An Analysis of Resiliency, English Language Development, and Formative and Summative Assessments among Mueller Charter School Students

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CHAPTER 1
INTRODUCTION

Statement of the Problem

As the pressure of No Child Left Behind pushes down from national and state levels, it ultimately presses its oppressive weight on the very children it is “intended” to benefit. As both external and internal pressures intensify, many educators struggle to reconcile their desires to raise and educate children with the expectations to raise test scores. Instead of creating a space for academic and social excellence, “accountability” systems, like No Child Left Behind, can function as systems to oppress and dehumanize both students and teachers alike. Paulo Freire (1970) explains, “An act is oppressive when it prevents individuals from becoming more fully human” (p. 47). Bearing witness to this process has been very disheartening to say the very least.

Amidst this time of high stakes testing, educational budget cuts, a group of students has consistency fallen through our educational cracks, English Language Learners. This study seeks to understand the relationship among student resilience and English language acquisition and performance on standardized assessments.

Questions Guiding the Study

Research Questions

1. What is the resiliency quadrant designation among Mueller Charter School’s third, fifth and seventh graders during the 2006-07 school year?

2. Is there a relationship between students’ resiliency quadrant designation and CELDT, MAPs, and CST scores?
3. Are there significant differences in students’ resiliency quadrant designation by class or grade level?

4. Are there mean differences in CST scores based on students’ resiliency quadrant designation, CELDT level, and an interaction of resiliency quadrant designation and CELDT level?

5. What variables best predict students’ level of resilience?

Limitations of the Study

1. Results are correlational – they will not inform us why resiliency quadrant designation and CELDT, MAPs, and CST scores are related or how CELDT, MAPs, and CST scores are related.

2. This study is limited to a specific amount of variables.

3. Teacher designation of students into resiliency quadrants is subjective. This raises issues of reliability as it relates to how students are placed in Resiliency Quadrants.

4. This study was conducted at one school site; therefore this study is limited to geography. This also makes it difficult to ascertain generalizability of this study.

5. This study is limited to an analysis of student records for third, fifth, and seventh graders during Mueller Charter School’s 2006-07 school year, not all students at Mueller Charter School were included in this study.

6. Lastly, limitations related to time must be considered, as this study was conducted during the 2008 spring semester at San Diego State University.

Assumptions

1. Students’ Resiliency Quadrant Designations, CELDT, MAPs, and CST scores are accurate.
2. Students’ Resiliency Quadrant Designations, CELDT, MAPs, and CST scores are entered correctly into student database.

Definition of Terms

Resiliency

In the area of psychology, the most commonly used definition of resiliency is “the ability to spring back from and successfully adapt from adversity” (Benard, 1995, p. 17). This study examines resiliency as it relates on an individual’s personal trait. Further discussion of resiliency is included in Chapter 2.

Resiliency Quadrants

Dr. Kevin Riley, current principal at Mueller Charter School, developed the Resiliency Quadrants. Designed to address the impacts of poverty, crime, family stressors, high mobility, low parental education, drugs, alcohol, violence, and low community expectations, the Resiliency Quadrants serve as a mechanism for school staff to implement interventions at the individual and systematic, school-wide levels. Functioning under the premise that high poverty and high English Language Learners schools perform lower than affluent schools, children in poverty are exposed to more risk factors, risk factors impact academic growth and achievement, and school that reduce or eliminate risk factors can remove barriers to learning, the Resiliency Quadrants aims to:

1. Reach and monitor all students
2. Identify specific risk factors impacting learning
3. Identify the degree to which these risk factors are impacting learning
4. Create programs and interventions in direct response to student needs
5. Link students and families to appropriate resources

6. Close the achievement gap

7. Nurture the growth and development of resilient children

A more detailed explanation of Mueller Charter School’s Resiliency Quadrants is included in Chapter 3.

California English Language Development Test (CELDT)

The CELDT is a state mandated test that is administered to all English Language Learners. The purpose of the CELDT is to monitor the English Language acquisition of students whose home language is not English. The CELDT is given once a year to all students in grades K-12 who’ve indicated that they are English Language Learners on a home language survey. The CELDT assesses the listening and speaking skills for students in Kindergarten through second grade. Beginning in third grade through twelfth grade, the CELDT incorporates assessments of reading and writing skills in English.

Measures of Academic Progress (MAPs)

The Northwest Evaluation Association, a non-profit organization focused on improving student achievement, developed Measures of Academic Progress (MAPs). MAPs is a “state-aligned computerized adaptive assessment program” that identifies students’ current level of academic proficiency and targets specific areas for teachers to support for each student. This program is implemented at Mueller Charter School and is one of many formative assessments used school-wide. Students take the MAPs four times a year. Students receive scores on reading, mathematics and language scores for students. MAPs was selected for this study because it is the most standardized of all
Formative assessments used at Mueller Charter School.

California Standardized Test (CST)

Individual students’ reading and mathematic scores will be taken from the California Standardized Test (CST). The CST is a summative assessment used to determine student’s level of grade level proficiency. Scaled scores on students’ CST scores will be used in this study.

Significance of Study

Krovetz (1999) reminds us that while school possesses a tremendous capacity to build resiliency, school “in general are terrible at being resilient communities” (p. 2). This study seeks to contribute to the body of research that examines the relationship between resilience and bicultural competency. More specifically, this study begins to understand how schools can foster resiliency while fostering bicultural competency and academic success (Henderson, 1996; Vargas-Reighley, 2005).

As Annual Yearly Progress (AYP) requirements rise for all target groups defined by No Child Left Behind, nearly all schools in the Chula Vista Elementary School District are in danger of becoming Program Improvement Schools (PI schools). Nearly all schools in Chula Vista Elementary School District who are designated PI did not to meet Annual Yearly Progress requirements for English language learners. This study will also help provide insight into how schools can promote resiliency and academic excellence of English language learners.

Summary of Study

This study is philosophically grounded in the belief that the development of resiliency can have a positive impact on student wellness and academic performance.
An analysis of student records on student resiliency quadrant designation, CELDT, MAPs, and CST scores, will begin the process of understanding how resiliency development can facilitate academic for English language learners. The subsequent chapters of this study include a review of literature relevant to the research questions, description of methodology, results and findings, and summary, discussion and findings.
CHAPTER 2

LITERATURE REVIEW

Introduction

Chapter 2 includes a review of literature on resiliency as it relates to this study. The review of literature in resiliency is separated into five sections: 1) Resiliency Defined, 2) Research in Resiliency, 3) Resiliency in Schools and Communities, 4) Resiliency and English Language Learners, and 5) Conclusion and Implications for Further Research.

Resiliency Defined

Current typologies in resiliency reach across diverse disciplines in our world. "In physics and engineering, resiliency is defined as the capacity of a material to absorb energy when it is deformed elastically and then, upon unloading to have this energy recovered; in business terms, resilience is the ability of an organization, resource, or structure to sustain the impact of a business interruption and recover and resume its operations to continue to provide minimum services" (Wikipedia, 2008). As seen in both these fields, and evident in most typologies, the essence of resilience is described as the ability to bounce back from some form of disruption, stress, or change.

Close to fifty years of research in resiliency has brought forth various perspectives and voices (Dugan, T., & Coles, R., 1989; Glantz, M., & Johnson, J., 1999; Joseph, J., 1994; McCubbin, H., Thompson, E., Thompson, A. & Futrell, J., 1998; McCubbin, H., Thompson, E., Thompson, A. & Futrell, J., 1999; Taylor, R. & Wang, M., 2000; Thomsen, K., 2002; Unger, M., 2005). Richardson and his colleagues (1990) share that resiliency as "the process of coping with disruptive, stressful, or challenging
life events in a way that provides the individual with additional protective and coping skills than prior to the disruption that results from the event” (p. 34). Higgins (1994) describes resiliency as the “process of self-righting or growth” (p. 1), while Wolins (1993) defines resiliency as the “capacity to bounce back, to withstand hardship, and to repair yourself (p. 5).

Resiliency, or resilience, is also explained and studied in context of a two-dimensional construct concerning the exposure of adversity and the positive adjustment outcomes of that adversity (Luther & Cicchetti, 2000). While this construct of resilience is evident across studies and articles, it is noteworthy to mention that there is little consensus as to how researchers define adversity, let alone what defines positive adjustment outcomes.

Research in Resiliency

Studies in resiliency purport that “positive adaptation...is considered in a demonstration of manifested behavior on social competence or success at meeting any particular tasks at a specific life stage” (Luthar & Cicchetti, 2000, p. 110). Other studies use school achievement or results from state testing as a measure for positive adjustment outcomes (Jew, Green & Kroger, 1999).

In her discussion of resiliency in children, Benard (1995) shares that resilient children usually have four attributes in common:

- Social Competence: Ability to elicit positive responses from others, thus establishing positive relationships with both adults and peers

- Problem-solving skills: Planning that facilitates seeing oneself in control and resourcefulness in seeking help from others
• Autonomy: A sense of one’s own identity and an ability to act independently and exert some control over one’s environment, and

• A sense of purpose and future: Goals, educational aspirations, persistence, hopefulness, and a sense of a bright future.

Additional research in resiliency concludes that each person has an innate capacity for resiliency, a self-righting tendency that operates best when people have resiliency-building conditions in their lives (Benard, 1995). It is grounded in the belief that humans have an inborn developmental wisdom and seeks to better contextualize “how” teachers can to tap this wisdom (Benard, 1995). In her book, Fostering Resiliency in Children, Bonnie Benard (1995) shares:

We are all born with an innate capacity for resilience, by which we are able to develop social competence, problem-solving skills, a critical consciousness, autonomy, and a sense of purpose (p. 17).

She further writes:

In the development of a CRITICAL CONSCIOUSNESS, a reflective awareness of the structures of oppression (be it from an alcoholic parent, an insensitive school, or a racist society) and creating strategies for overcoming them has been key (Benard, 1995, p. 21).

Bernard’s (1995) work in resiliency research asserts that all individuals possess innate resiliency.

Werner and Smith’s (1992) longitudinal studies found that for every child that comes from an “at-risk” background, who later needs intervention, there is a higher percentage of children who come from the same background who become healthy.
compotent adults. Werner and Smith (1992) purport that a resilient child is one “who loves well, works well, plays well, and expects well” (p. 192).

Werner and Smith’s (1992) research serves as the foundation for Resiliency Theory (RT). Krovetz (1999) explains that “RT is based on defining protective factors within the family, school, and community that exist for the successful child or adolescent – the resilient child or adolescent – that are missing from the family, school, and community of the child or adolescent who later receives the intervention” (p. 7).

Rather than placing focus on the deficits of students, schools, and communities, RT is focused on the factors that strengthen or enhance resiliency. It demands that both researchers and practitioners “fully explore the well-springs of individual strength” (Wolin & Wolin, 1993, p. 13). Furthermore, this paradigm shifts our attention from risks, deficits, and pathology to protective factors, assets, and wellness. The following section focuses on research on resiliency conducted in the context of schools and communities.

Resiliency in Schools and Communities

Schools function as one of the most powerful spaces to capitalize on the resilience of students. Early research of resiliency in schools points to the fact that despite barriers to learning “at-risk” students still demonstrated levels of success (Luther & Seigel, 1991; Masten, Best & Garmezy, 1990; Padron, Waxman, Brown & Powers, 2000; Rirkin & Hoopman, 1991). WestEd, an organization committed to researching resiliency in schools, found that API scores and amount of resilience (or level of assets) were highly correlated with one another at certain schools.
In the book, *Resiliency in Schools* (1996), Henderson and Milstein write, “a call to action to focus on, understand, and enhance the development of resiliency is arising not only from social scientists but also from educators who are beginning to understand the need for schools to be resiliency-fostering institutions for all who work and learn in them” (p. 2). Henderson and Milstein (1996) state, “more than any other way, schools build resiliency in students through creating an environment of caring personal relationships” (p. 17). Henderson and Milstein (1996) further assert that in order for schools to foster resiliency in students, resiliency must first be present within and amongst educators.

Expanding our notion of resiliency in schools to the larger community, Krovetz (1999) writes “a resilient community is a community focused on the protective factors that foster resiliency for its members: 1) caring, 2) high expectations and purposeful support, and 3) ongoing opportunities for meaningful participation” (p.2). Krovetz (1999) continues in stating that a “proactive position...based on building capacities, skills, and assets” is necessary for building resiliency” (p. 6). The following section examines the body of research that focuses the resilience of English language learners.

**Resiliency and English Language Learners**

A growing body of research in resiliency focuses on the relationship of resiliency and English language development. Padron, Waxman, Brown and Powers (2000) assert that “some English language learners (ELLs) do well in school despite coming from school and home environments that present many obstacles for learning” (p. 1). Researchers explain that research that is conducted from an educational resilience context allows researchers to focus on the predictors for academic success,

Furthermore, Padron, Waxman, Brown and Powers (2000) state that when research is focused on the resilience of English language learners it "enables us to specifically identify those 'alterable' factors that distinguish successful from less successful students" (p. 1). The body of research that focuses on resilience in English language learners does not only ask for us to challenge deficit model perspectives, but it asserts that academic success can be met if we focus our attention onto factors that we can change in students' lives.

Conclusion and Implications for Further Research

Research indicates that students are born with innate resilience. The literature review also suggests that the development of resilience in students in contingent on the development of caring and supportive relationships among staff members and with students. Students who report higher satisfaction with their school environments report higher levels of resilience and academic performance. Research also examines the relationship between bicultural competence and academic resilience.

The focus of this study is to look at the relationship between student resilience and CELDT, MAPs, and CST scores. Data from this study will hopefully lead to meaningful dialogue and action that fosters resilience in English language learners and students school-wide. The following chapter will illustrate the methodology for this study.
CHAPTER 3

METHODOLOGY

This chapter describes the methods and procedures used in this study. The first section describes the setting and population from which I obtained my data. The second section will include a brief overview of the variables used in this study: Resiliency Quadrant, California English Language Development Test (CELDT) scores, Measures of Academic Progress (MAPs), and California Standardized Test (CST) scores. The third section describes research design, process that will be used to conduct the research and collect the data needed to address each research question. The fourth and final section includes discussion of the research design, statistical procedures used in the data analysis and summary.

Setting

Mueller Charter School (MCS) is one of forty-five elementary schools in the Chula Vista Elementary School District. Mueller Charter School is a K-8 public school serving close to one thousand students. Located just 7 miles from the US-Mexico International border, it is home to a diverse student population: 90% children of color, 85% Latino/a, 80% of students qualify for free or reduced lunch, and 55% English Language Learners. Over the course of one school year, nearly 20% of students transfer in or out of the school.

As indicated in its charter petition, Mueller Charter School’s mission is to “strive to work together [with the community] to provide a safe, consistent, and caring environment in which individuals are challenged to highest ability” (Mueller Charter School, 2008). Mueller’s charter petition continues, “Our mission is to have 90% of our
children at grade level by the end of each school year. The success of our pupils
depends upon the positive interaction between home and school. MCS and its
community value, model and encourage responsibility, respect and personal pride”
(Mueller Charter School, 2007).

Participants

Data were collected on all third, fifth, and seventh graders during the 2006-07
school year. Data include students’ year-end resiliency quadrant designation, CELDT
score, MAPs data throughout the year, and CST results. Approximately 300 student
records were collected in this study. Students’ identity remained confidential
throughout this study.

Resiliency Quadrants

Throughout the school year teachers place students into one of four quadrants:
Quadrant 4 (designation for students who are “at” or “above” grade level as
demonstrated by classroom assessments or standardized testing), Quadrant 3
(designation for students who are “showing progress” or “approaching” grade level and
in need of more intensive classroom-based interventions), Quadrant 2 (designation for
students who are showing “little” to “no” progress and who have an identifiable root
cause for the lack of academic growth, e.g. family stressors, absenteeism, behavior,
etc.), and Quadrant 1 (this last designation is for students who are in life-crisis, e.g.
recent death of parent, homelessness, etc.). During quarterly meetings, teachers meet
with support staff members (principal, assistant principal, student advocate, school
psychologist, school counselor, school nurse, resource specialist, and speech and
language pathologist to create individualized interventions for each student in Quadrants 2 and 1. These interventions are monitored throughout the entire school year.

**California English Language Development Test (CELDT)**

The CELDT is a state mandated test that is administered to all English Language Learners. The purpose of the CELDT is to monitor the English Language acquisition of students whose home language is not English. The CELDT is given once a year to all students in grades K-12 who’ve indicated that they are English Language Learners on a home language survey. The CELDT assesses the listening and speaking skills for students in Kindergarten through second grade. Beginning in third grade through twelfth grade, the CELDT incorporates assessments of reading and writing skills in English.

Students are scored in listening, speaking, reading and writing using a “1” to “5” scale: A score of “1” indicates a proficiency level of “Beginning,” a score of “2” indicates a proficiency level of “Early Intermediate,” a score of “3” indicates a proficiency level of “Intermediate,” a score of “4” indicates a proficiency of “Early Advanced,” and a score of “5” indicates a proficiency level of “Advanced.” Total scores in listening, speaking, reading and writing are calculated to provide an overall CELDT score for each student. The overall CELDT score, which is used in this study, follows the same “1” to “5” scale mentioned above.

**Measures of Academic Progress (MAPs)**

The Northwest Evaluation Association, a non-profit organization focused on improving student achievement, developed Measures of Academic Progress (MAPs). MAPs is a “state-aligned computerized adaptive assessment program” that identifies
students’ current level of academic proficiency and targets specific areas for teachers to support for each student. This program is being used by Mueller Charter School and one of the formative assessments used school-wide. Students take the MAPs four times a year. Students receive scores on reading, mathematics and language.

California Standardized Test (CST)

Individual students’ reading and mathematic scores were taken from the California Standardized Test (CST). The CST is a summative assessment used to determine student’s level of grade level proficiency. Scaled scores on students’ CST scores were used in this study.

Procedures

Student information from all 2006-07 third, fifth, and seventh graders were obtained from Mueller Charter School’s student database. As indicated earlier, students’ identity remained confidential for the entire duration of this study.

Research Questions

1. What is the resiliency quadrant designation among Mueller Charter School’s third, fifth and seventh graders during the 2006-07 school year?

2. Is there a relationship between students’ resiliency quadrant designation and CELDT, MAPs, and CST scores?

3. Are there significant differences in students’ resiliency quadrant designation by class or grade level?

4. Are there mean differences in CST scores based on students’ resiliency quadrant designation, CELDT level, and an interaction of resiliency quadrant designation and CELDT level?
5. What variables best predict students’ level of resilience?

**Statistical Analysis**

Data were entered and calculated using the Statistical Package for the Social Sciences (SPSS). The study includes the following SPSS procedures:

1. The resiliency quadrant designation among students was analyzed by using descriptive statistics including frequency distributions, means, and measures of central tendencies based on quadrant designations given by classroom teachers.

2. The relationship between students’ quadrant designations and CELDT, MAPs, and CST scores was analyzed by using bivariate correlations among all students.

3. One-way ANOVA was used to analyze trends in students’ resiliency quadrant designation by class and grade levels.

4. A 4 x 5 Factorial design was used to determine if there are mean differences on the CST language arts and math scores based on students’ quadrant designation, CELDT score, and interaction of these two independent variables.

5. To assert which variables best predict students’ level or resilience, multiple regressions will be run.

**Summary**

This chapter includes description on the school setting and participants for this study. An overview of the Resiliency Quadrants, CELDT, MAPs, and CST was included as well. Means for data collection and analysis were discussed. The proceeding chapter will focus on results and findings pertaining to research questions guiding this study.
CHAPTER 4
RESULTS AND FINDINGS

This chapter describes the results and findings for this study. The first section describes the individuals who were included in the study. The following sections address findings analysis pertinent to the guiding research questions:

Research Questions

1. What is the resiliency quadrant designation among Mueller Charter School’s third, fifth and seventh graders during the 2006-07 school year?

2. Is there a relationship between students’ resiliency quadrant designation and CELDT, MAPs, and CST scores?

3. Are there significant differences in students’ resiliency quadrant designation by class or grade level?

4. Are there mean differences in CST scores based on students’ resiliency quadrant designation, CELDT level, or based on an interaction of resiliency quadrant designation and CELDT level.

5. What variables best predict students’ level of resilience?

In efforts to answer these questions, data were collected on all Mueller Charter School third, fifth, and seventh graders during the 2006-07 school year (n = 279). Data included students’ year-end resiliency quadrant designation, CELDT score, MAPs data throughout the year, and CST results. Data were entered into SPSS and students’ identity remained confidential throughout this study.
Characteristics of the Participants

A total of 279 students records were collected in this study (48.4% Male and 51.2% Female). Thirty-nine percent of these records were for third graders, while 39.5% and 21.1% of records used were for both fifth and seventh grader respectively.

Table 1.1 depicts the numbers and percentages of participants by sex, grade, and teacher.

Table 4.1

\begin{tabular}{ll}
\hline
\textbf{Category} & \textbf{N} & \textbf{Percentage} \\
\hline
Male & 136 & 48.4 \\
Female & 144 & 51.2 \\
Third & 110 & 39.1 \\
Fifth & 111 & 39.5 \\
Seventh & 59 & 21.1 \\
Teacher 1 & 31 & 11 \\
Teacher 2 & 28 & 10 \\
Teacher 3 & 26 & 9.3 \\
Teacher 4 & 27 & 9.6 \\
Teacher 5 & 21 & 7.5 \\
Teacher 6 & 24 & 8.5 \\
Teacher 7 & 11 & 3.9 \\
Teacher 8 & 19 & 6.8 \\
Teacher 9 & 14 & 5 \\
Teacher 10 & 15 & 5.3 \\
Teacher 11 & 17 & 6 \\
\hline
\end{tabular}
Results and Findings

Research Question 1: What is the resiliency quadrant designation among Mueller Charter School’s third, fifth and seventh graders during the 2006-07 school year?

Numbers of students’ resiliency quadrant designation is shown in Table 4.2. A closer analysis of third grade students shows that 33 students are placed in Quadrant 4, 54 students in Quadrant 3, 21 in students Quadrant 2, and 1 student in Quadrant 1. Data on fifth grade students reveal that there are 24 in students in Quadrant 4, 57 students in Quadrant 3, 28 students in Quadrant 2, and 1 student in Quadrant 1. Finally descriptive data pertaining to seventh grade students show 27 students in Quadrant 4, 22 students in Quadrant 3, 9 students in Quadrant 2, and 1 student in Quadrant 1. In addition to providing numbers of students in each resiliency quadrant designation by grade and among all grades, Table 4.2 includes percentages of students by resiliency quadrant designation.
Table 4.2

Students' Resiliency Quadrant Designation by Grade Level & School-wide – Total

<table>
<thead>
<tr>
<th>Grade</th>
<th>Quadrant 4</th>
<th>Quadrant 3</th>
<th>Quadrant 2</th>
<th>Quadrant 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Third Grade</td>
<td>33</td>
<td>54</td>
<td>21</td>
<td>1</td>
</tr>
<tr>
<td>n = 109</td>
<td>(30%)</td>
<td>(49.1%)</td>
<td>(19.1%)</td>
<td>(.9%)</td>
</tr>
<tr>
<td>Fifth Grade</td>
<td>24</td>
<td>57</td>
<td>28</td>
<td>1</td>
</tr>
<tr>
<td>n = 110</td>
<td>(21.6%)</td>
<td>(51.4%)</td>
<td>(25.2%)</td>
<td>(.9%)</td>
</tr>
<tr>
<td>Seventh Grade</td>
<td>27</td>
<td>22</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>n = 59</td>
<td>(45.8%)</td>
<td>(37.3%)</td>
<td>(15.3%)</td>
<td>(1.7%)</td>
</tr>
<tr>
<td>All Grades</td>
<td>84</td>
<td>134</td>
<td>58</td>
<td>3</td>
</tr>
<tr>
<td>n = 279</td>
<td>(29.9%)</td>
<td>(47.7%)</td>
<td>(20.6%)</td>
<td>(1.1%)</td>
</tr>
</tbody>
</table>

As demonstrated in Table 4.3, the median and mode score for students’ quadrant designation is consistent among all grades. Seventh graders possess a mean of 3.27 (SD = .78), while means for fifth grade and third grades are 2.95 (SD = .72) and 3.09 (SD = .73) respectively. The variance for the three different grades and all participants ranges from .51 to .62.

Table 4.3

Mean, Median, Mode, Standard Deviation and Variance of Quadrant Designation

<table>
<thead>
<tr>
<th>Grade</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>SD</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Third Grade</td>
<td>3.09</td>
<td>3</td>
<td>3</td>
<td>.73</td>
<td>.53</td>
</tr>
<tr>
<td>Fifth Grade</td>
<td>2.95</td>
<td>3</td>
<td>3</td>
<td>.72</td>
<td>.51</td>
</tr>
<tr>
<td>Seventh Grade</td>
<td>3.27</td>
<td>3</td>
<td>4</td>
<td>.78</td>
<td>.62</td>
</tr>
<tr>
<td>All Grades</td>
<td>3.07</td>
<td>3</td>
<td>3</td>
<td>.74</td>
<td>.55</td>
</tr>
</tbody>
</table>
Data indicate that a large percentage of all third, fifth, and seventh grade students, 47.7%, are designated as Quadrant 3. Additionally, 29.9% of students are designated as Quadrant 4, 20.6% of students are designated as Quadrant 2, and 1.1% of students are designated as Quadrant 1. Based on the Mueller Charter School’s Resiliency Quadrants framework, nearly one-half of all participants are at or approaching grade level and need classroom-based intervention. Further discussion and implications regarding these results will be discussed in Chapter 5.

*Research Question 2:* Is there a relationship between students’ resiliency quadrant designation and CELDT, MAPs, and CST scores?

While Table 4.4 includes Pearson correlation scores among students’ quadrant designation, CELDT, MAPs, and CST scores, this section focuses on the relationship between student’s quadrant designation and the aforementioned test scores. Bivariate correlations reveal that students’ quadrant designation are highly correlated with students’ CST language arts score \((r = .67)\) and students’ CST math score \((r = .65)\). Very little correlation is evident between students’ quadrant designation and students’ CELDT score \((r = .24)\), MAPs reading score \((r = .15)\), MAPs language score \((r = .06)\), and MAPs math score \((r = .06)\). Lastly, Pearson correlations between students’ quadrant designation and CELDT score \((r = .24)\), CST language arts score \((r = .67)\), and CST math score \((r = .65)\) are found to be significant at the .000 level. Discussion and implications of these findings will be examined in Chapter 5.
Table 4.4

Correlations Matrix for Quadrant Designation and CELDT, MAPs, and CST Scores

<table>
<thead>
<tr>
<th></th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
<th>5.</th>
<th>6.</th>
<th>7.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Quadrant Designation</td>
<td>.24**</td>
<td>.150*</td>
<td>.06</td>
<td>.06</td>
<td>.67**</td>
<td>.65**</td>
</tr>
<tr>
<td>2. CELDT Score</td>
<td></td>
<td>.66**</td>
<td>.41**</td>
<td>.512**</td>
<td>.50**</td>
<td>.16</td>
</tr>
<tr>
<td>3. MAPs Reading Score</td>
<td></td>
<td></td>
<td>.029</td>
<td>.031</td>
<td>.20**</td>
<td>.20**</td>
</tr>
<tr>
<td>4. MAPs Language Score</td>
<td></td>
<td></td>
<td></td>
<td>.013</td>
<td>.14*</td>
<td>.04</td>
</tr>
<tr>
<td>5. MAPs Math Score</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.12</td>
<td>.02</td>
</tr>
<tr>
<td>6. CST Language Arts Score</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.66**</td>
</tr>
<tr>
<td>7. CST Math Score</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

** p < .01
* p < .05

Research Question 3: Are there significant differences in students' resiliency quadrant designation by class or grade level?

One-way ANOVAs were run to examine if there are any mean differences in students' quadrant designation based on classroom and grade level. Results indicate that there were no statistically significant differences based on classroom ($F_{(13,278)} = 1.2$, $p = .25$). However, statistically significant mean differences on students' quadrant designation are evident based on grade level ($F_{(2,278)} = 3.84$, $p = .02$), with seventh
graders (M = 3.27) possessing a higher resiliency level than fifth graders (M = 3.09). Further discussion of this information will be addressed in Chapter 5.

Research Question 4: Are there mean differences in CST scores based on students’ resiliency quadrant designation, CELDT level, and an interaction of resiliency quadrant designation and CELDT level?

CST Math Scores

A 4 x 5 ANOVA reveal statistically significant mean differences (F (3, 278) = 16.13, p = .000) on CST math based on student’s resiliency quadrant with Quadrant 4 students scoring the highest (M = 428.5), followed by Quadrant 3 students (M = 352.65), and Quadrant 2 students (M = 298). Results indicate that students with higher Quadrant designations, or with higher levels of resilience, score higher on the mathematics section of the CST. Further analysis, however, indicate that there are no statistically significant mean differences in the CST math based on students’ CELDT level (F (4, 278) = .75, p = .56) or based on an interaction of students’ resiliency quadrant designation and CELDT level (F (3, 278) = .85, p = .55).

CST Language Arts Scores

A 4 x 5 ANOVA reveals statistically significant differences (F (3, 278) = 12.63, p = .000) in the means of CST language arts based on student’s resiliency quadrant with Quadrant 4 students scoring the highest (M = 395.67), followed by Quadrant 3 students (M = 315.74), and Quadrant 2 students (M = 283.19). Results indicate that students with higher Quadrant designations, or with higher levels of resilience, also score higher on the language arts section of the CST. Data also indicate statistically significant mean
differences in the CST math based on students’ CELDT level \( F_{(4,278)} = 6.88, p = .000 \) with Advanced \( (M = 346.83) \), Early Advanced \( (M = 335.64) \), Intermediate \( (M = 311.24) \) level students possessing a higher mean score than lower CELDT level students. Results indicate that students with higher CELDT levels score higher on the CST language arts section. The interaction of students’ resiliency quadrant designation and CELDT score, however, show no statistically significant mean difference in students’ CST language arts scores (Sig. \( F = .825, p = .57 \)).

Research Question 5: What variables best predict students’ level of resiliency?

Forward multiple regressions were run to examine which variables best predict students’ level of resiliency. A total of six predictors were used in this analysis: CELDT score, MAPs reading score, MAPs language score, MAPs math score, CST language arts score, and CST math score. Results yield two statistically significant predictors (Sig. of \( F = 44.84, p = .000 \)) in the prediction of students’ resiliency level of resiliency: 1) CST Math Score and 2) CST Language Arts Score. The multiple correlation between students’ resiliency quadrant designation and these predictors, \( R = .67 \). These two predictors account for forty-five percent of the variance in the dependent variable. Table 4.5 includes beta, t-values and significance of the significant predictors. Further discussion of these findings will be addressed in Chapter 5.
Table 4.5

Beta, T-values and P-values of Significant Predictors

<table>
<thead>
<tr>
<th></th>
<th>Beta</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>CST Math Score</td>
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<td>4.13</td>
<td>.000</td>
</tr>
<tr>
<td>CST Language Arts Score</td>
<td>.34</td>
<td>3.53</td>
<td>.001</td>
</tr>
</tbody>
</table>

Summary of Results and Findings

Below is a brief summary of the results and findings pertinent to this study and the community of Mueller Charter School:

1. A large percentage of the students in this study are designated in Quadrant 3 – 47.7%. Quadrant 3 students are identified as students who are *approaching grade level*, but need more classroom based intervention. More closely represented in this data set are the percentages of students in Quadrant 4 (29.9%) and Quadrant 2 (20.6%). Quadrant 4 students are students who *are at or above*, while Quadrant 2 students are those who are showing *little to no progress and have an identifiable risk that is inhibiting growth*. Quadrant 1 students represent the lowest percentage of students (1.1%). Quadrant 1 students are students who are experiencing *profound life crisis*.

2. Bivariate correlations reveal that students’ quadrant designation is highly correlated with students’ CST language arts score ($r = .67$) and students’ CST math score ($r = .65$). Very little correlation is evident between students’ quadrant designation and students’ CELDT score ($r = .24$), MAPs reading score ($r = .15$), MAPs language score ($r = .06$), and MAPs math score ($r = .06$).
3. While results indicate that there were no significant differences based on classroom, statistically significant mean differences on students’ quadrant designation is evident based on grade level (Sig of $F = 3.84$, $p = .02$), with seventh graders ($M = 3.27$) possessing a higher mean than fifth graders ($M = 3.09$).

4. A $4 \times 5$ ANOVA yields statistically significant differences in the means of both CST math and CST language arts scores when based on student’s resiliency quadrant designation and CELDT score ($p = .000$). Results also indicate a statistically significant difference in the means of students’ CST language arts scores when based on CELDT level ($p = .000$). However, no significance is found in the means of CST math ($p = .55$) and CST language arts scores ($p = .57$) when considering the interaction of students’ resiliency quadrant designation and CELDT score.

5. Multiple regressions indicate that CST math scores and CST language arts scores best predict students’ level of resiliency.

The following chapter provides a deeper context for the findings and includes a summary, conclusions, and recommendations for future research.
CHAPTER 5
SUMMARY, DISCUSSION, AND RECOMMENDATIONS

Summary

The primary purpose of this study was to determine resiliency quadrant designation among Mueller Charter Schools third, fifth, and seventh graders during the 2006-07 school year. The second purpose was to investigate the relationship between students’ resiliency levels CELDT scores, and both formative and summative assessments used at Mueller Charter School. The third purpose of this study was to investigate mean differences in students’ level of resilience by class and grade. A fourth purpose was to determine if mean differences in students’ CST scores based on resiliency quadrant designation, CELDT level, and an interaction of these two variables was evident. The fifth and last purpose of this study was to ascertain what variables best predict students’ level of resilience.

Philosophically grounded in the belief that the development of resiliency can have positive impacts on student wellness and academic performance, this research begins the process of understanding how resiliency development can facilitate academic for English language learners.

While this study serves as the first formal analysis of Mueller Charter School students’ level of resilience and its relationship to English language acquisition and academic performance, it also serves as an instrument to begin dialogue and action in the continued development of resiliency in students. Furthermore, the researcher believes that the findings in this study better facilitate the direction of his research agenda.
Discussion and Recommendations

Initial findings in this study indicate that the largest percentage of Mueller third, fifth, and seventh grade students were designated as Quadrant 3 (47.7%). This percentage of students represents those who are at or approaching grade level and who require classroom-based interventions. While the Resiliency Quadrant system serves as a mechanism to account for all students, quarterly monitoring meetings are focused on Quadrant 2 and Quadrant 1 students. In its initial years, Academic Growth Conferences were used to systematically monitor the progress of Quadrant 3 students. This year no Academic Growth Conferences have been held. While other systems have been put in its place, this information raises the question of how Mueller Charter School better facilitate the development of academic development and resiliency development of Quadrant 3 students and students school-wide.

The second research question of this study found that students’ quadrant designation was highly correlated with students’ CST math and language arts score. This, in part, is due to the fact that one of the characteristics used to place students into the four different quadrants is based on academic performance. Future research at the school site level and research at a broader level may yield different results if an alternative measure of resilience used (e.g. student self-assessment of resilience). Future research might examine relationship between students’ self report and teacher perception of resilience.

In the third area of this study, one-way ANOVA indicate that seventh grade students had statistically significant (p = .02) higher mean (M = 3.27) than fifth graders (M = 3.09). A plausible explanation for this difference may be that all seventh graders
are part of our Leadership Academy. The Leadership Academy is an academically rigorous program that prepares student to think and act critically in their world, communities, school, and lives. The profile of students in the Leadership Academy is oftentimes one of a student who is resilient in all aspects of the word. Whether these factors are significant or not, a qualitative study might provide additional insight into the difference in resilience levels between seventh and fifth grade students.

The forth research question of this study found that statistically significant differences in CST scores are evident based on students’ quadrant designation. As stated earlier this may be is due to the fact that one of the characteristics used to place students into the four different quadrants is based on academic performance. Nonetheless, this finding point to research that indicates how students’ level of resilience is positively correlated with academic achievement. Qualitative methods might also provide further explanations into how resiliency quadrant designation impacts student achievement.

In the fifth area of this study, multiple regressions reveal that CST math and language arts scores serve as strongest predictors in students’ level of resilience, these 2 predictors are also highly correlated with one another (r = .66, p < .001). In looking towards future studies, it will be important to explore predictor variables with low correlation with one another, but a high correlation with the dependent variable.

Recommendations for Further Research
1. Inclusion of all students at Mueller Charter School in the data set to assess all students’ level of resilience.
2. Expansion of this study in a larger scale to compare how these initial results compare with a larger population.

3. Inclusion of additional variables to explore if there are better predictors of student resilience.

4. Use of qualitative methods to further examine ways to provide an alternative understanding of the trends seen in data.

5. Inclusion of student self-assessment of resilience to see how this relates to teachers’ perception of students’ resilience.

6. Inclusion of student self-assessment of English language acquisition to see how this relates to CELDT levels.

7. Future research of students with low CELDT scores and high resiliency quadrant designation.


In ending, the findings from this study have laid the foundation for future dialogue and action regarding students' resilience, English language learners, and students school-wide. The recommendations provide a doorway into future research in the area of resiliency – at the very least for the researcher himself.
Works Cited


