculum.

Because all eight of Foshay's questions have been answered we are now able to bring together all those components and discuss the cost of this new organization style and these new curriculum ideas. The focus group participants were not asking for a revamping of the entire high school or a reinvention of the CT-CISD mathematics curriculum. What they are asking for is a bigger role in the decision making process that directly effects their own classrooms.

The following pages are a costing out for all students taking mathematics courses in HS1. It is organized by NCLB sub-group. There were some conditions set to help

ease some of the calculations that had to be made. As well, there are regulations set by CT-CISD about teacher salary, bonuses and paraprofessional hourly rates that are discussed.

Assumptions made by the researcher

1. If more teachers were needed the salary of a teacher holding a bachelor's degree and having five years of teaching experience was used (\$34,610 salary). See Appendix F for a full salary schedule for CT-CISD.
2. If volunteers were being used for peer tutoring or mentoring than a supervising teacher needed to also be assigned.
3. The prices of all tangible supplies were taken off the vendor list at CT-CISD.
4. Table 2.2 (Adjustments for Student Costs) explains in full detail the weighting of students. The costing-out takes that into consideration.

Regulations set by CT-CISD and Texas

1. The number of days in the school year (187 for the 2005-2006 school year) is set by the state of Texas. If teachers take on extra responsibilities such as an addition class, a teacher mentoring role, or as a study hall proctor, they are paid one fifth of their daily wage. This means:

$$\frac{34,610}{187} \div 5 = \$37.02 \times 187 = \$6,922$$

See Appendix G for CT-CISD's 2005-2006 academic calendar.

2. Bilingual teachers and Special Education, life skills teachers, are paid a yearly bonus of \$1000.

Table 4.2²⁰: Cost-out Worksheet for HS1 for all students at HS1

	Need	Resources	Estimated Cost	Explanation of cost (in budget, vendor, bid, etc)
	Computers	Lab (25 computers)	25 at \$1000 a piece = \$25,000	Vendor = Dell
	Computers	Tech person	\$11.72 / hour (6 hrs a day, 176 days) = \$12,728	CT-CISD Pay scale
	Manipulatives	Algebra Tiles	\$90/class set. 16 teachers = \$1440	Vendor = Nacso
	Manipulatives	Individual White boards (8½ x 11)	24/teachers, 16 teachers. \$40 for 24 white boards = \$384	Vendor = Whiteboards & More
	Calculators (TI 84+ Silver)	Class set for each teacher + 2 class sets for students to check out	25/teacher + 50, 16 teachers. \$119/calculator = \$53,550	Vendor = D&H Distributing
	Time	Prof. dev. Days (6 in the year)	\$0	Already worked into schedule and budget
	Remediation	Tutors, TAKS objective books (1 class set)	1/5 daily rate for supervising teacher (\$6922) + \$50/TAKS review book = \$1250	Vendor = Region IV ESC
	Total:		\$94,352	

²⁰ Tables 4.2-4.7 are a modified version of Jennifer King Rice's budget analysis table found in "Cost Analysis in Education: Paradox and Possibility" in *Educational Evaluation and Policy Analysis*, 19(4). 309-317

Table 4.3: Cost-out Worksheet for HS1 for all racial groups (non-Hispanic)

	Need	Resources	Estimated Cost	Explanation of cost (in budget, vendor, bid, etc)?
	Future Planning	Mission control like program	\$11.72 / hour (6 hrs a day, 176 days) = \$12,728	CT-CISD pay scale
	Mentoring	Homeroom	\$6922 (1/5 daily rate)	CT-CISD salary ladder
	Mentoring	SWT interns	\$0 + \$6922 (volunteers + a supervising teacher)	CT-CISD salary ladder
	Correct placement	Sequencing policy	\$0	No new resources needed
	Total:		\$26,572	

Table 4.5: Cost-out Worksheet for HS1 for NCLB special education sub-group

	Need	Resources	Estimated Cost	Explanation of cost (in budget, vendor, bid, etc)?
	Personnel	Spec. ed. assistants in math classrooms	\$11.72 / hour (8 hours a day/ 181 days) = \$16,970	CT-CISD Pay Scale
	Communication	Liaison between high school and middle schools	\$11.72 / hour (8 hours a day/ 181 days) = \$16,970	CT-CISD Pay Scale
	Lower student/teacher ratio in resources classes	Spec. Ed. certified teachers	1 more special ed. teacher to teach resources math = \$34,610	CT-CISD salary ladder
	Individualized curriculum	Computer lab (mini) 4 or 5 in resource classroom	\$1000 per computer = \$4000-\$5000	Vendor = Dell
	Individualized curriculum	Sketch pads to go with computers	\$130/sketch pad = \$520 - \$650	Vendor = Key Curriculum Press
Total:			\$73,070 - \$74,200	

Table 4.6: Cost-out Worksheet for HS1 for NCLB Limited English Proficient sub-group

	Need	Resources	Estimated Cost	Explanation of cost (in budget, vendor, bid, etc)?
	Individualized attention	2 Bi-lingual teachers	\$34,610 / year + \$1000 bonus for bilingual teachers = \$71,220	CT-CISD salary ladder
	Individualized attention	Bi-lingual peer tutoring	\$0 + \$7122 (volunteers + 1/5 daily rate for supervising teacher)	CT-CISD salary ladder
	Classroom supplies	Bi-lingual wall charts, worksheets, etc	\$11.72/hour (6 hours/day, 167 days) = \$11,743	CT-CISD Pay scale
	Supplies	10 Sp/En dictionaries per teachers	\$6.50/book = \$1040	Vendor = amazon.com
	TAKS Test prep	Spanish language TAKS prep books	\$50/book, 35 LEP students = \$1750	Vendor = Region IV ESC
	Total:		\$91,835	

Table 4.7: Cost-out Worksheet for HS1 for NCLB Economically Disadvantaged Student sub-group

	Need	Resources	Estimated Cost	Explanation of cost (in budget, vendor, bid, etc)?
	Extra time/help	Certified math teachers	\$34,610 / year	CT-CISD
	Extra time/help	Activity bus + driver (estimate = 50 miles, 2 hours, 3 days a week)	\$12.85 / hour for the bus driver + \$2.57 per mile = \$2775.60 + \$13,878	CT-CISD pay scale
	Extra time/help	Supplies, snacks	\$300	Vendors = various
	General supplies	Backpacks, pens, pencils, notebooks	\$1200	Vendors = various
	Communication	Flyers w/ info about free/reduced lunch program	\$0	Already in budget
	Vocabulary	Wall charts, worksheets, dictionaries during tests	\$0	Already in budget
Total:			\$52,763.60	

Chapter 5: HS2 Results

This chapter focuses on the results from the HS2's mathematics department's focus groups and interviews. The chapter is framed within Foshay's curriculum matrix, Odden's theory of financial adequacy and his ideas for the implementation of the redistribution of funds to promote adequacy. Foshay asks nine questions within the practice dimension of his matrix and the NCLB sub-groups.

The ninth question can not be answered properly until the first eight questions are thoroughly addressed. Because of the importance of Foshay's nine questions, the chapter is organized using the nine questions. Each section is on of Foshay's questions and interwoven into the response are ideas from the focus group participants along with how Foshay's ideas relate to Odden's theory of financial adequacy.

The chapter concludes with an answer to the ninth of Foshay's questions. A simple cost analysis of the focus groups' ideas were conducted and discussed. Each of the two high schools studied received it's own results chapter. A comparison of both high schools will be done in the discussion chapter (chapter six).

ODDEN'S THEORY

The theory of financial adequacy is an ongoing evolution of ideas that began in the early nineties with Allan Odden. Focused on the implementation of financial adequacy and how to raise the productivity of students with ever decreasing funds (Odden 1998, 1994; Odden and Archibald 2001; Odden and Clune 1998, 1995; Odden 1994, 2001) Odden concluded that a redistribution of resources was key to the success of his financial adequacy theory.

Implementing these changes means an almost total overhaul of present public school finance systems in the United States. The decentralization of money and power would lead to a break down in the bureaucratic organization of the school systems. As well, all school personnel would have to commit to intense initial and ongoing professional development to ensure an understanding of what types of decisions would have to be made and how to make those decision in the most efficient and effective way possible. Allan Odden and Sarah Archibald describe what the implementation of such a process may look like on an individual campus (Odden and Archibald 2001).

Teacher compensation is the last large piece of the decentralization of money and power. Districts and campuses must be permitted to pay their teachers what they view is the teacher's worth, not what the state's salary ladder mandates must be paid based on years experience and degrees earned (Clune 1994; Clune 1993; Odden 1994; Odden and Archibald 2001; Odden 2003).

Because of the scarcity of new education funds and the continuing trend of an ever increasing responsibility on local tax payers to fund public schools, the implementation of the theory of financial adequacy has become synonymous with the reallocation of funds (Odden 1994). Step one, laying the foundation for change, has already been discussed within the suggested solutions sections of this chapter. The foundation of change is the most important step. To create real change the foundation must not be shaky or school personnel will be unwilling to take risks with their decisions.

Defining a new educational strategy is step two in this process and is the focus of this research and discussed more specifically in the methodology chapter. Within this decision must be strategies for helping struggling students. Lastly, ongoing professional development must be decided upon so teachers and other campus personnel understand

the changes that have been made and the new goals being reached for (Odden and Archibald 2001).

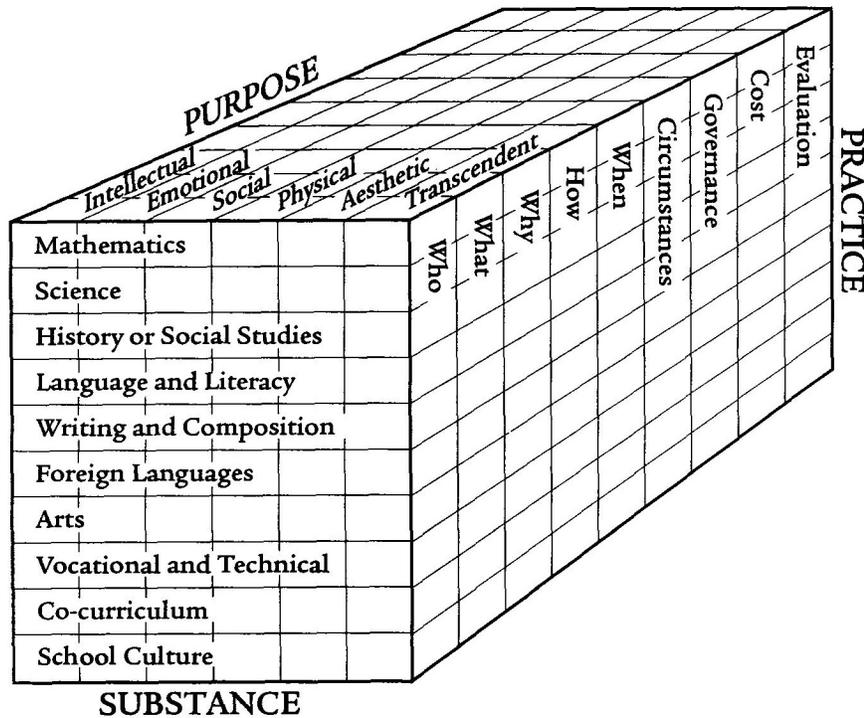
Hiring and organizing teachers and other school staff (e.g. teacher assistants, specialized experts and volunteers) who will support the new educational strategy is the next step in the implementation process. Logistic decisions such as school size, class size, and time for planning and professional development must be taken into consideration (Odden and Archibald 2001). As well, teachers and other school personnel must agree to these logistic decisions.

Lastly, and most importantly, the funds for these changes must be found or funds must be redistributed. At the district and campus level resources can be added and reallocated. Other sources of funds should also be considered especially with the trend of community back lash towards rising property taxes (the primary source of school funding). Once all these decisions have been made, they must be revisited on a regular basis. The ever changing population of students means changes may have to be made to programs, curriculum may have to be tweaked and funds reallocated. Chapter four and five, the results chapters, focus on these last two steps. I do not go as far as finding new sources of funding but gain a greater understanding of what teachers and campus administrators view as the needs of their students. As well, the resources needed to focus on these needs are costed out to the best of my ability. Odden's themes and his idea of redistribution as a form of implementation for financial adequacy line up nicely with Foshay's curriculum matrix.

FOSHAY'S CURRICULUM MATRIX

Arthur Foshay discusses his view of curriculum by using what he calls the curriculum matrix (see Figure 4.1)

Figure 5.1: Foshay's curriculum matrix²¹



As mentioned previously, the matrix has three dimensions. This research focuses on only the practice dimension. The nine aspects of the practice dimension are nonnegotiable (Foshay 2000) and, cost can not be considered until the other eight aspects within the practice dimension are addressed.

Foshay and Odden diverge at the first two questions. Foshay sees a crucial focus on the individuality of students and the importance of that individuality when thinking of curriculum (Foshay 2000). Although that individuality is crucial while discussing theory, Odden is focused on practice. Foshay and Odden reconnect when discussing the last seven questions (including the cost analysis question) of Foshay's curriculum matrix.

²¹ This figure is taken directly from Arthur Foshay's *The Curriculum: Purpose, Substance, Practice* (2000)

Who Is The Student?

The students discussed for the purposes of this study are all high school mathematics students (grades 9-12). If a student at HS2 was not taking a mathematics course, they were not considered by the focus group participants. The demographics of HS2 for the 2005-2006 school year are summarized in Table 4.1

Table 5.1: Demographics of HS2 for the 2005-2006 school year²²

NCLB sub-groups	# of students / % of students at HS2	Reported for AYP?²³
White	252 / 28.43%	Yes
African-American	62 / 7.0%	No
Native American	3 / 0.34%	No
Asian/Pacific Islander	5 / 0.56%	No
Hispanic	564 / 63.7%	Yes
Multiracial	Demographic not used by CT-CISD	N/A
All Students	886 / 100%	Yes
Limited English Proficient	34 / 3.8%	No
Students with Disabilities	127 / 14.3%	Yes
Economically Disadvantaged Students	434 / 49.0%	Yes
Displaced Students ²⁴ (Hurricane Katrina)	3 / 0.34%	No
Displaced Students (Hurricane Rita)	1 / 0.11%	No
Non-racial sub-groups	599 / 67.6%	N/A

²² All demographic information was part of the Academic Excellence Indicator System report for this high school. All AEIS reports can be found at the Texas Education Agency website: <http://www.tea.state.tx.us/>.

²³ In order to determine if a NCLB sub-group is reported for Adequate Yearly Progress the state of Texas uses the 50/10%/200 rule. For campuses with more than forty students enrolled on the day of testing each sub-group must contain 50 or more individual students and represent more than ten percent of the tested grade's student count or the sub-group must have more than two hundred individual students

²⁴ Subpart 4, section 6161 of the *No Child Left Behind* Act can be found at <http://www.ed.gov/index.jhtml>. Because of the 2005 Hurricanes Katrina and Rita the number of displaced students is numerous times larger than normal and there has been some concern about AYP for the states taking in the majority of these displaced students. Secretary of Education Margaret Spellings has given two options to address concerned states one of which is the creation of a new "displaced students" sub-group. Please see <http://www.ed.gov/policy/elsec/guid/secletter/050929.html> for more information on this topic.

Foshay speaks directly against this type of stereotyping (Foshay 2000) but the overpowering presence of the No Child Left behind Act of 2001 forces educators into discussing their students based on demographics and pigeon holing their students into sub-groups. Although Foshay lashes out at the idea of generalizing students into groups, NCLB is an important part of the present education process and because of that, for the purposes of this research, the comments made by individual teachers must be discussed using these stereotypical demographics.

What Experiences Should the Students Have?

When Foshay discusses experiences he is not describing the curriculum. Foshay chooses to describe the experiences students should have by describing what is not already happening in classrooms: “Since we do not know how to discover the individuality of the student, we do not really know what experiences the student should have” (Foshay 2000).

In disagreement with Foshay but because of NCLB, this research is focused on different student demographic groups. The experiences discussed by the mathematics teachers during the focus groups discuss not experiences for students but the curriculum that needs to be focused on to help the students within each demographic group reach the state standards thereby helping their school achieve adequate yearly progress. This will be discussed in more detail in the next section.

The next two questions are discussed simultaneously. They are where the focus group participants spent most of their time and the master needs and resources pages developed answer the following two questions.

In What Circumstances? Where? Material?

Foshay's answer to these questions are: how much space is needed, the availability of special facilities and the materials available to teachers (Foshay 2000). By looking at this question, and the next the focus group developed a better understanding of what a high school mathematics program could be and how it could benefit the most number of.

Discussion ranged from how to better utilize material and space they already had available to them as a department and as individual teachers to what types of textbooks would best serve the different student populations at each school. As well, they discussed what they believed was still needed to help more students in a timely, more relevant manner.

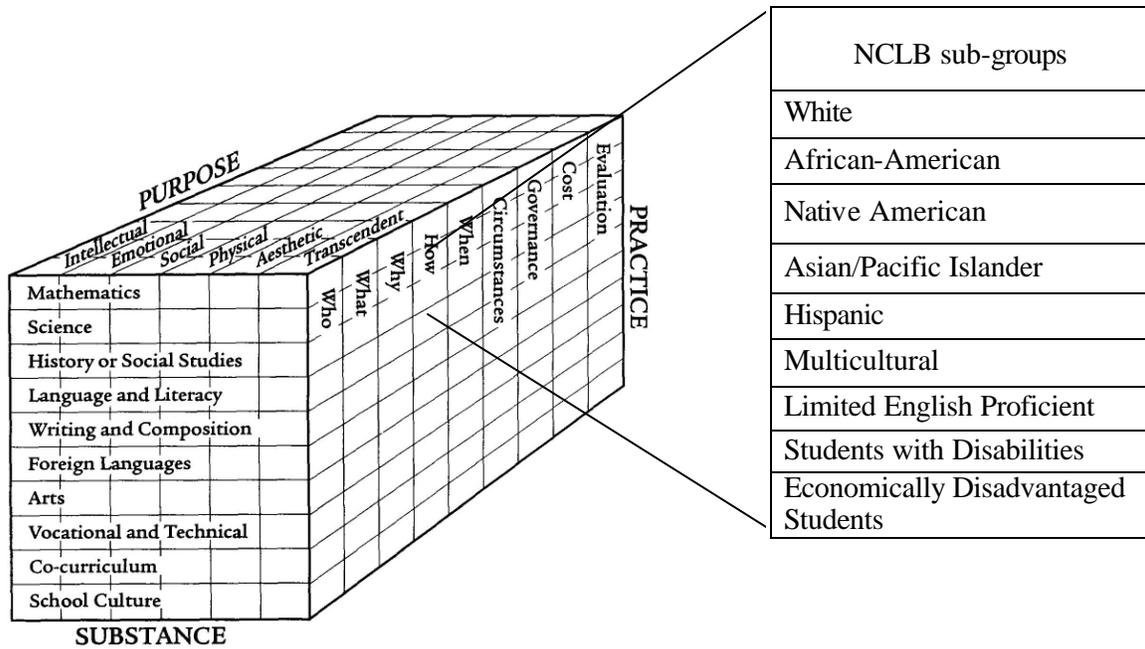
How Shall it Be Experienced?

This question encompasses the main objective of the focus groups. Participants were asked to discuss the perceived needs of their students and began to discuss topics related to making curriculum more relevant by allowing their students to “make” mathematics instead of just the “drill and kill” of memorization.

Foshay discusses the importance of John Dewey and his idea: “you learn what you do” (Foshay 2000). Changing “do” into “make” Foshay shares the concept with Dewey. Students must be more active in their learning environments for the curriculum, the subject, the learning experience to have any relevance to them.

During the focus groups the perceived needs of students and the resources needed to alleviate those needs were discussed using NCLB subgroups as an organizational tool. As figure 4.2 illustrates, the answer to the question ‘how shall it be experienced?’ can be organized in the same way.

Figure 5.2: Foshay’s matrix and the NCLB sub-groups



All Students

The focus groups understood the importance of the NCLB sub-groups for testing and reporting purposes. Although I asked the teachers to look at students as part of one of the NCLB subgroups, they wanted to make it clear that there were some resources and supplies that all students needed.

The number one perceived student need was more individualized attention. Odden describes this as a focus on results, the teachers in the focus group described as the need for extra help or as the need for more individualized attention. The best resource teachers thought of was, more teachers. Lower the student to teacher ratio was the first discussion.

Participant: Last year I had a class of 12, this year I have a class of 8...even when I have 2 or 3 kids missing from a class of 27, it goes so much better. If you had a class of 6 regular kids, 2 G/Ts and 2 special eds, if there was *{sic}* only 10 people there I feel like I could get so much done...You could have a complete inclusion class and probably get stuff accomplished.

Although teachers were talking about having classes that were well under the elementary school ratio limit that was not what they eventually asked for. After a brief discussion focus group participants thought that lowering the high school student to teacher ratio to match the elementary school ratio (one teacher for every 22 students) would be highly beneficial.

An alternative to lowering the student to teacher ratio is the idea of a modified double block for mathematics courses but only for those students that needed the extra attention and time.

Participant: I put not really double block math...a remedial math class that they're taking in connection with, only the students that need it, the math class and it kinda piggy backs with it. Whatever skills they need to do for Algebra I, whatever skills they're lacking at or that they need to do for Algebra I they could be getting that that day, in that other class.

Participant: I don't think you'd really want a block. I've had block math and I don't think it would be as good...

Participant: Maybe a zero period or something after school...so they have extra time

Participant: Those kids are weak in those basic fundamentals skills that they need for Algebra I...I think that may solve some of the teacher ratio problems because if you has a tutoring program you'd have more people helping less students.

These discussions of a modified double block lead directly into a zero hour tutoring discussion and what resources were needed for zero hour tutoring program to be successful. The resources that came up were the idea of transportation (an activity bus), extra teachers, supplies and possible snacks for students.

Participant: Maybe a zero period or something after school...so they have extra time.

Participant: ...I put that too

Participant: If you go into the after school tutoring then you need resources such as busses, meals, supplies...I mean, you'd have to have all of that, you'd have to pay a teacher or tutor to come in and do all that...transportation, snacks, materials: paper...

Moderator: Do you think it would be just one teacher...or would you have multiple people?

Participant: Well it depends on many they were...that ratio would have to be almost smaller than the 6 to 8 ratio, I would think, for tutoring.

During the discussion of lower student to teacher ratios, double blocking mathematics courses and zero-hour tutoring concern was the undercurrent of the needs of the students. Teachers saw a large need for students to develop specific mathematics skills. A math lab (possibly working with the tutoring or the double blocking of mathematics courses) was seen as a resource that would benefit everyone.

Chris: "We need a math lab...something that is not the general content mastery. I think our people who pass would have stronger skills...it doesn't have to just be developmental...this would be supplemental to the computer lab...even if it was only open before school, after school and during lunches...with a teacher in their while it was open...like another thing you can reserve."

Along with developing general mathematics skills, TAKS preparation was discussed and, again, a lab was thought to be the best course of action. Because a specific mathematics lab was going to be developed the thought was that it could do double duty as a mathematics TAKS computer lab.

Participant: I'm doing TAKS math tutoring classes so there's roughly twelve to fifteen students and it...those classes would be a lot better if they were half that size.

Participant: ...The need is more individualized time, so the resource for that would be?

Participant: Another teacher...What I'm seeing is students really need you to sit down with them and work one and one. They don't get much from a presentation and it's hard to that even with fifteen...it just hard in 45 minutes to spend quality time with each one.

Participant: What would be the ideal student to teacher ratio?

Participant: I'm thinking 6 to 8.

Participant: I think for that particular type of student, the kids that are in the TAKS math class that haven't been successful at math in a really long time it does need to be 6 to 8, it does need to be really small.

Overall organization was also a key need seen by the focus groups. Students' supplies were a source of concern for most of the mathematics teachers taking part in the focus groups. Teachers wanted each student to have a binder of their own for mathematics class as well as access to a graphing calculator.

Participant: One of the problems that I have is that students don't keep up with stuff. You give a hand out to take home with them then 50% of the students you don't see it again...they're supposed to have a binder...but they never do so...if we gave them a nice binder they could personalize it, put picture on it...something that they could generate a little bit of pride in this document so they would hold on to it.

Participant: Some kids have already asked for stuff [to take home] but we really can't spare the calculators.

Participant: If we had another set of calculators, like 50 or so that if kids want they could go and check them out.

Participant: We're putting the responsibility on them [the student]...

Participant: The students may feel more ownership and will be more likely to hold onto it [the calculator].

Lastly, and surprisingly, students at this high school do not have access to lockers. Teachers thought that lockers would help tremendously when it came to a student's organization.

Participant: This goes along with organization, Lockers. I think my kids would be more organized if they had lockers...we don't have lockers so their back pocket becomes their notebook.

Along with helping to get students organized is helping them to stay organized throughout the school year. Teachers would like to see some mentoring for all students. College students or upperclassmen could volunteer as mentors.

Participant: One of the things that I see lacking is that the students just don't have any structure...They don't go home to leave it to beaver like households where the mom is sitting there with cookies and milk that 'here sit down and do your homework.' And I was thinking a more tutorial program after school that's not necessarily teaching prior knowledge it just allows them a quiet place to get together, sit down, drink their milk and cookies and do their homework.

One of the keys to mentoring is communication. Parental communication is as important in the focus on results as communicating with students. A one night seminar at the beginning of each school year will help parents understand the importance of the TAKS test and help students understand that there is effective communication between the teachers, parents, and students.

Participant: A one night seminar...somehow we get them [parents] involved as far as if their kid didn't pass the TAKS, you know, what's at stake...so many times we can't get a hold of these parents.

Participant: Some of the parents don't realize what skill level children need to be working at.

Participant: Yeah, exactly.

Participant: I think what I'm finding is that some of our students are actually working so hard they don't have the sleep they need to take the test and if parents realized that this week they need to be able to sleep...

Participant: Or to do their homework...and those are the kids that I find are consistently [failing]...you know all the resources in the world...if they go home and that's their environment...

With parents educated and a greater line of communication there would be a greater chance of appropriate placement. One of the biggest issues mathematics teachers see is inappropriate placement in mathematics classes. The mathematics teachers participating in the focus groups believe that, because of the sequential nature of mathematics classes

there needs to be a six week time limit to switching classes and counselors must double-check a student's placement once the school year has ended.

Participant: I have problems with my core classes being manipulated in order for them to get their elective and that to me is a backwards way of looking at it...I have students that have not passed the prerequisite and I try to pull them up and I can't because they haven't passed something prior to that and then.

Participant: I don't want there to be more communication, I want there to be a precedent that says: 6 weeks into the school year, no more schedule changes...I'm tired or, I'm about to hand out report cards and then I get a new kid.

Last, teachers in the focus groups discussed what they felt they needed to better help students. Supplies came first but it was a short list. Teachers felt that each mathematics classroom needed a TI-Navigator (a graphing calculator projection system), an ELMO (a documents projector), and a laptop. As well, professional development was discussed. Teachers felt they needed more planning days for curriculum development.

Participant: We have not fully embraced connective math...the curriculum is a hodgepodge...

Participant: District wide the curriculum is a big, fat mess therefore campus wide the curriculum is a big, fat, mess...it's because teachers are coming and going and they start something and don't finish it

Participant: Different campuses have different needs...we've got the high, middle and low and we're sitting at the lower socio-economic and the higher socio-economic, neither of those are embracing the connective math...not that we're not...we see some lessons that are good but it's just not what our students need. Now the middle loves it and they're using it every day but you need some strong students to support that and you take a regular math class here and you don't have enough...when you have two strong students at all just a little bit strong in a class of 20 or 30, it's not enough.

HS2 is a brand new school and many of the needs are the needs of a new school. Because teachers are dealing with new students and a new environment there are many

changes that they would like to make. The mathematics teachers are focused on making the department better as a whole and therefore, focusing on different student sub-groups, while important, does not seem as important as bettering the department for all students.

Racial Sub-Groups

The population break down at HS2 is more widespread than that of HS1. 63.7% of the population at HS2 is categorized Hispanic and while most of the mathematics teachers are White, they perceive themselves to have a lot of cultural awareness. The one major issue teachers noted was that most of the Hispanic students like to work in groups more often than not.

Participant: My Hispanic kids enjoy working in group projects more than my White kids.

The other observations seem only to be that unless the students fall into a “special group” (LEP, Special Ed, or Economically Disadvantaged) they do not need any special resources.

Participant: I agree with Josh that overall, if they are outside of those three [Special ed., Econ Dis. and LEP] it’s a pretty level playing field.

The other three special groups delineated by NCLB are focused on because the mathematics teachers participating in the focus groups believed they needed extra resources.

Special Education Students

The special education students at HS2 make up only 14.3% of the population but, the mathematics teachers know as their school grows, new challenges will arise. They try to prepare for the future with some suggestions as to the best ways to help their students.

Dealing first with teachers and the school as a whole, the mathematics teachers believe that appropriate placement is key to helping their special education students. This includes more communication between special education teachers (folder teachers) and the regular education mathematics teachers.

Participant: I think that the lower achieving special ed students should be placed in appropriate classes. I think there is a difference between mixing the G/T kids and the regular kids and mixing the special ed kids and the...I have special ed kids in geometry that can't add...

Participant: (interrupts): ...and the same thing happens with Ms. Y's classes it's just now it's the special ed kids who are like 'I don't get this' and so the regular ed kids are being dragged down.

Participant: I think it would be beneficial for them [folder teachers] to actually observe their students in the classroom to help with placement.

Participant: Something that is bringing them [folder teachers] to us [teachers] instead of us to them.

As well as more communication with folder teachers, the mathematics teachers believe that more teachers certified in special education, emphasizing in mathematics need to be in the regular education classrooms.

Participant: I've got a CWC [class within a class] and it's for three of the students...and A she's [the special ed. TA] never there because she teaches life skill kids and she's always gone with them and B it's only for three of the kids when I can think of about seven or eight of the kids that it should really be for and I've got three or four kids in every other class that it would be good for.

Lastly, there are specific pieces of equipment that the mathematics teachers believe would help the special education students they currently have in their classes. As well, this equipment can be used in years to come as a benefit to other special education students. AlphaSmarts are used to help with handwriting for specific disorders but it has not been updated for use in mathematics classes.

Participant: My student that needed to pass the TAKS has a big problem with handwriting...it's very hard for him to do problems and AlphaSmart

does not do equations as easily as it should...it very discouraging...he can't write it down.

Participant: Like an updated Alpha Smart that works for math.

While most teachers do not realize, gifted and talented (G/T) students fall under the category of special education students. Teachers must modify their curriculum, objectives, and teaching to enrich the environment for their G/T students.

Participant: I have gifted and talented students and they are not being challenged. We have enough for a separate class and we need to have a separate class...my one class is pushed in that direction and...the ones that I am pushing too hard are very vocal that they are not gifted and talented, they're just stuffed into that class...in fact they are now in X's class. The gifted kids were not being challenged in that class because of the other students.

Participant: I'm having trouble...the kids that I'm pushing too hard are bailing like you wouldn't believe because 'I don't know how to do that' which really means 'I'm not doing that Mrs. Y...and the alpha [G/T] kids are going 'of course, that's the answer' and they should be going ahead...'ok this is the answer what can we do next' but we can't get past that [the discrepancy] and they're being stymied...and they will not talk up because they're freshmen and because they're bullied and I think that's a problem...it's very hard to teach the procedure step by step by step, which is what the other kids need and the gifted kids are sitting there saying 'ok, why are we going step by step.

The mathematics teachers participating in these focus groups understand the importance of modifying their curriculum for their special education students but, because of what they feel is a lack of resources, supplies, and organization it is difficult for anything to get completed successfully.

Limited English Proficient Students

Although only thirty-four students are labeled Limited English Proficient (LEP) at HS2 they are a low minority and many of the teachers see the group growing rapidly. On

HS2's campus there is a New Arrival Center (NAC) that helps non-English speakers, new to the United States but, there is a limited amount of resources and a limited amount of time students can spend in the NAC.

Teachers participating in the focus groups would like to expand the services of the NAC. Students just entering the United States should have access to the newcomer center for a semester. During that semester they will take the core courses they need to but the other half of the day will be for English language immersion.

Participant: They don't know what I'm saying, they're not going to pass anyway...so just don't have any consequences for them. Let them be in the class, let them absorb the language, learn it...I mean, I have students that don't know how to say hi and for everything they do I have to send them to [the NAC].

As well, when these students are in the classrooms, teachers have stated that they need help developing curriculum and instructional ideas stating simply that "they do not have time for this". Many ideas were discussed to alleviate this problem. An instructional specialist that specializes in bilingual and LEP curriculum was brought up by many teachers but also, an approach that would allow the LEP students to participate in class, translated notes.

Participant: My students have trouble with notes...I've watched them trying to change what I've written...to what they remember...they're writing the notes in English but sometimes it takes a while to figure out what it is that I've said in English for them to write it in English.

With notes already translated for them, students would not have to struggle to keep up with translating the teacher's instructions, getting in on paper and also trying to keep up with the teacher.

LEP students are not a majority at HS2 but they are a quickly growing part of the student body. The mathematics teachers understand that they must be ready for these

students at any time but also that the NAC should be doing its part to help these students as much as possible.

Economically Disadvantaged Students

Almost half the student body at HS2 is economically disadvantaged and the mathematics teachers at the high school are very concerned about what the needs of these students are. Economically Disadvantaged Students are categorized in three different ways in the state of Texas²⁵:

1. Eligible For Free Meals (code 01) – Eligible for free meals under the National School Lunch and Child Nutrition Program.
2. Eligible for Reduced Meals (code 02) – Eligible for reduced-priced meals under the National School Lunch and Child Nutrition Program.
3. Other Economically Disadvantaged (code 99) – This category includes:
 - a. students from a family with an annual income at or below the official poverty line
 - b. students eligible for Temporary Assistance to Needy Families (TANF) or other public assistance
 - c. students that received a Pell Grant or comparable state program of need-based financial assistance
 - d. students eligible for programs assisted under Title II of the Job Training Partnership Act (JTPA)
 - e. students eligible for benefits under the Food Stamp Act of 1977

²⁵ The three criteria for Economically Disadvantaged Students in Texas can be found at: <http://www.tea.state.tx.us/adhocrpt/abteco06.html>

Most of the resources the focus group participants believed their economically disadvantaged students needed were taken care of when they listed what all students needed but, they did add two more specific ideas for this sub-group of students. Both dealt with mentoring and giving these students the extra help and time *during* school hours that they usually need.

Mentoring during school hours was important. Helping to keep students organized is a key in helping them to succeed. The mathematics teachers were concerned about doing anything before or after school with this group of students because many of them are helping their parents by having after school jobs. The mentoring could take the form of a study hall so students had time to do homework or more traditional mentoring where volunteers came in and helped students get organized and stay on track to graduation.

Participant: The EDS students that I have, have jobs to help with the family...they leave school and go to work and get home at 9 o'clock at night. It doesn't leave much time...that's another hindrance, they need more time.

Secondly, there was a concern with this group of students that because many of them are already part of the workforce, they will not see the priority of education. The focus group had the idea of a career planning room that along with other resources would help students understand how different education choices can lead to different careers.

Why Experience It?

As with the first two Foshay's questions about who the student is and what experiences that student should have, this question has highly individualized answers.

Why a student should experience (or learn) a subject is based on what that individual student seeks to be able to accomplish in the future (Foshay 2000).

In regards to the NCLB demographics used by the states the answer becomes a somewhat cynical one: students experience learning to pass tests and master objectives. Although the focus group participants were more theoretical than that, they do recognize the influence NCLB and the Texas state test, the TAKS, has over the answer to this question.

When Shall It Be Offered?

According to Foshay, this question is almost always incorrectly answered because the focus is on students' ages instead of ability level (Foshay 2000). The participants in the focus groups were less focused on age and more focused on ability level. Mathematics is heavily reliant on cumulative knowledge; age is of little importance.

The focus groups rallied around the idea of a permission slip for students to move onto the next, more complex, mathematics offering instead of counselors, some of which know very little about the mathematics class sequence, deciding what classes their students were ready for. Correct placement of students became a focus of many of the mathematics teachers at both high schools. This will be discussed in greater detail in later sections.

Under What Governance?

“The farther away authority is from the immediate instructional situation, the more it should be concerned with policy, and the closer the decision maker is to the point of action, the more the decision should be concerned with practice” (Foshay 2000). This

is the focus for many of the changes participants wanted to make. Allowing teachers, the individuals closest to the action, make decisions about student placement, curriculum choices, and textbooks.

On this point, Allen Odden, Arthur Foshay, and all the focus group participants agree and, there was much discussion during the focus groups about decentralizing the decision making process.

Evaluated How and By Whom?

Although Foshay debates this topic in his book discusses the importance of both teacher evaluation and self-evaluation (Foshay 2000) the present education world is much different. Although teacher evaluations are still happening in all the participants' classrooms, the TAKS test is the main focus of the year.

At What Cost?

Described as “not only money, but also time and staff” (Foshay 2000) Foshay illustrates and solidifies the importance of bringing all items into consideration when discussing cost. One can not discuss cost without knowing how many students will be present on a daily basis. One can not discuss cost without considering professional development time, paid and unpaid, spent by the teachers to learn to software, become familiar with texts and textbooks, and write and plan out curriculum.

Because all eight of Foshay's questions have been answered we are now able to bring together all those components and discuss the cost of this new organization style and these new curriculum ideas. The focus group participants were not asking for a revamping of the entire high school or a reinvention of the CT-CISD mathematics

curriculum. What they are asking for is a bigger role in the decision making process that directly effects their own classrooms.

The following pages are a costing out for all students taking mathematics courses in HS1. It is organized by NCLB sub-group. There were some conditions set to help ease some of the calculations that had to be made. As well, there are regulations set by CT-CISD about teacher salary, bonuses and paraprofessional hourly rates that are discussed.

Assumptions made by the researcher

1. If more teachers were needed the salary of a teacher holding a bachelor's degree and having five years of teaching experience was used (\$34,610 salary). See Appendix F for a full salary schedule for CT-CISD.
2. If volunteers were being used for peer tutoring or mentoring than a supervising teacher needed to also be assigned.
3. The prices of all tangible supplies were taken off the vendor list at CT-CISD.
4. Table 2.2 (Adjustments for Student Costs) explains in full detail the weighting of students. The costing-out takes that into consideration.

Regulations set by CT-CISD and Texas about salaries, etc.

1. The number of days in the school year (187 for the 2005-2006 school year) is set by the state of Texas. If teachers were taking on extra responsibilities they are paid one fifth of their daily wage. This means:

$$\frac{34,610}{187} \div 5 = \$37.02 \times 187 = \$6,922$$

See Appendix G for CT-CISD's 2005-2006 academic calendar.

2. Bilingual teachers and Special Education, life skills teachers, are paid a yearly bonus of \$1000.

Table 5.2: Cost-out Worksheet²⁶ for HS2 for all mathematics students

	Need	Resources	Estimated Cost	Explanation of cost (in budget, vendor, bid, etc)
	More individualized attention	1:22 teacher to student ratio (more teachers)	886 students = 40 classes (no new teachers are needed) = \$0	Student to teacher ratio of 22:1
	More individualized attention	Double blocking of math	\$0	Student to teacher ratio of 22:1
	More individualized attention/ math skill development	Zero hour tutoring (activity bus, supplies, teacher, snacks)	1/5 daily rate (\$6922) + \$300 for supplies	CT-CISD salary ladder and various vendors for supplies
	Math skill development	Math lab: 5-10 computers	\$1000/computer = \$5000-\$10,000	Vendor = Dell
	Math skill development	TI-Navigator	\$3995	Vendor = D&H Distributing
	Supplies	Class sets of calculators +50 to check out to students, 1 binder per student	15 teachers, 25 calculators (\$119 a piece) per teacher = \$44,625	Vendor = D&H Distributing
	Teacher supplies	1 TI-Navigator per classroom	15 teachers, \$3995 = \$59,925	Vendor = D&H Distributing

²⁶ Tables 4.2-4.7 are a modified version of Jennifer King Rice's budget analysis table found in "Cost Analysis in Education: Paradox and Possibility" in *Educational Evaluation and Policy Analysis*, 19(4). 309-317

	Teacher Supplies	1 Elmo per classroom	15 teachers, \$1700 = \$25,500	Vendor = Visual Ed Tech
	Teacher supplies	1 laptop per teacher	15 teachers, \$1500 = \$22,500	Vendor = Dell
	Curriculum development	Planning days	\$0	There are already 11 prof. dev. days scheduled
Total:			\$168,766 - \$173,766	

Table 5.3: Cost-out Worksheet for HS2 for NCLB Hispanic racial sub-group

	Need	Resources	Estimated Cost	Explanation of cost (in budget, vendor, bid, etc)
	More group work	More group work in instructional planning	\$0	Planning time already scheduled into academic year
Total:			\$0	

Table 5.4: Cost-out Worksheet for HS2 for all racial groups (non-Hispanic)

	Need	Resources	Estimated Cost	Explanation of cost (in budget, vendor, bid, etc)
	NONE	NONE		
Total:			N/A	

Table 5.5: Cost-out Worksheet for HS2 for NCLB special education sub-group

	Need	Resources	Estimated Cost	Explanation of cost (in budget, vendor, bid, etc)
	Communication	Folder teacher observations	\$0	CT-CISD pay scale
	More sped certified teachers	TA's in classrooms (5)	\$11.72/hour, 7 hours a day, 176 days = \$72,195.20	CT-CISD pay scale
	Supplies	AlphaSmart for math (2)	\$379 per unit = \$758	Vendor = AlphaSmart
	More sped teachers	G/T certified teachers for possible separate class	\$34,610	CT-CISD salary ladder
Total:			\$179,758.40	

Table 5.6: Cost-out Worksheet for HS2 for NCLB Limited English Proficient sub-group

	Need	Resources	Estimated Cost	Explanation of cost (in budget, vendor, bid, etc)
	Curriculum help	Curriculum specialist dealing with LEP students only	\$34,610 + \$1000 bonus	CT-CISD salary ladder
	Eng. Immersion	NAC teachers teach ½ day Eng	\$0	Already being done
	Translation	Translated notes	\$0 (LEP specialist can do this)	CT-CISD salary ladder
Total:			\$35,610	

Table 5.7: Cost-out Worksheet for HS2 for NCLB sub-group: Economically Disadvantaged Students

	Need	Resources	Estimated Cost	Explanation of cost (in budget, vendor, bid, etc)
	Mentoring	Monitored study hall (during the day).	\$11.72/hour, 6 hours a day, 176 days a year = \$12,376.32	CT-CISD pay scale
	Monitored study hall	Teachers and classroom	\$0 (included in above costs)	CT-CISD pay scale
	Importance of education	Career center	\$0	
	Career center	Teacher (counselor possibly) and classroom	1/5 daily rate = \$6922	CT-CISD salary ladder
Total:			\$19,298.32	

Chapter 6: Discussion and Conclusion

“Under standards-based education reform, the benchmark test of school finance policy is whether it provides sufficient, or *adequate*, revenues per pupil for districts and schools to deploy educational strategies that are successful in education students to high performance standards” (Odden 2003).

As discussed in Chapter Two, the concept of financial adequacy holds that public school finance should focus on the funds needed by individual school districts and individual campuses, rather than focus on equitable funding for all school districts (Odden 2001, 1998, 2003; Odden and Archibald 2001). Allen Odden’s theory of financial adequacy, in fact, hinges on one key element: K-12 campuses must be thought of as individual institutions each with their distinct and unique needs based on their student population, their staff, their funding, and their size (Odden 1998). Odden believes that states can not continue to fund schools with the idea that “equity is the best policy” (West-Orange Cove CISD v. Neeley 2003; Odden 2003). States must begin to focus on school districts as individual entities and school districts must begin to examine each school campus as an individual entity (Odden 1994; Odden and Archibald 2001).

This chapter compares and contrasts findings of the research reported in Chapters Four and Five. Overall, this analysis is based on Odden’s theoretical underpinnings. Ideas from interviews with campus and district administrators will help to illustrate how differently perceived are the needs in the two schools featured in this study. Solutions suggested by Allen Odden’s theory can be broken into four themes: teacher compensation, decentralization, professional development, and focus on results. This chapter is organized around these themes. The first section of the chapter compares findings related to HS1 and HS2 in CT-CISD within these four themes. The second section of this chapter contrasts findings for HS1 with those of HS2. The third section of

this chapter discusses the adequacy of Odden's themes and how future research might expand upon them.

Contrasts must be illustrated. Odden's argument holds that even campuses within the same district need different resources because they are involved with different students. Because these schools are in the same area of the state and educate a similar population of students similarities in their approach exist, but their differences are most important because the differences are what make each mathematics department unique.

COMPARISON OF DATA FROM HS1 AND HS2

Although it is not the focus of this research, it is important to point out the similarities between HS1's mathematics department and HS2's mathematics department. While the focus groups for each high school met separately, there were some similarities in their discussion. Many of the similarities are general but there are a few instances (calculators, teacher pay, etc) in which the two departments had almost identical ideas. This section of the chapter is organized by discussing Odden's four themes dealing with financial adequacy

Teacher Compensation

Some theorists believe that increased teacher compensation will make most perceived problems in public education disappear (Augenblick 1997; Clune 1994; Clune 1994; Duncombe 2002; Clune 1993; Jepson 2002). Presently in Texas and in many states, the teacher compensation system only minimally rewards teachers, although it is their major extrinsic incentive (Odden and Clune 1998). Presently CT-CISD does not provide incentive pay, reimbursement for advanced degrees sought, or bonuses for high need subject areas. Districts and campuses, according to Clune and Odden, must be permitted to pay their teachers what they see fit to pay their teachers, not what the

state's compensation structure mandates must be paid based only on years teaching experience and highest college degree earned (Clune 1994; Clune 1993; Odden 1994; Odden and Archibald 2001; Odden 2003).

Although this seems a logical focus, that is, to pay teachers more and then, they will have a greater incentive, this is not what teachers at HS1 or HS2 expressed. Although they appeared grateful for their \$1000 pay raise during the 2004-2005 school year, they all agreed that the focus should be on the students, not their salary. For example,

Participant: If I had the option of a raise or smaller classes, I would take smaller classes.

Participant: Exactly.

The teachers with whom the researcher worked stated that they wanted to focus on their students' needs rather than their own salaries. For the research conducted within CT-CISD, during the data analysis and cost out exercise the present compensation system was utilized as a "given" (see Appendix F) from CT-CISD to cost out teacher salaries.

Decentralizing Money and Power

The decentralization of money and power is a common theme of financial adequacy and the key points are always the same: Teachers, on the front lines of education, not the policy makers, should be making the decisions about the needs of their students (Odden and Clune 1995; Odden 1994). This theme is essential to the theory of financial adequacy. The school becomes the key organizational unit (Odden and Monk 1995; Odden 1994; Odden and Clune 1995, 1998; Odden 1998, 1994), thereby giving each campus leadership over its own budget and monetary decisions. This procedure enables the personnel at each school to take control of that school's future. Having

control over the money inherently gives one a position of power. There are very few points HS1 and HS2 agree upon when discussing decentralization, but they all agreed about tangible supplies students need.

Both mathematics departments were convinced, for example, that they need more calculators. They did not want just more class sets, but also extra calculators that can be checked out, in the same way that mathematics textbooks are checked out. Students would check out calculators through the library or from a high school mathematics teacher in preparation to complete homework after school or during study hall. Purchasing more calculators²⁷ would be one of the largest capital outlays (\$53,550 for HS1 and \$44,625 for HS2) for each school's mathematics programs. Teachers in both schools believe that calculators are essential for the success of the students.

In addition to calculators, teachers in both high schools believed that supplying general school items (notebooks, backpacks, pens and pencils) to economically disadvantaged students would help boost these students' success rate. Teachers assumed that students would have more time to concentrate on learning and would have to spend less time trying to figure out where their supplies would come from. "A confident student is a successful student", observed one focus group participant. Teachers believed that if they can help raise their student's self esteem, it may help their grades.

For purposes of this research, tangible items (e.g., calculators, activity buses, textbooks) were the easiest to cost out. Using the district's vendor list, the cost of CT-CISD supplies during the 2005-2006 school year was easily identified. Every public school district in Texas works from a local vendor list for purchases (e.g., calculators, notebooks, pens, pencils) that must be made before, during, and after each school year. The vendor list standardizes the purchasing process for each campus, thereby enabling centralized control of purchases and offering each district increased buying power.

²⁷ Based on CT-CISD's vendor list the mathematics departments would purchase TI 84+, Silver edition calculators at \$119.00 a piece and on the number of students.

Professional Development

The decentralization of money and power noted above would also enable teachers to decide what kinds of professional development they felt they needed to offer curriculum in the most effective way possible. Unfortunately, the average expenditure for professional development in a district is difficult to estimate because each campus and district has its own way of categorizing and reporting professional development within their budgets (Odden and Monk 1995). Rarely does a line item within a district's or campus' budget exist that specifically designates funds for professional development. This situation exists in CT-CISD. Nevertheless, the mathematics teachers in HS1 and HS2 straight-forwardly discussed their thought about professional development.

The mathematics departments at both high schools preferred to set aside its eleven professional development days scheduled each year for its own work. There is an understanding that some district mandated training needed to occur at the beginning on each school year but, after that, they revealed frustration with the professional development and training choices the district is making for them, instead of with them. Campus administrators at HS1 and HS2 constituted teams such that teachers could work together in designing instruction and curriculum, but they allotted no time for the teachers to actually work together.

CT-CISD teachers viewed professional development simplistically: they held together that professional development, whether it be training or time to work in subject area teams, must focus on results and concentrate on students. If professional development days were filled with PowerPoint presentations and classes on how to deal with topics teachers viewed as irrelevant, there was no need to schedule professional development within the school year calendar.

Focus on Results

Since the mid-1980's, Texas' governmental expectation for student achievement has evolved as evidenced by the series of tests the state has developed (TAAS and TAKS) and is presently giving (Aiming Higher: Meeting the Challenges of Education Reform in Texas 2002). Many of the CT-CISD teachers thought that this focus on results already had been addressed with the introduction of the TAAS and TAKS tests. As they discussed what the results actually implied however, these teachers began to focus on what was needed in order that students could be more successful than they have been. Both mathematics departments agreed that smaller class sizes or more homogenous classes would benefit all students. As well, they reasoned that a more structured tutoring system would be helpful to students because it was something that could be advertised throughout the school.

Lastly, and most importantly, teachers in both mathematics departments believed that the easiest way to help students focus on their own achievement was to place them in mathematics courses that would build on their ability at that time. Students were placed into classes for which they were not prepared or they were placed in two mathematics classes in the same semester; making up one course from the previous year in addition to moving forward to the grade appropriate mathematics course. Teachers viewed both these options as detrimental, not only to the specific students involved, but to all students in that class. School administrators at these two high schools reported that they did not view the importance of the sequence of mathematics course offerings in the same way the teachers viewed it.

Administrators at the campus and district level also discussed the importance of elective courses and how difficult it was for all students to take electives of their choice. "Special" electives offered once a day, such as band, football, speech and some AP classes administrators reported being treated as "sacred cows" in the development of the

campus' master schedule. These "special electives" routinely are scheduled for the individual student first and only afterward were academic courses scheduled.

Campus administrator: That's true... You set the class that you want to drive the schedule, and it's band and football.

Interviewer: 'Cause there's only one period a day when those two are offered?

Campus administrator: Exactly, and so those are called sacred cows and you set those and then you can start to lay out when everything else happens. So, they're [the teachers] not wrong. If we were to not do that and instead do math first, I be very interested to see how that would shake out so that everything could be where they need to be.

Although the core courses of English, mathematics, social studies and science are assessed by the state, they were not the first priority for the CT-CISD counselors and administrators charged with scheduling. As well, the district administrators were not aware of the frustration of the mathematics teachers likely because they were too far removed from the classroom situations.

Interviewer: ... part of the issue is...these sacred cows. Those classes really drive the schedules. The master schedules. And unfortunately, those classes are usually electives. The impression then is that the electives are taking priority over the core classes.

District administrator: But it's just a scheduling problem

Specifically, the situation may appear to be just a scheduling problem. However, the CT-CISD mathematics teachers who dealt daily with improperly placed students believed it was a major pedagogical problem that impacted every mathematics student at HS1 and HS2. Although the pedagogical issues were discussed with one campus administrator during an interview, she observed casually that time was unavailable by which to complete a mock master schedule using mathematics courses as a "sacred cows" for either high school. This reaction could represent reality. On the other hand, it could be an "avoidance" response that reveals that she and other administrators do not want to change their convenient practices.

Although comparing the similarities of HS1 and HS2 can be interesting. This research was linked to show the contrast of the cost of the two mathematics departments

in their course offerings to students. Odden and Foshay both have held that differences between schools and students are much more important than are the similarities (Foshay 2000; Odden 2003). The next major section focuses on this contrast.

CONTRASTING COSTS FROM HS1 AND HS2

HS1 and HS2 are very different schools. Although the demographics of the two schools appear similar at first glance, the mathematics teachers at each high school selected different resources to help their students. Table 6.1 displays the difference in costs for each of the NCLB sub-groups in each high school mathematics department. Table 6.1 is a summary of tables 4.2-4.7 in chapter four and 5.2-5.7 in chapter five. Based on Foshay's definition of cost, discussed in chapter two, the total cost for the departments is within \$66,000 of each other. When choices are more specifically studied at each campus, the differences appear much greater.

Table 6.1: Summary of costs for different NCLB sub-groups

NCLB sub-group	HS1 estimated cost (in dollars)	HS2 estimated cost (in dollars)
White	\$6643	\$0
African-American	\$6643	\$0
Native American	\$6643	\$0
Asian/Pacific Islander	\$6643	\$0
Hispanic	\$0	\$0
Multicultural	N/A	N/A
Limited English Proficient	\$91,835	\$35,610
Students with Disabilities	\$73,070 - \$74,200	\$179,758.40
Economically Disadvantaged Students	\$52,763.60	\$19,298.32
All students (non NCLB sub-group)	\$94,352	\$168,766 - \$173,766
TOTAL:	\$338,592.60 - \$339,722.60	\$403,432.72 - \$408,432.72

Teacher Compensation

Although theorists, campus and district administrators assume that teacher compensation is a number one priority for teachers, individual mathematic teachers at

HS1 and HS2 disagreed with this assumption. As stated earlier, the teachers at both high schools would rather see funds steered towards students that need the extra help and supplies rather than to seek a pay raise for themselves.

Historically, teacher compensation has been synonymous with teacher pay (Callahan 1964; Tyack 1974). While teachers at both HS1 and HS2 began the discussion by focusing on their salaries they quickly moved to alternative definitions of teacher compensation. Smaller class sizes, more teachers, and choice in resource purchases were only a few of the alternatives teachers gave to raising salary or even bonuses.

Decentralizing Money and Power

The decentralization of money and power is the key to two of Odden's themes: a) professional development and b) a focus on results. Decentralization advocates that each campus, each department, and each teacher should make their own decisions about supplies, programs and instructional and curriculum ideas (Odden 1994; Odden and Archibald 2001). While most school systems organized toward administrative oversight and management, the idea of decentralization would be a complete overhaul of the decision making process for the entire system.

When discussing professional development, the focus of teacher conversations in each school differed. HS1 teachers centered their remarks on their perceptions of time needed to modify the existing curriculum as well as teachers' awareness that as the student population changed, most teachers likely will need specific training to help them effectively teach students from differing cultural groups (e.g. Hispanics, African-Americans, White, etc). The conversation of HS2 faculty members and their perceptions centered on time to create new curriculum for specific subject areas that were not addressed by either the campus or the district. This difference may be due to the difference in experience level of the mathematics teachers at each high school. HS1 has

highly experienced mathematics faculty department while HS2 is has a very new, inexperienced mathematics faculty.

Differences were also observed in the discussions that addressed a focus on results. Teachers in the mathematics department at HS1 discussed tangible supplies for specific NCLB sub-groups of students and new textbooks they have been interested in for some time. On the other hand, the HS2 mathematics teachers focused attention to new technology and to raising the level of the students in the entire department. HS1, opened originally for the 1969-1970 school year, is a much older, more established campus and its mathematics teachers match this description as well. A much more experienced, established staff than that of HS2, the mathematics teachers working in HS1 are focused on how the student population has changed over time on their campus and how they must adapt their teaching technique to meet the needs of this new population. They are focused on how they themselves must change in addition to the curriculum to better serve their school's evolving population. HS2, opened initially for the 2004-2005 school year, has a mathematics department composed mainly of young teachers. They are much more focused on the development of the entire mathematics department and the support and improved teaching of the huge influx of students who enter the school each year. They focus less on modification of curriculum than they do on creation of new curriculum at HS2. Neither approach, of course, is better than the other, but each substantially differs from the other.

The next two sections (professional development and focus on results) discuss the different ideas held by each mathematics department about what professional development should include and what resource and supplies are needed to successfully focus on results. Most of the needs and resources discussed in these two sections could have been categorized at example of decentralization. The themes, at first glance, may seem mutually exclusive but, they are not. The examples in the next two sections could

be moved into the decentralization theme but they are better representations of the ideas teachers had about professional development and the focus on results.

Professional Development

Teachers at both high schools spoke little about professional development during the focus group sessions. For example, the HS1 mathematics faculty members have much teaching experience (nineteen being the mean number of years teaching). Many of these teachers have been at HS1 for much of their career and they have watched the student population diversify over the course of that career.

These HS1 teachers reported that their major concern with professional development as it presently is organized and offered was its perceived irrelevance. Many of the teachers voiced concern about having to sit through the same “training” for the past ten, twelve, sometimes fifteen years. These HS1 mathematics teachers were interested in professional development that would enable them better to serve the newest additions to the student population. As well, they were interested in time to work in subject area groups.

The mathematics teachers at HS1 are organized into subject area teams (e.g. Algebra I, Geometry, Math Modeling, etc). The department faculty reported that, if they had time to work in their subject area teams, they would modify and develop mathematics curriculum including tests, quizzes, and everyday instructional suggestions. These teachers also noted that when they met as a department, they focused on modifying and culling the existing curriculum and making daily instruction they believed was efficient and effective. The biggest difficulty for the HS1 mathematics faculty is the fact that they are never given time, by the campus administrators, to work either in their subject area teams or as a department. They are forced to find time before or after school to work on curriculum modification and development.

The teachers at HS2 reported their focus to be on the creation rather than the modification. The less experienced mathematics teachers at HS2, ones whose average number of years of experience is just in excess of three years are also divided into subject area teams. These mathematics teachers are focused on working together as a departmental team, rather than restricting their group to the smaller subject area teams only. The teacher's discussion centered around their need to develop new curriculum and time to develop instructional ideas.

The differences in professional development ideas may seem slight, but they really are significantly divergent. The more experienced teachers of HS1 are interested in working with existing curriculum while the new, less experienced teachers of HS2 are interested in creating new instructional ideas and curriculum. Although the teachers at HS1 and HS2 differ in their thoughts about what types of professional development in which they would like to be involved, these two groups of teachers agree on what they would really want is time: time to work on mathematics curriculum and time to work in groups with the other mathematics teachers at their campus.

The teachers at HS1 and HS2 have a very different idea of what professional development should look like when compared to how the campus and district administration view on professional development. Campus administrators appear to conceive of see professional development as a way to fulfill the mandated training days that must be used throughout the school year. Because of this possibility, teachers participate in the same trainings year after year and begin quickly to view all district level professional development as wasteful of time.

District administrators focus most of professional development on understanding state standards and making sure teachers understand how the state standards (the TEKS) and the curriculum work together. There is a much greater chance that, instead of allowing teaches to work together, the district will bring in an expert to present how the teachers can develop instruction that will match the state standards. From focus group

comments, this practice does not leave a good impression with teachers. As most textbooks have instructional ideas already aligned with the TEKS, bringing in experts to point out this only illustrates, to the teachers, that the district does not believe they are instructional experts themselves. Campus and district administrators may need to begin consulting with teachers about professional development idea before the beginning of each school year rather than handing teachers professional development schedules at the beginning of each school year. This research focuses on what the mathematics teachers in CT-CISD would like to spend their professional development time doing. Training days and professional development days are already scheduled into the school year, therefore it was very difficult to determine the true cost of professional development from the district budget.

Focus on Results

Odden's theme of focusing on results supports the disparity of need between the two mathematics departments. HS1 and HS2 have very different mathematic resource ideas. HS1 believes focusing on results means focusing on textbooks, tutoring or mentoring and specific NCLB subgroups. They recognize that teaching Limited English Proficient students, for example, must be a top priority for their department. On the other hand, the mathematics teachers at HS2 were focused on technology, supplies for all NCLB subgroups and an enhanced focus on LEP students.

New textbooks are a central focus for HS1 and, a good example of the problems with centralized money and authority. In 2004 a proclamation²⁸ was passed which stated that new mathematics textbooks would be adopted in 2006 and purchased for classroom use for the 2007-2008 school year (TEA 2006). Texas requires state adoption for textbooks therefore individual campuses have very little choice in the textbooks they use.

²⁸ The entire proclamation is available at: <http://www.tea.state.tx.us/textbooks/proclamations/index.html>

Currently, in both HS1 and HS2, there are major disagreements about the mathematics textbooks being used. The mathematics teachers at HS1 use very few of their textbooks,

HS1 campus administrator: Right now for math books, barely any of our math books are checked out of the textbook room. Algebra I, the book isn't used...Algebra I is done by worksheets and other things. And then Algebra II, we have 2 teachers that use the book and every student has a book in their class and one teacher that does not have the book at all, it's taught some other way I guess and then Geometry, kids only have a geometry book if they want it at home, other than that the geometry teachers all get together and they plan whatever they're doing for geometry without the book. The Pre-AP kids I think have the book at home and then Algebra II Alpha has that book and then Calculus, all the kids have a book. Pre-cal, I can't really figure out, every kid has a pre-cal book but they tell me they're not using the book but I see the kids working out of the books all the time so I'm really not sure.

HS1 mathematics teachers have found a textbook they like and think is more appropriate for their students. The textbook company has given one class set of these textbooks for Algebra I and Geometry students and has conducted some training within the high school. Part of the reason the textbook company has supplied so much free material is because this series of textbooks is on the list of textbooks that are being considered for adoption as part of the 2004 proclamation (TEA 2006).

State adoption of the textbook is an important and essential step if HS1 hopes to have this textbook in their mathematics classrooms for the 2007-2008 school year. However, the decision at the state level has not been made as yet and will not be made until November of 2006. The only input HS1 has in this decision is to have HS1 mathematics teachers apply for and be placed on the State Review Panel for textbooks. If the decision is made in November to adopt the textbook series that HS1 wants to use, then HS1 will be permitted to use the textbook they want to use but, if the state does not adopt the textbook, HS1 will have to use money from their own general budget to purchase tens of thousands of dollars worth of textbooks that, under normal circumstances, would be paid for by the state of Texas.

HS1 has found a mathematics textbook series it believes will be effective in helping students but adoption authority is centralized at the state textbook review panel, not at the campus. Presently, the mathematics textbooks at HS1 are sitting idle; the state has wasted money. Unfortunately, if the preferred textbook series is not adopted, the state will continue to waste money with HS1. HS2 is not interested in the same textbook series which may not seem like a problem on the surface, but the centralized decision making at the district level causes one. If both high schools do not agree on a single textbook, a compromise will have to be reached.

Although the HS1 and HS2 mathematics faculties did not agree on what mathematics textbooks they would like to use in the future, they will have to come to agreement by the 2007-2008 school year. At that time, the two high schools and all the middle schools must agree on what mathematics textbook series they will be using until the next adoption cycle occurs.

HS1 campus administrator: ...it has to be the Algebra I book that is decided on between, there's basically a committee and so HS1, HS2 and the three middle schools, because algebra I...gets together, representatives from all the companies basically pitch to all the schools and then those representatives for the district come together and they make the decision on the book but HS2 can't pick a book and we [HS1] pick a different book they have to pick the same. So the district picks and sometimes the choice is not...

As CT-CTISD expands and a more diverse group of students reside within their attendance area, each school will have differing needs. One textbook likely will not be appropriate for all students.

Along with textbooks the HS1 mathematics teachers see a need for more bilingual teachers and special education teachers. Their view is that more mathematically oriented bi-lingual teachers or teacher assistants and additional special education teachers and teacher assistants working in regular education classrooms would allow the regular education teachers to attend to more students in a more efficient and effective way. The

expertise of bi-lingual and special education teachers would effectively help in mentoring and tutoring those students that HS1's regular education teachers are not trained to teach.

The mathematics department at HS2 focused on results by raising the entire department's level of resources instead of just focusing on a specific sub-group. Opposed to new textbooks, HS2 teachers are focused on technology such as TI-Navigators and ELMOs in each classroom. The view is that effectively using the new technology can benefit teachers and, in turn, students. Teachers at HS2 are willing to go through training and develop new instructional techniques, if that allows them to use this new technology to the benefit of their students. Along with the focus on technology, HS2 teachers are focused on supplies for all mathematics students.

More resources are needed for the HS2 mathematics department as a whole because this is not yet an established department. Teachers at HS2 are looking for more computers, more calculators, more general supplies like pens, notebooks, and backpacks. The overall focus of the mathematics teachers at HS2 is on creating and building not modifying and culling.

In today's mandated testing environment focusing on results this statement seems to be obvious: As long as students are passing the state mandated tests, teachers are focusing on results. But, the teachers at HS1 and HS2 do not see it that way. Teachers are trying, against all odds, to see students as individuals, therefore when they discuss focusing on results, they are not speaking of test scores and bubble sheets. They are speaking of students' needs, the resources needed to help students and teachers, and ideas about bettering curriculum and instruction within their mathematics departments.

This research illustrates that, although student demographics can make schools appear similar, different campuses, the experience of the teachers and the focus of those teachers can create very different needs within each school. The tangible supplies for which the teachers in HS1 and HS2 asked were the easiest to cost out because CT-CISD has vendor lists that must be used for all supplies. Financial adequacy would insist that

each campus, each mathematics department choose the most effective resources necessary to help students rise to the expectations tested by the mandated standardized tests given in Texas.

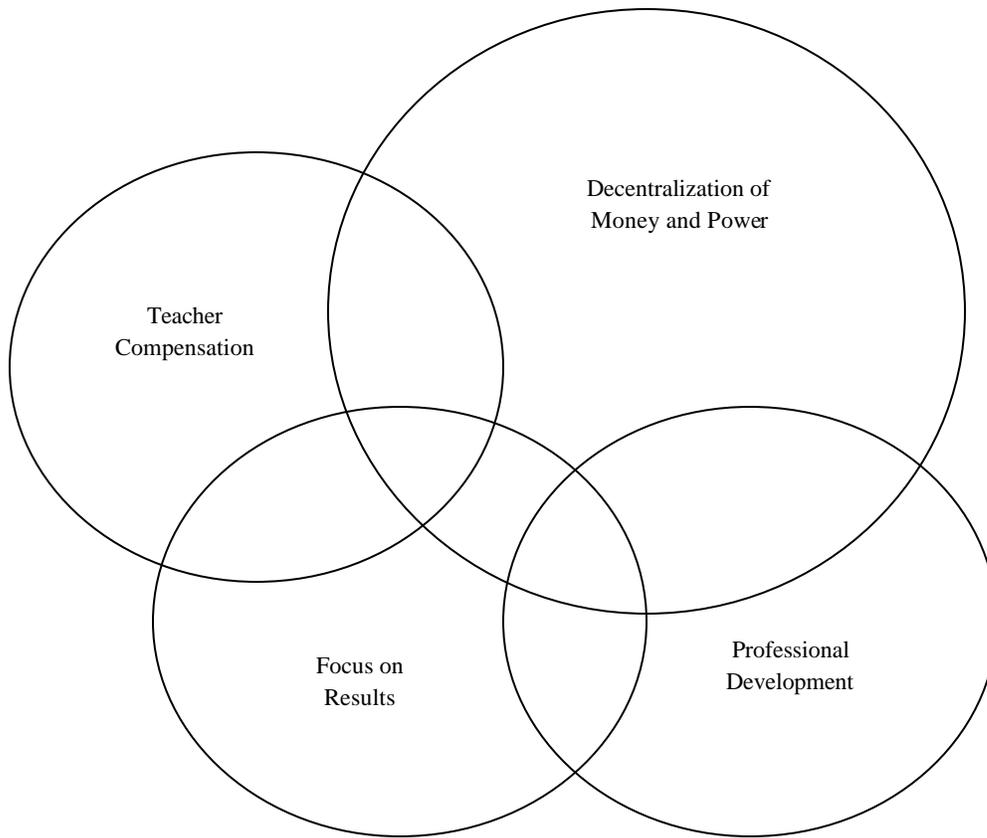
The focus on results theme seems to hinge only on the process but it is important to understand how the mathematics faculty at HS1 and HS2 define “results”. The omnipresent state mandated test led me to believe that the definition of “results” was simply passing the high school mathematics TAKS test but, that was not the case. While the mathematics teachers at both high school understood the importance of the TAKS test, they did not equate passing the TAKS with successful results. As the discussion progressed teachers in both high schools discussed the ideas they had for resources and processes that would help them to offer the most appropriate curriculum for their population of students.

ODDEN’S THEMES AND IDEAS FOR FUTURE RESEARCH

Allen Odden’s writings on financial adequacy can be split into four major themes. Although they appear to be mutually exclusive at first glance, they are not. For example, discussion about textbooks can be placed within the theme of focus on results or within the theme of decentralization. A discussion on teacher training obviously should be situated within the professional development theme but, it can also have strong ties to the focus on results and the decentralization themes.

This section discusses the adequacy of the four themes associated with the financial adequacy theory and how future research may help evolve the themes. Illustrating Odden’s themes as a Venn diagram clearly reveals the interaction between them (Figure 6.1).

Figure 6.1: The interaction of the four themes of Allen Odden's theory of financial adequacy.



Decentralization is the largest on the circles for two reasons. Decentralization is a broad enough theme that almost every topic discussed by the focus group participants can be placed within the theme, even if it can be placed in a second theme as well. Second, I view decentralization as the goal of financial adequacy. It is too broad of a topic to be a theme. This will be discussed in more detail in the decentralization section below.

Teacher Compensation

Odden describes teacher compensation, in one way, as teacher salary alone. The topic of teacher compensation always has been thought of this narrowly. Education and the Cult of Efficiency (Callahan 1964) and David Tyack's The One Best System (Tyack

1974) both note the efficiency model of education. Indeed, during the 1920s, factories were used as models for the organization of schools and for compensating teaching. Efficiency was determined by the total costs for a school divided by the number of students enrolled at that school (Tyack 1974). Teacher salary was simply a part of that cost. To save money, administrators could enroll more students but keep the same number of teachers. The Taylor system took the factory model to the extreme by utilizing an almost assembly line approach to teaching and teacher compensation (Callahan 1964). This model of teacher compensation has continued to the present day with the only addition being a discussion of health benefits. CT-CISD offers health insurance to its teachers, but not every district in the state of Texas offers health insurance.

Present advocates of public schooling urged consolidation and centralization during these years and there was an inclination to look into the factories for guidance in administrating large, urban school systems (Callahan 1964; Tyack 1974). Odden and Foshay both lash out against centralization. Therefore, it is a surprise that Odden did not begin to think more creatively about teacher compensation instead opting to stay within the narrow scope of the efficiency experts.

Teachers at CT-CISD received a \$1000 pay raise at the beginning of the 2004-2005 school year but have already stated that making sure the needs of the students were met was more important than those raised. For future studies, alternative forms of compensation should be a focus. The raise given to individual teachers could have been used to hire another teacher for each campus, which would have led to smaller class sizes. As well as compensating teachers by decreasing class sizes, ideas such as comprehensive health care, allowing teachers to choose what subjects they want to teach and purchase of supplies and resources should be looked into. In the data analyzed for this research, the present pay scale at CT-CISD was used because teachers in the mathematic departments were presently satisfied with their pay. While it would be

imperative to continue to ask questions about teacher's satisfaction with their salary, in future research costing-out studies could study the historic trends of teacher pay raises in Texas and compensate for a future pay raise.

As well as expanding the definition of teacher compensation, the politics of teacher compensation should also be studied in future research. Teachers should be involved in the political discussion when the topic is pay raises. All completed costing out studies for Texas have been finished at the state level. Therefore, no questions about whether or not teachers were satisfied with their pay were considered. With nearly 300,000 Full time equivalent (FTE) teachers presently in Texas, the assumption that all teachers expected substantial raises (Taylor et al. 2004) drove up the overall cost estimate for the state. These state level studies can have great impact on state education policy. In May, 2006 the Texas Legislature passed the largest teacher incentive pay package in the United States (Hacker and Stutz 2006).

If teachers are presently satisfied with their pay, the \$86 million funding the Educator Excellence Award Program²⁹ could have been better utilized. Already discussed is the perception the mathematics teachers in CT-CISD do not fully equate results with only passing the high school mathematics TAKS test. The incentive pay program is tied to a substantial raise in student TAKS test scores, but because of the teachers' beliefs it may not be the motivator the Texas Legislature was anticipating it to be. Future research must focus on talking to teachers, not education advocates or union representatives about teacher compensation and teacher pay. Alternatives to teacher pay raises may arise that better utilize existing funds by helping more teachers, in more districts offer quality resources to all their students.

²⁹ More information can be found about this program at:
http://www.tea.state.tx.us/opge/disc/EducatorExcellenceAward/EdExcellenceAward_RFA.html

Decentralizing Money and Power

Odden's theme of decentralization may be too broad to be accurate. An examination of figure 6.1 reveals that the single theme of decentralization touches all other themes. Almost any topic discussed in this research could have been argued from the perspective of decentralization rather than teacher compensation, professional development, or a focus on results. In future, research this theme should be investigated as the overall goal of financial adequacy as opposed to a single theme within financial adequacy. Odden and Foshay both discuss the important perspective of the school as an individual unit (Odden and Archibald 2001; Foshay 2000) and decentralization would seem to be the logical argument when discussing from this perspective.

Backlash towards decentralization began almost as soon as school systems began to centralize the money and power in the 1890s (Tyack 1974). Although it is an important discussion to continue, greater impact may be felt if it is viewed as the goal, as opposed to a theme in the research. Odden has begun thinking of decentralization as a goal with Reallocating Resources (Odden and Archibald 2001). In this formulation, decentralization becomes the goal of schools in this collection of case studies because Odden and Archibald quickly realized that the campuses participating did not need more funds. They simply needed to be able to control their budgets. Because decentralization is the key to Odden's financial adequacy theory, in future research (especially implementation experiments like the ones described in Reallocating Resources), the themes need to be reorganized specifically allowing the decentralization of money and power to become the overall goal of the research.

Although decentralization should be thought of as the goal of implementing financial adequacy every decision does not have to be made at the campus level. Infrastructure costs, such as lighting, desks and chairs, and building maintenance may be best suited to stay at the district and state level. Economy of scale dictates that costs can be decreased if productivity increases. Campus faculty and staff need to focus on

curriculum and instruction decisions as well as decisions about professional development and teacher compensation, not whether there are enough desks in the classrooms or whether the roof is leaking.

Professional Development

Professional development is an important but unclear topic within public school districts. Therefore making this theme difficult to define and the cost difficult to analyze. Neither of the high schools studied in this research have in their budget a line item devoted to professional development. To add to the difficulty of analysis, professional development funds can come from the department, the campus, the district, and/or the state.

Future research about financial adequacy needs to decipher professional development funding. Understanding exactly the origin of source funds reasonably might permit an easier analysis of projected cost which would lead to a more successful reallocation of funds. As well, understanding exactly from which “pot of money” the funds are coming would enable departmental faculties within schools to make more decisions about what professional development is necessary or desirable and what is neither necessary nor desirable.

After funding is clear, research should delve deeper into the topic of professional development and what professional development means for teachers versus what it means for administrators. Several questions are easy to identify: How could money be saved if teachers were permitted to work in subject area groups during professional development days? Could money be saved if a way for teachers to “test out” of professional development trainings they already attended? Along with trying to change how teachers and administrators think about existing professional development, the idea of professional development may need to expand.

Many private sector companies pay for or reimburse employees for membership fees in professional organizations, trips to industry related conferences and even individuals seeking advanced degrees. Although continuing education is not only encouraged, it is part of the requirements for continued teacher certification in Texas, only some districts in Texas reimburse teachers who attend district or state mandated trainings and none reimburse for professional conferences or sought after advanced degrees. The quality of the repeated, sometimes unnecessary professional development sessions happening on campuses was called into question by the mathematics teachers at both high schools being researched. If the definition of professional development was expanded, teachers could choose what they believed would be more beneficial to their continuing education.

Focus on Results

The theme of focus on results began in the late 1980's when some state governments initiated new, state wide, standardized testing after the backlash of *A Nation At Risk* (*A Nation At Risk: The Imperative for Educational Reform* April 1983). As state mandated testing became the norm as opposed to the anomaly, Odden began to broaden this theme. Focused now on testing, tangible and intangible resources and faculty and staff needs, this theme allows for the most concrete and accurate cost estimates.

Specifically speaking of CT-CISD, for future research, using the core classes of mathematics, English, Science and Social Studies as the “sacred cows” when organizing the master schedule and individual student schedules and seeing how it effected the placement issues the mathematics teachers discussed would be interesting. The high stakes testing occurring every year in Texas occurs in the core classes, not electives. With research focused on how the “sacred cows” impact the master schedule, and, in turn, individual student schedules a discussion can begin about electives and if there should be such focus on them.

In addition, although much research about decreased class size has already been completed, investigating smaller class sizes and homogenous skill levels would be a way combine two areas of research. Because mathematics is a subject tested at all levels of public education, studying the effects of smaller class sizes and how the smaller classes sizes impact test scores could easily be tracked as a longitudinal study.

CONCLUSION

This research sought to add to the discourse about the theory of financial adequacy. It employed two high schools from a Central Texas public school district as a working example to develop a model of financial adequacy within two high school mathematics departments. Using Allen Odden's theory of financial adequacy as the baseline and Foshay's curriculum matrix as a way to organize ideas and supplement NCLB's sub-group organization, Odden's ideas were supported in two high school mathematics departments in central Texas. The focus of the research is the difference between the needs of each school. Odden and Foshay converge on the idea that students must be viewed as individuals if a more effective public education system is to be created.

From discussions with teachers, campus administrators and district administrators a list of needs and resources for each school's mathematics department was created. The resources deemed necessary to fill these perceived needs of the students were budgeted using available information at CT-CISD.

Although the costing out of each mathematics department came to within \$66,000 of each other the, perceived needs and the resources necessary to help fulfill those needs were very different. Overall, HS1 is an established campus with more established resources, more experienced teachers and a larger student body. The mathematics teachers from HS1 focus on culling curriculum, new textbooks and non-redundant

professional development. HS2 has much younger, less experienced mathematics teachers. The school itself is only two years old. Their focus is on technology, creating new curriculum and building a new department from the ground up.

Communication is the key to effecting change in these two departments. Both mathematics departments have access to more funding than any of the teachers understand. In addition, both campus and district administrators believe that professional development is effective while most teachers view it as a complete waste of time. Student scheduling and the “sacred cows” are the largest areas of discontent between teachers and administrators. If more effective communication can be established the mathematics teachers at both HS1 and HS2 might have been able to obtain most of the supplies, training and time they believe they need to more effectively help their students.

This implementation of financial adequacy has, at its core, the idea that the public school districts and the state must listen to teachers to determine how much funding a school receives. This is a great departure from the idea of financial equity in which each school in every district receives the same amount of money based only on student population. Foshay and Odden state that teachers must view students as individuals to effectively offer curriculum (Odden and Clune 1995; Foshay 2000). Unfortunately, as theory meets practice, the finance system of public school districts makes almost impossible the considering of individual students.

The present research represents only a beginning inquiry into the likely rich area of concern that is curriculum costs. Foshay posited this area, almost never a consideration in curriculum theory. On the other hand, he did not expand a discussion of elements of costs at any practical level. Other scholars and practitioners have not been attracted either to problems of curriculum costs or to assumptions and methodologies that could offer empirical data and analyses of costs. Therefore, subsequent research and theorizing have little substantial evidence of which to effect a framework of research and practical scholarship. Much work remains to be initiated.

APPENDIX A: Cost out methodologies

An education adequacy costing-out study determines the monies needed to adequately offer all educational services to give every student the opportunity to meet the state-mandated standards. Four major methodologies are used to conduct a study of this type.

COST FUNCTION STUDIES : The cost function methodology determines how much money a public school district (relative to the average size school district in the state) will have to spend to reach a given performance target. Analyzing performance measures and cost indices while taking into account the given characteristics of the school district and its student body is a well developed cost function study that can help determine not only the amount of money needing to be spent but also how the level of academic success may change for different districts with different student populations. This methodology can not be done in every state because of the extensive state-wide data on per-pupil expenditures, student performance, and various characteristics of students and school districts that must be available. Although the scope and complexity of this type of study is limiting, it has been completed twice in Texas both times during the *West Orange-Cove CISD v. Neeley* (2003) court case (Gronberg et al. 2003; Taylor et al. 2004). The exceptional range of data available in Texas allows for utilization of this methodology.

PROFESSIONAL JUDGMENT STUDIES : Professional judgment is presently the predominant study methodology. Developed by Jay Chambers and Thomas Parrish for Illinois and Alaska in the early 1980s, the most well known application of the model was

by James Guthrie and Richard Rothstein in Wyoming (*Ensuring All Children The Opportunity for A Sound Basic Education: A Costing-Out Primer* 2002). In total, fourteen states³⁰ have utilized this methodology since its development. In Wyoming extensive meeting with local Wyoming educators were followed up with extensive meetings with educators from surrounding states. All groups were asked to identify specific items of an instructional system that would allow educators to offer an adequate education. After the items were identified, economists determined the cost of obtaining the supplies and services needed for Wyoming public school districts (*Ensuring All Children The Opportunity for A Sound Basic Education: A Costing-Out Primer* 2002). This methodology is the basis for most of the costing-out studies completed in the other thirteen states but, some variations of the basic theme have emerged from state to state.

EXPERT JUDGMENT STUDIES: This methodology utilizes the literature “proven effective”. School reform models are studied by small groups of education policy experts. Recently in Kentucky, Allan Odden, Lawrence Picus, and Mark Fermanich costed-out each element of a high quality instructional program based on the latest research (Picus, Odden, and Fermanich 2004). This model included a number of well known reform ideas from publicly funded pre-school programs for children aged 3 and 4 from poverty backgrounds to collaborative professional development, family outreach, and technology. Instead of questioning focus groups of experts from the education field, Odden, Picus and Fermanich were able to suggest policy changes based on the latest education research (*ACCESS* 2004; Picus, Odden, and Fermanich 2004).

³⁰ The 14 states that have utilized the professional judgment methodology are: Wyoming (original and follow up studies), Oregon, South Carolina, Maryland, Kansas, Nebraska, Indiana, Colorado, Missouri,

SUCCESSFUL SCHOOL DISTRICT STUDIES (EMPIRICAL STUDIES): This method uses statistical modeling to calculate the cost of offering an adequate education. Using specific data about resource inputs, student test scores, and other defined outcome measures a statistical model of a successful school district is developed. For this methodology to be successful a clearly defined and agreed upon set of input and output standards needs to be established (*ACCESS* 2004). Nine states³¹ have utilized this method of analysis but fewer states have used this method than the professional judgment approach because there must be sufficient data from districts across the state for the statistical model to be accurate and this is not always possible.

Ohio was the first state to utilize this method of study and since there have been additions to the variables inputted into the statistical model since the original Ohio study (Augenblick 1997). The models are now more complicated and there are alternative ways of identifying high-performing districts based on various combinations of input and output factors.

Kentucky, North Dakota, Washington, Montana, and New York.

³¹ The nine states that have utilized the successful school method of cost-out analysis are: Ohio, Mississippi, Illinois, Maryland, Kansas, Louisiana, Colorado, Missouri, and New York.

Code: _____

APPENDIX B:

FOCUS GROUP PARTICIPANT WORKSHEET: Part I

You responses will be kept within the confines of the focus group and the worksheets will be destroyed once the data is collected from them.

In the table below you will be listing the perceived needs of all your students.

Part I:

1. Please write your code on the top right corner of the worksheet (only I will know what codes match which individuals).
2. For 3 minutes each member of the focus group will work by themselves on their own list.
3. We will come together as a group and you share one need you feel is most important.
4. We will then discuss all the needs that each person sees and create a master list of needs and resources.

Needs of students and teachers: Difficulties students have that are hindering their academic achievement or their passing the TAKS Test. Some examples are more individualized attention, calculators, planning time.

Resources: Materials and supplies, training, personnel, etc. that may help fulfill the needs of your students.

Code: _____

Sub-Group: _____

	Students who did not pass the TAKS or benchmark tests (whichever is more recent)		Students who did pass the TAKS and/or benchmark tests (whichever is more recent)	
	<u>Needs</u>	<u>Resource</u>	<u>Needs</u>	<u>Resource</u>
PERCEIVED NEEDS & POSSIBLE RESOURCES				

Code: _____

FOCUS GROUP PARTICIPANT WORKSHEET: Part II

Please check off what student sub-group this worksheet is for:

Student Sub-group:

- | | |
|---|---|
| <input type="checkbox"/> White | <input type="checkbox"/> Limited English Proficient |
| <input type="checkbox"/> African-American | <input type="checkbox"/> Students with Disabilities |
| <input type="checkbox"/> Native American | <input type="checkbox"/> Economically Disadvantaged |
| <input type="checkbox"/> Asian/Pacific Islander | Students |
| <input type="checkbox"/> Hispanic | |
| <input type="checkbox"/> Multiracial | |

You responses will be kept within the confines of the focus group and the worksheets will be destroyed once the data is collected from them.

In the table below you will be listing the perceived needs of different populations of students.

Part II:

5. Please write your code on the top right corner of the worksheet (only I will know what codes match which individuals).
6. For 3 minutes each member of the focus group will work by themselves on their own list.
7. We will come together as a group and you share one need you feel is more important.
8. We will then discuss all the needs that each person sees and create a master list of needs and resources.

Needs of students and teachers: Difficulties students have that are hindering their academic achievement or their passing the TAKS Test. Some examples are more individualized attention, calculators, planning time.

Resources: Materials and supplies, training, personnel, etc. that may help fulfill the needs of your students.

	Students who did not pass the TAKS or benchmark tests (whichever is more recent)	Students who did pass the TAKS and/or benchmark tests (whichever is more recent)		
PERCEIVED NEEDS & POSSIBLE RESOURCES	<u>Needs</u>	<u>Resource</u>		
	(This area is currently blank, separated by a vertical dashed line)	<u>Needs</u>	<u>Resource</u>	

APPENDIX C:

Introduction and Instructions:

Thank you for agreeing to be part of this focus group. Your input is very important to my research and will help me not only complete my research and dissertation but hopefully, help move the analysis of financial adequacy closer to students' needs.

Desired Educational Outcomes:

Districts must provide "all Texas children . . . access to a quality education that enables them to achieve their potential and fully participate now and in the future in the social, economic, and educational opportunities of our state and nation." TEX. EDUC. CODE § 4.001(a). Districts satisfy this constitutional obligation when they provide all of their students with a meaningful opportunity to acquire the essential knowledge and skills reflected in the TEKS (see TEX. EDUC. CODE § 28.002 and TEX. ADMIN CODE § 74.1-.3) and the Recommended High School Program (see TEX. EDUC. CODE § 28.025(b)), such that upon graduation, students are prepared to "continue to learn in postsecondary educational, training, or employment settings." TEX. EDUC. CODE § 28.001.27 Additional components of an adequate education are identified in other Texas statutes, including, but not limited to Section 4.001(b) of the Texas Education Code (Smith and Seder 2004).

We will allow students' needs to guide us towards adequate resources instead of funding limitations. NCLB lists sub-groups of students which we will use as are sub-groups. The sub-groups are listed below and on the worksheets you will be given to help keep notes.

Sub-groups:

- White
- African-American
- Native American
- Asian/Pacific Islander
- Hispanic
- Multiracial
- Limited English Proficient
- Students with Disabilities
- Economically Disadvantaged Students
- Displaced Students

Specifically, your **task** is to list what each sub-group of students may need to help them reach the state standards. This includes: supplies, personnel, teacher (and TA) training, etc. Below are listed some categories you should think about as we discuss student needs Program Elements³²:

- Personnel
 - Teachers
 - Aides/Paraprofessionals
 - Pupil Support Staff
- Supplies & Materials
- Equipment & Technology
- Student Activities
- Professional Development
- Assessment

Do not focus on designing curriculum, instead focus simply on what each sub-group will need to help them reach the state standards. Resources (interventions) will then be listed to fill each need.

With the exception of the constraints below, you are free to list whatever you think is necessary to help each sub-group meet the Texas state standards (TEKS). Please remember the following:

- Texas has a state adoption policy for textbooks. Therefore the only textbooks that can be used are those now being used in classrooms (they are listed along with resources provided from the publishers on your worksheets). Assume that the textbooks in quality and quantity are consistent with those provided for by the state.
- High school for this focus group include grades 9-12
- The school year is a minimum of 180 days. The minimum school day is seven hours per day. Any considerations for professional development should consider these as the base number and length of instructional days.
- We are assuming that all personnel are state-certified in mathematics. For cost analysis purposes, the salary ladder for the district will be utilized.
- Facilities are in place and funding for facilities improvements are not part of analysis. If, however, the needs of students require any major changes of facilities in the district, please briefly note what those changes would be.
- Do not assume that the school presently has the amount of supplies that are needed. List all supplies needed for each student sub-group.

³² The program elements were modified from MAP's *Estimating the Cost of Meeting State Educational Standards*.

- Funding of administrative personnel is not part of this project. However, please list all personnel (e.g. teacher aids, instructional specialists) that you believe may be necessary for a particular sub-group³³.

³³ Some of these parameters were taken directly or modified from MAP's *Estimating the Cost of Meeting State Educational Standards*.

Appendix D³⁴:

Cost-out Worksheet

High School: _____ Sub-group: _____

	Need	Resources	Estimated Cost	Explanation of cost (in budget, vendor, bid, etc)
Total:				

³⁴ This table is a modified version of Jennifer king Rice’s budget analysis table found in “Cost Analysis in Education: Paradox and Possibility” in *Educational Evaluation and Policy Analysis*, 19(4). 309-317

Code: _____

APPENDIX E:

Researcher:

Anita W. Greenberg
The University of Texas at Austin
Doctoral Candidate, Curriculum Studies

Name: Anita W. Greenberg
Address: 12301 Blue Water Dr. Austin, Texas 78758
Phone: (512) 420 9284
E-mail: anita@anitagreenberg.com

Thank you for agreeing to participate in this study which will take place on (February date 2006). This form outlines the purposes of the study and provides a description of your involvement and rights as a participant.

The purposes of this project are:

1. To determine the perceived needs of different populations of students for high school mathematics in CT-ISD.
2. To gain insight and experience into the process of creating a financially adequate high school mathematics curriculum.

The methods to be used to collect information for this study are explained below. From this information, I will write a case study of CT-ISD.

You are encouraged to ask any questions at any time about the nature of the study and the methods that I am using. Your suggestions and concerns are important to me; please contact me at any time at the address/phone number listed above.

I will use the information from this study to write my dissertation, a case study of CT-ISD's mathematics curriculum. This report will be read by you and my dissertation committee, in order to check on the accuracy of the report. The case report will not be available to any other person to be read without your permission.

I guarantee that the following conditions will be met:

1. Your real name will not be used at any point of information collection, or in the written case report; instead, you and any other persons involved in your case will be given pseudonyms that will be used in all verbal and written records and reports.
2. If you grant permission for video taping, no video tapes will be used for any purpose other than to do this study, and will not be played for any reason other than to do this study. At your discretion, these tapes will either be destroyed or returned to you.

3. Your participation in this research is voluntary; you have the right to withdraw at any point of the study, for any reason, and without any prejudice, and the information collected and records and reports written will be turned over to you.

4. You will receive a copy of the final report before it is handed in, so that you have the opportunity to suggest changes to the researcher, if necessary.

5) You will receive a copy of the report that is handed in the dissertation committee.

Do you grant permission to be quoted directly?

Yes _____ No _____

Do you grant permission to be video taped?

Yes _____ No _____

I agree to the terms

Respondent _____ Date _____

You will need to choose a code to use at the top of each worksheet. Please write it down here: _____. This will only be seen by me.

I agree to the terms:

Researcher _____ Date _____

Appendix F:

CT-CISD Salary Schedules 2005 - 2006³⁵

Year 2005/2006		Bachelors (187 days)		Masters (187 days)		Counselor (187 days)
Exp						
0		\$34,000		\$35,000		\$39,271
1		\$34,150		\$35,150		\$39,321
2		\$34,250		\$35,250		\$39,510
3		\$34,300		\$35,300		\$39,510
4		\$34,350		\$35,350		\$39,560
5		\$34,610		\$35,610		\$39,856
6		\$35,020		\$36,020		\$40,055
7		\$35,200		\$36,200		\$40,698
8		\$35,220		\$36,220		\$40,802
9		\$35,290		\$36,290		\$41,265
10		\$36,230		\$37,230		\$42,391
11		\$37,140		\$38,140		\$42,761
12		\$37,990		\$38,990		\$43,723
13		\$38,780		\$39,780		\$44,127
14		\$39,550		\$40,550		\$44,465
15		\$40,270		\$41,270		\$44,818
16		\$41,080		\$42,080		\$45,268

³⁵ This information can be found at: <http://www.hayscisid.net/hr/benefits/salary.htm>

17		\$41,990		\$42,990		\$45,859
18		\$42,840		\$43,840		\$45,924
19		\$43,630		\$44,630		\$46,736
20		\$44,340		\$45,340		\$46,961
21		\$44,910		\$45,910		\$47,384
22		\$45,590		\$46,590		\$47,731
23		\$46,230		\$47,230		\$48,210
24		\$46,830		\$47,830		\$48,885
25		\$47,410		\$49,304		\$49,137
26		\$47,950		\$49,427		\$49,909
27		\$48,426		\$49,889		\$49,986
28		\$48,461		\$49,942		\$51,630
29		\$48,461		\$50,980		\$52,064
30		\$48,461		\$50,980		\$52,966
31		\$48,730		\$50,980		\$53,883
32		\$49,906		\$51,956		\$54,256
33		\$49,906		\$53,196		\$55,539
34		\$49,986		\$53,196		\$55,539
35		\$49,986		\$53,496		\$55,539

Appendix G: CT-CISD's 2005-2006 Academic Calendar

2005-2006 School Calendar



July 2005

M	TU	W	TH	F
				1
4	5	6	7	8
11	12	13	14	15
18	19	20	21	22
25	26	27	28	29

January 2006

M	TU	W	TH	F
2	3	4	5	6
9	10	11	12	13
16	17	18	19	20
23	24	25	26	27
30	31			

August 2005

M	TU	W	TH	F
1	2	3	4	5
8	9	10	11	12
15	16	17	18	19
22	23	24	25	26
29	30	31		

February 2006

M	TU	W	TH	F
		1	2	3
6	7	8	9	10
13	14	15	16	17
20	21	22	23	24
27	28			

September 2005

M	TU	W	TH	F
			1	2
5	6	7	8	9
12	13	14	15	16
19	20	21	22	23
26	27	28	29	30

March 2006

M	TU	W	TH	F
		1	2	3
6	7	8	9	10
13	14	15	16	17
20	21	22	23	24
27	28	29	30	31

October 2005

M	TU	W	TH	F
3	4	5	6	7
10	11	12	13	14
17	18	19	20	21
24	25	26	27	28

April 2006

M	TU	W	TH	F
3	4	5	6	7
10	11	12	13	14
17	18	19	20	21
24	25	26	27	28

November 2005

M	TU	W	TH	F
31	1	2	3	4
7	8	9	10	11
14	15	16	17	18
21	22	23	24	25
28	29	30		

May 2006

M	TU	W	TH	F
1	2	3	4	5
8	9	10	11	12
15	16	17	18	19
22	23	24	25	26
29	30	31		

December 2005

M	TU	W	TH	F

June 2006

M	TU	W	TH	F

Semester Lengths

1st Six Weeks	29 days
2nd Six Weeks	29 days
3rd Six Weeks	27 days
4th Six Weeks	27 days
5th Six Weeks	30 days
6th Six Weeks	34 days

School Days	176 days
Preparation/Inservice	11 days
Total Days	187 days

Special Notes

Should one instructional day be lost to bad weather, February 10 would become the make-up day. If a second day is lost, a day would be added at end of year.

Testing Dates

Benchmark field tests: January 17-February 3
TAKS: February 21, April 18-21

Legend

- < Start of Six Weeks Period
- > End of Six Weeks Period
- Staff Development/Prep.
- Staff and Student Holiday
- Student Holiday and Staff

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Vita

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