CONTENT MASTERY CENTERS:
AN INCLUSION MODEL THAT WORKS

A DISSERTATION SUBMITTED TO THE GRADUATE DIVISION OF THE UNIVERSITY OF HAWAI'I IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN EDUCATION

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ABSTRACT

The purpose of this study was to conduct a program evaluation of two Content Mastery Centers (CMCs) to determine the programs' effectiveness in assisting students with mild disabilities (SWMD) to succeed. This program evaluation determined the effectiveness of this service delivery model in supporting students with disabilities in the general education curriculum as measured by (a) academic performance on the General Learner Outcomes (GLOs), report card grades, and the Hawaii State Assessment (HSA); (b) level of satisfaction with the CMC by students, teachers, and parents; (c) types of modifications, and (d) the amount of time students spent in the CMC. Results indicated that SWMD are able to meet grade level standards when provided with support services from the CMC. The study indicates that stakeholders were satisfied with the CMC model. Students receiving services in the CMC, however, were not able to meet proficiency on the HSA.
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CHAPTER 1. INTRODUCTION

The ultimate goal of any educational model or instructional methodology is to ensure students are achieving academic success in school. Educating youth is an innate concept and has occurred as a natural discourse long before formal education was established, and long before educational research described best practices for educating youth. Gall, Gall, and Borg (2007) reminded readers that schools were not built on scientific knowledge of teaching, but rather the cultural and family needs for education in a particular community. Education research, as well as psychological development research, has provided useful information to improve educational practices. For example, Vygotsky (1978) theorized a zone of readiness in which children will be the most receptive to learning. This zone was defined by Vygotsky as “the distance between the child’s actual development level as determined by independent problem solving and the higher level of potential development as determined through problem solving skills under adult guidance or in collaboration with more capable peers” (p. 84). Researchers and practitioners have used the information gained from this theory to develop instructional techniques for children.

Statement of Need

A challenge for educators is to scaffold instruction to facilitate the learning process. Researchers consider what they know from child development theories and instructional practices already in place as a means to improve these practices or develop new ones. This study evaluated a program provided to students with mild disabilities (SWMD) within two separate public schools. School 1 was an elementary school located
on the island of Oahu. School 2 was a middle school located on Maui. Within the context of the study, consideration was given to the developmental characteristics of SWMD, instructional practices used to facilitate their learning, and the general goals of the Content Mastery Center (CMC) (Salls, Brooks-Allen, Brace, Breslin, Calloway, Gilbert & Miller, 1986). The CMC is an inclusion model in that students receive initial instruction within the general education classroom and receive support services in the CMC. There is a vast amount of research on inclusion, as well as some research surrounding models of instruction that supports inclusion (Wood, 2006). There is not, however, research published on the effectiveness of services provided within CMCs on student achievement for students with disabilities.

Background

There has been much debate over the past 40 years about the best service delivery models for students with disabilities (Fuchs & Fuchs, 1994). Researchers have reported that many students with disabilities are not progressing in reading past the fourth grade level (Fritschmann, Deshler, & Schumaker, 2007; Lenz & Hughes, 1990). As students reach middle and high school age, their low reading skills inhibit their ability to read the necessary grade-level textbooks (Mastropieri, Scruggs, Spencer, & Fontana, 2003). Consequently, students with low reading levels are sometimes assigned to pull out or resource special education classrooms to receive instruction in content areas. However, the data on pull out special education programs indicates that, for SWMD, these programs are not producing adequate long-term benefits (Rea, McLaughlin, & Walther-Thomas, 2002).
The data surrounding inclusion models of instruction are no more encouraging than the data on pull out programs. A meta-analysis on inclusion research conducted by Salend and Duhaney (1999) presented mixed results. They reported that the success of the inclusion model had more to do with the level of expertise of the teachers and how well the teachers got along with each other than with the model itself. Historically, advocates for inclusion have proposed that students with disabilities should never be excluded from the general education class (Will, 1986). Mastropieri and Scruggs (2002) reported that there is no data to support the elimination of special education classes. While the literature on inclusion provides arguments for and against the philosophy around inclusion, special education laws have been written over the past 50 years to ensure that students with disabilities are not excluded from the general education curriculum (Yell, 1995).

As early as 1954, the importance of equal educational opportunities for all students was recognized in the Brown vs. Board of Education case. The court determined that separate, but equal, education was illegal. During the 1960s and 1970s, the civil rights movement paved the way for the rights of individuals with disabilities. In 1975, PL 94-142, the Education for All Handicapped Children Act, was passed. There were six principles of this law, including (a) Free and Appropriate Public Education (FAPE), (b) Least Restrictive Environment (LRE), (c) Individualized Education Plan (IEP), (d) Non-discriminatory Evaluation, (e) Due Process, and (f) Zero Reject and Child Find.

Case law pursuant to LRE includes Greer v. Rome City School District (1991) and Oberti v. Board of Education (1993). In both cases, it was ruled that there were
service gaps in the continuum of services in the school district in question, and that districts must use whatever resources they had to provide the appropriate program and placement (Yell, 1995). Prior to PL 94-142, children with disabilities were educated separately from their non-disabled peers or completely excluded from attending school (Fuchs & Fuchs, 1994). PL 94-142 provided students with legal rights to a FAPE in the LRE to the maximum extent appropriate (Mastropieri & Scruggs, 2000).

Perhaps the most controversy surrounds the interpretation of the LRE principle. After the enactment of PL 94-142 in the 1970s, there was a focus on providing a continuum of services for children with disabilities. This continuum ranged from placing students with disabilities in full time separate facilities, to placing them in general education classrooms full time. Zigmond and Baker (1996) recommended general education placement for SWMD. By the mid 1980s, the U.S. Department of Education (DOE) cited reports from parents, teachers, and administrators that indicated separate special education programs had mixed results (Will, 1986).

In 1986, Madeline Will initiated a movement to restructure special education. Her intent was to put the responsibility of educating students with disabilities back into the hands of general education. This movement was called the Regular Education Initiative (REI). Will argued that pull out programs tended to lower standards. She felt pull out programs were actual barriers to learning, causing remediation efforts to be fragmented. Will also argued that students who did not qualify for special education services were not able to get the help they needed (Will, 1986). At the time, REI was
considered the most controversial issue being debated by both special educators and
general educators (Fuchs & Fuchs, 1994; Taylor, 1994).

The most radical of the advocates for REI were advocates for children with
mental retardation. Their position was that all students with disabilities, no matter the
severity of the disabling condition, should be included in all general education classes
(Fuchs & Fuchs, 1994). Eventually, REI advocates lost their supporters because these
ideas did not support the LRE intent which was to provide a continuum of placement
options ranging from placement in the general education all day to placement in a special
school.

The concept of full inclusion in general education for all students with disabilities,
everolved as an outgrowth of REI. Advocates for LRE did not promote the REI initiative
(Fuchs & Fuchs, 1994). Instead, advocates of LRE promoted the importance of
developing the most appropriate program and placement for students with disabilities
while meeting the continuum of service requirement of Individuals with Disabilities
Education Act (IDEA). However, the REI was a critical initiative that forced those who
made decisions for students with disabilities to pay careful attention to the most
appropriate LRE for each individual child.

In 1990, PL 94-142 was reauthorized and renamed the Individuals with
Disabilities Education Act (IDEA). During the 1990s, the interpretation of LRE
continued to be debated, and terms such as mainstreaming, integration, full inclusion, and
inclusion were being used. Stainback and Stainback (1992) advocated for the use of the
term full inclusion, as they perceived it to be a more accurate reflection of the need for all
children to be included in the educational and social community of their home school. They described integration as a term that was outdated because it focused on the past exclusion of students from general education.

This issue of LRE has been widely litigated. For example, in the 1993 case, Oberte vs. Board of Education, the Federal Court of Appeals found that a self-contained classroom was not the LRE for a child with Down Syndrome. That finding also determined that school districts needed to consider the general education classroom with supplementary aides and supports before considering a more restrictive setting (Yell, 1995).

In 1989, regarding the Daniel R. R. vs. State Board of Education case, the court determined that appropriate education may not always be available in a general education setting (Yell, 1995). The court concluded that the plaintiff was not provided with the necessary supplemental supports, nor was there any collaboration on planning in regards to his behavior in the classroom. Therefore, the court ordered that the plaintiff be maintained by his neighborhood school in the general education classroom with the necessary supports. The court further ordered that if school districts determined that students with disabilities should not be maintained in the general education classroom, the school district would carry the burden of proof in justifying the segregation. The courts declared that education law required that schools use resources appropriately to ensure students were provided all the supports needed in their neighborhood school and in the general education classrooms (Kids Together Inc., 2007).
The 1997 and 2004 reauthorizations of the IDEA emphasized the need to include students with disabilities in the general education classroom; however, neither of the reauthorizations specifically required full inclusion (Friend & Bursuck, 2006; United States [U.S.] Department of Education, 2006). The law continued to uphold the continuum of services (Cawley, Hayden, Cade, & Baker-Kroczyński, 2002). As with PL 94-142, the emphasis was upon the appropriate LRE for each child.

In 1997, the six principles outlined in PL 94-142 were revised in the IDEA Reauthorization: (a) involvement of general education teachers, (b) evaluation and eligibility, (c) assessment of all students, (d) discipline, (e) transition, (f) paraprofessionals, and (g) mediation (Friend & Bursuck, 2006). The IDEA reauthorization also funded projects that promoted the inclusion of students with special needs in the general education classroom. Soon after the 1997 reauthorization of IDEA, the No Child Left Behind (NCLB) Act of 2002 was signed into law (No Child Left Behind [NCLB], 2002). The intent of this law was to raise academic standards for all students. Schools are held accountable and are federally monitored for the achievement of all students. The responsibility that is now being placed on educators to fulfill the requirements placed on them by the NCLB may put limitations on efforts to comply with the mandates of the IDEA.

The mandated statewide assessment requirement of the IDEA and the implementation of the high student achievement standards set forth by the NCLB present a challenge for schools. The premise of the NCLB is that all students can learn. Schools are obligated to develop curriculum that ensures students with disabilities meet grade-
level content standards and address the individual needs that impact their abilities to meet these standards. Schools must also document that all students can read on grade-level, as determined by standardized tests, or face the consequences of being labeled a failing school. Schools have begun to implement standardized testing in all academic areas, and students with disabilities are required to participate in these assessments (Paige, 2002).

IDEA 2004 still requires schools to provide students with a continuum of placements as a means of providing students with disabilities a FAPE (CEC, 2004). When teams are making placement decisions about a child, they must consider the LRE for that child. This is decided on an individual basis, according to the needs of the child. For one child, the LRE may be full inclusion in all general education classes. For another child, it may mean having a combination of general education and special education pull out classes. For yet another child, it may mean attending classes in a fully self-contained setting. The emphasis is, however, on the requirements for all to achieve mastery of standards. Students must also be provided with a high level of instruction that will enable them to master those standards.

There are a multitude of service delivery models schools may implement in an effort to meet the needs of their students along the LRE continuum (Friend & Bursuck, 2006). In the State of Hawai‘i, a student’s LRE can be defined as (a) general education, (b) general education/special education, (c) special education, (d) public special education school, public alternative placement, private school, or homebound/in hospital (Office of Curriculum, and Student Support [OCISS], Hawai‘i State [H.S.] Department of Education, 2002).
In the Hawai‘i public schools, students who are provided special education services using the resource room model spend most of their day in the general education classroom and a portion of their day in a special education classroom. For the purposes of this paper, resource room will be the term used to describe the time a student is in a special education classroom versus the general education classroom. Typically, students with special needs receive instruction in language arts and math in the resource room because reading and math tend to be their areas of difficulty. Elementary school students with special needs receive remediation instruction in reading and math, and possibly in other content areas, in the resource classroom. For secondary students, the resource model usually means a student receives education in the core subjects of math, social studies, science, and English in special education classrooms with special education teachers.

One disadvantage of the resource room model pertains to the highly qualified criteria under the NCLB. The NCLB act requires that teachers be highly qualified and academically competent in the core academic subjects they are teaching. There are some special education teachers who hold dual licenses in special education, as well as one or more other core content area. However, this dual certification is rare, as special education teacher training is focused on remediation and specific strategy instruction, not the content of core subjects. Highlights of the most current reauthorization of the IDEA 2004, reiterate that the special education teacher must be certified or licensed by their state to teach special education (CEC, 2004). NCLB also requires that special education teachers show mastery in any content they teach. If, however, a special education teacher
 Providing consultation services to the general education teacher, the special education teacher does not have to be highly qualified in the content area for which they are providing consultation (Paige, 2004).

There are several delivery models that provide for full inclusion of students with disabilities in the general education classroom. These models include (a) Co-Teaching/Team Teaching, (b) Consultation/Collaborative Teaching, and (c) Content Mastery Centers. Co-teaching is a model that allows students to receive all instruction in the general education classroom by the special education teacher with the general education teacher providing collaborative instruction. Some studies have reported promising results for SWMD in achieving appropriate grade-level academic standards under this model (CEC, 2004). There are, however, other studies that have questioned the implementation of co-teaching and the impact it has on student achievement (e.g. Klinger, Vaughn, Hughes, Schumm, & Elbaum, 1998; Rea, McLaughlin, & Walther-Thomas; Tapasak & Walther-Thomas, 1999).

The consultant or consultation model provides students with disabilities the opportunity to be fully included in a general education classroom, with a special education teacher to provide indirect services to the students as a consultant to the general education teacher (Friend & Bursuck, 2006; Wood, 2006).

The Council for Exceptional Children (CEC) published an article in which experts were critical of special education teachers acting as co-teachers or consultant teachers (CEC, 2004). Doug Fuchs, a professor at Vanderbilt University, stated his concern that special educators were being used as facilitators rather than experts in their field. He also
stated that special educators should work with “the most difficult to teach and [be] given
the working conditions necessary to promote good instruction” (CEC, 2004, p. 4). The
CMC is a service delivery model that supports Fuchs’ position. The CMC is a
combination of the collaboration and consultation model, coupled with the provision of
direct special education services to SWMD (Salls, Brooks-Allen, Brace, Breslin,
Calloway, Gilbert & Miller, 1986).

Purpose

The resource/consultation model allows students to remain in the general
education classroom for initial instruction in all content areas. The CMC is one method
used to implement the resource/consultation model. Students attend the CMC classroom
for additional support on an as needed basis. Jenkins and Sileo (1994) explained the
CMC (Salls et al., 1986) evolved from a model of instruction developed at the University
of Houston called the Synergestic Model. Riegel & Mathey, 1991 (as cited in Jenkins &
Sileo, 1994, p. 86) described the goal of the Synergistic Model was to create conditions
that encouraged the success of students with learning disabilities in the general education
classroom.

CMC goals are to (a) create conditions that encourage students’ successful
mastery of the general education curriculum, (b) help students learn their strengths and
weaknesses and how to cope with these, (c) aid students in becoming independent
learners, and (d) unite the expertise of classroom educators and consulting teachers to
provide student success. Features of this model include consultation with general
education teachers and direct services to students through re-teaching, study skills,
strategy instruction, and modifications to assignments and tests. The CMC model allows students with disabilities to participate in the instruction, discussions, and activities in the general education classroom prior to receiving support in the CMC classroom. The CMC model also provides students the opportunity to be independent learners by allowing them to determine when they need additional assistance, and then providing them with appropriate modifications.

Schools decide which population of students will be targeted for services provided in the CMCs (Salls et al., 1986). For example, a school might provide funding for a special education teacher and a general education teacher. In that case, both SWMD and students without disabilities would be qualified to access the services provided in the CMC. The CMC teachers and general education teachers would then meet and collaborate on the types of modifications appropriate for the child without jeopardizing the integrity of the curriculum. Collaboration includes due dates of assignments and tests and progress of the student. Collaboration between the CMC staff and the general education staff is important to the success of the program, just as it is in a consultation/collaborative teaching model (Schulte, Osborne, & Kaufman, 1993).

This study reviewed whether the CMCs were able to achieve their overall goal of encouraging each student's successful mastery of the general education curriculum. The purpose of this study was to conduct a program evaluation of two CMCs to determine the impact the programs had on student achievement. This program evaluation determined the effectiveness of this service delivery model in supporting students with disabilities in the general education curriculum as measured by (a) academic performance on the
General Learner Outcomes (GLOs), report card grades, and the Hawai‘i State Assessment (HSA) scores; (b) level of satisfaction with the CMC by students, teacher, and parents; (c) types of modifications to the curriculum; and (d) the amount of time students spent in the CMC. The academic performance of students who accessed the CMC was measured by the scores they obtained on the required HSA and report cards. Surveys were used to measure the level of satisfaction that students, teachers, and parents had with the CMC. Student sign-in sheets were used to measure the amount of time students spent in the CMC, the subject for which they were there, and the type of curricular modifications provided.

The research questions were developed in consideration of the efficacy of improving student achievement. The research questions that guided the study were:

1. How does the CMC model support students with mild disabilities to succeed in the general education curriculum, as measured by students’ report card grades?

2. Are students, parents, teachers, and administrators satisfied with the CMC model?

3. How do students receiving support from the CMC perform on the Hawaii State Assessments (HSA)?

Delimitations

This program evaluation utilized mixed methods of data collection and conformed to the intent of a program evaluation as suggested by Worthen and Sanders (1973).

"Evaluation should be primarily concerned with the effects of the course under study..."
rather than comparisons of courses" (p. 51). Therefore, this study did not undertake a comparison of CMCs to other special education models of instruction.

Pre and post-testing as a means to measure students' achievement was not administered because they were already receiving services within the CMCs at the time the study began. Fitz-Gibbon and Morris (1987) stated that it may not be appropriate to use a pre-test when evaluating treatments that are already being implemented as, "you can't turn back the clock to interject the appropriate pre-tests of a program that is already underway" (p. 43).

Two of the goals of the CMC as envisioned by the originators of the programs were to help students to learn their strengths and weaknesses and how to cope with them and to aid students in becoming independent learners. These goals were not addressed specifically in this study. Identification of learning difficulties, promoting self-awareness and independent learning are objectives of the overall education of students (OCISS, H.S. Department of Education, 2002).

As CMCs have evolved, the centers are utilized as educational enhancing facilities providing learning tools to address difficulties in mastery of classroom subjects. They do not provide self-awareness counseling or teach coping strategies in a general sense. The responsibility for identification of learning problems remains with the general education teacher who recognizes a need and directs the students to the CMC for reinforcement or re-teaching of problem solving methodology. Of course the student will recognize their strengths and weaknesses through awareness of the areas in which they must seek CMC assistance.
The goal of producing independent learners will be achieved as a result of teaching the students problem solving techniques which can be applied to their immediate assignment and utilized independently for future assignments. When a CMC instructor explained a technique used to solve a math problem, during this study, she was teaching the student a technique that could be applied to the same type of math problem that might be given to the student at another time. When a CMC teacher from this study taught students a method for map reading, the teacher also provided students a method they could use for other map reading assignments. The goal of promoting independent learning has not been treated as a separate objective since it is an integral part of the goal of promoting success of SWMD in the general classroom.

Summary

This chapter provided a brief history of the development of legislation that specified education entitlements for SWMD. It also proposed an outline of the objectives of this study and a broad overview of the research design. Chapter Two contains a review of the literature related to the challenges posed by educational legislation and literature that addresses models and educational strategies that these laws have engendered. Chapter Three presents the methodology of the study. The results are summarized in Chapter Four and discussed in the final chapter.
CHAPTER 2. LITERATURE REVIEW

The laws protecting children with disabilities have led to litigation and academic debate as to the most effective means for providing an appropriate education for these children (Yell, 1995). This chapter will review the legal requirements schools must adhere to in providing services to children with disabilities in their Least Restrictive Environment (LRE). This chapter will also review the research conducted with students with mild disabilities (SWMD) and the programs and strategies found to be most effective in ensuring their successful progress in school.

The Individuals with Disabilities Education Improvement Act of 2004 (IDEA) is a federal law that ensures that students with disabilities receive the special education services that their individual needs dictate (U.S. Department of Education, 2006). The IDEA required states to implement the required practices by July 1, 2007. In 2000, Hawai’i adopted the mandated changes outlined in the IDEA, of 1997. Hawai’i has implemented the IDEA of 2004, but has not yet adopted the changes into its Administrative Rules. Hawai’i’s DOE continues to implement Chapter 56, Title 8, Administrative Rules Provision for a “Free and Appropriate Public Education for a Student with a Disability,” hereinafter referred to as Chapter 56 (Office of Curriculum and Instruction and Student Support [OCISS], Hawai’i State [H.S.] Department of Education, 2002).

Chapter 56 outlines the criteria children must meet in order to qualify for special education services under 1 of 14 possible eligibility categories. The 14 categories include
both high and low incidence disabilities. High-incidence disabilities are those disabilities that are most common. These include learning disabilities, speech or language impairments, mild mental retardation, and emotional disturbance. Low-incidence disabilities are less common and include moderate to severe mental retardation, multiple disabilities, hearing impairments, orthopedic impairments, other health impairments, visual impairments, deaf-blindness, autism, traumatic brain injury, and developmental delays (Friend & Bursuck, 2006; Mastropieri & Scruggs, 2000; Wood, 2006).

This program evaluation included services provided to students with mild disabilities (SWMD). Eligibility categories considered under the umbrella of a mild disability include (a) Specific Learning Disability (SLD), (b) Speech/Language Impairment (SLI), (c) Emotional Disturbance (ED), (d) mild Mental Retardation (MR), and (e) Other Health Impaired (OHI) (Gresham & MacMillan, 1997). Table 1 presents the percentages of students with disabilities who are eligible for services under SLD, SLI, ED, MR, and OHI at the national (OCISS, U.S. Department of Education, 2006), and state levels (H.S. Department of Education, 2002).
Table 1.

**National and Hawaii State Disability Eligibility Category by Percentage of Total Special Education Population**

<table>
<thead>
<tr>
<th>Eligibility Category</th>
<th>EI</th>
<th>MR</th>
<th>OHI</th>
<th>SLD</th>
<th>SLI</th>
</tr>
</thead>
<tbody>
<tr>
<td>National</td>
<td>8%</td>
<td>8%</td>
<td>10%</td>
<td>44%</td>
<td>19%</td>
</tr>
<tr>
<td>Hawaii</td>
<td>11%</td>
<td>8%</td>
<td>14%</td>
<td>49%</td>
<td>4%</td>
</tr>
</tbody>
</table>

Since the inception of special education laws, the definitions of each category have changed. Below are the state definitions of each eligibility category as written in Chapter 56 (OCISS, H.S. Department of Education, 2002). Following each definition is a description of the typical characteristics of children who qualify for special education services under each category.

**State Eligibility Definitions and Description in the Research Literature**

**Specific Learning Disability (SLD)**

A specific learning disability is defined as a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations, including such conditions as
perceptual disabilities, such as visual and auditory processing, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. (OCISS, H.S. Department of Education, 2002, Section 8-56-26)

Children with learning disabilities have the cognitive ability to process information, but do not have the strategic skills to do so efficiently. They are unable to organize the information they receive in a way that is useful for learning (Gersten, Fuchs, Williams, & Baker, 2004). These deficits will manifest themselves in the classroom, and children with SLD will often have trouble organizing notes in an efficient manner, backpacks and desks will be in disarray, homework or class work will go unfinished, or finished and not turned in. These students’ inability to organize information efficiently may cause them to have severe difficulties in learning to read, learning to write, or learning basic math operations.

Fuchs, Fuchs, and Compton (2004) reported that 80% of children with learning disabilities have reading disorders. Garnet (1998) reports 6% of school age children have deficits in math that includes those children identified with a learning disability. The inability to read, write, and/or the inability to develop math skills will severely affect their ability to progress in other content areas such as science and social studies. Children with a SLD may also exhibit deficits in other areas such as (a) fine motor skills, (b) spoken language, (c) attention, and (d) social skills. Lack of social skills may also be attributed to low receptive and expressive language skills, which are often found in children who have learning disabilities. Approximately 50% of individuals with learning disabilities have communication challenges in both receptive and expressive skills which
may severely impact the student’s ability to conform to the classroom discourse (Celinska, 2004; Wood, 2006).

**Emotional Disturbance**

A student shall be eligible under the disability category of emotional disturbance if the student exhibits one or more of the following characteristics over a long period of time and to a marked degree that adversely affect the student’s educational performance: (1) An inability to learn that cannot be explained by intellectual, sensory, or health factors, (2) An inability to build or maintain satisfactory interpersonal relationships with peers and teachers, (3) Inappropriate types of behavior or feelings under normal circumstances, (4) A general pervasive mood of unhappiness or depressions, (5) A tendency to develop physical symptoms or fears associated with personal or school problems. (OCISS, H.S. Department of Education, Section 8-56-20)

The category of emotional disturbance encompasses such a broad range of conditions that interpretation is a daunting challenge for educators (Wood, 2006). The Chapter 56 definition could be interpreted broadly to mean that any student of average intelligence who does not achieve average grades because he or she misbehaves is eligible for the benefits of special education services. A particular education plan designed to help the learning process of an emotionally disturbed student may not be appropriate, depending upon the nature of the disturbance.

The difficulties in interpreting this category and distinguishing it from a learning disability can also result in a conflict between general education instructors and those
charged with compliance with laws related to special education. Teachers dealing with students who do not complete homework assignments, are inattentive in class, and are insubordinate will encounter difficulties in differentiating between obduracy and disability. A misapplication of special programs for students who simply make bad choices could have a deleterious effect on a capable student’s future education. The emotional impairment category should only be applied to those students whose behaviors are chronic and extremely serious (Friend & Bursuck, 2006; Mastropieri & Scruggs, 2000).

**Mental Retardation**

A student shall be eligible under the disability category of mental retardation when all of the following conditions are present: (1) the student has sub average general intellectual functioning, as demonstrated by evidence of intellectual functioning two or more standard deviations below the mean; (2) the sub average intellectual functioning exists concurrently with deficits in at least two adaptive skill areas; and (3) the sub average intellectual functioning and deficits in adaptive skill areas were manifested during the development period and adversely affect the student’s educational performance. (OCISS, H.S. Department of Education, Section 8-56-22)

Chapter 56 does not make a distinction between a child with mild retardation or severe retardation. Overall, children identified with mental retardation (MR) may learn at a slower pace than their peers, and at some point, their ability to progress academically will reach a ceiling (Friend & Bursuck, 2006). It should be stated, however, that children
with MR have intellectual abilities that range from individuals who are able to learn academic, social, and adaptive skills that allow them to become independent or semi-independent from caregivers, to those individuals who are incapable of significant academic, social, or adaptive development (Wood, 2006). Many individuals with MR are able to learn to read, write, use math for functional purposes, leave high school and hold jobs. While children with MR may have low intellectual functioning, educators are cautioned not to underestimate their ability to learn skills needed to be contributing members of their community.

*Speech-Language Impairment*

A student shall be eligible under the category of speech-language impairment when a significant problem in the comprehension or production, or both, or an oral communication system, which is not consistent with the student's other developmental or cognitive abilities, or both, adversely affects the student's educational performance and is evident in one or more of the following: (1) Articulation or phonological condition, or both; (2) Voice condition, (3) Fluency condition. (OCISS, H.S. Department of Education, Section 8-56-7)

Some students with speech-language disorders have problems with their receptive language, as well as their expressive language skills. Language delays not only impact a child's ability to interact with peers and adults in developmentally appropriate ways, but also may lead to reading delays and even behavior problems. Behavior problems for children with speech-language delays will decrease as the children develop ways to
communicate their needs either with language or assistive devices (Friend & Bursuck, 2006).

There are also those students who have speech-language disorders for which they receive only speech services for their articulation or fluency needs. Still other students may have speech-language needs in conjunction with other disabilities such as autism, mental retardation, emotional impairment, or hearing impairment. In these cases, the students will qualify under other categories and receive speech services under a related service.

There may be medical causes for a speech-language delay, and collaboration between educators and medical specialists may be required before determining appropriate services regarding speech impairments. Speech therapy could be a source of student frustration if the underlying cause of speech difficulties has not been appropriately identified (Wood, 2006).

Other Health Impairment

A student shall be eligible under the category of other health impairment if both of the following are met: (1) The student has limited strength, vitality or alertness, including a heightened alertness to environmental stimuli, that results in limited alertness with respect to the educational environment, that is due to chronic or acute health problems or a medically fragile condition such as asthma, attention deficit disorder or attention deficit hyperactivity disorder, diabetes, epilepsy, a heart condition, hemophilia, lead poisoning, leukemia, nephritis, rheumatic fever, and sickle cell anemia; and (2) The health impairment adversely affects the
student’s educational performance. (OCISS, H.S. Department of Education, Section 8-56-25)

It is sometimes difficult for educators to distinguish whether off-task behaviors are because a child has attention deficit hyperactivity disorder (ADHD), or because the child has a learning disability and the material is too difficult for the child to maintain focus. That being said, students with ADHD fall under the eligibility category of Other Health Impaired (OHI) if they meet the two conditions stated above. A medical diagnosis of ADHD will not automatically determine that a child is eligible for special education services.

The behaviors children diagnosed with ADHD often exhibit can affect their educational performance. Such off-task behaviors include being easily distracted by activity around them, blurtng out answers, lacking organizational skills, and having difficulty with turn taking or completing tasks. Students with ADHD typically do not have intellectual disabilities. ADHD does not affect a student’s development of executive functions such as working memory, self-directed speech, control of emotion and motivation, and reconstruction, or the ability to generalize learned skills across a variety of settings (Friend & Bursuck, 2006; Wood, 2006). Further, children with ADHD will often respond positively to medical treatment coupled with a well-defined behavior plan that is followed consistently in the home and at school.

The definitions provided by the law and characteristics cited in the literature indicate that educators are challenged to properly define a child’s strengths and needs and should not rely on the labels alone. These categories simply serve to qualify students for
entitlement for special education services. Labels are helpful as long as they are used for diagnostic purposes. Labels become problematic, however, when they no longer serve a diagnostic purpose and become a social category. Labels such as mentally retarded and learning disabled have, over time, been associated with negative perceptions of those who are identified by these labels (Finlay & Lyons, 2005). Few children will exhibit symptoms that fall neatly into a single category (Mastropieri & Scruggs, 2000). Educators must identify combinations of conditions to determine an appropriate program and placement for each student.

Placement

The IDEA (2004) does not require inclusion in general education classrooms for all students with disabilities, but it does require that students with disabilities be educated in their Least Restrictive Environment (LRE), as documented in their individualized education plan (IEP). The law leaves the determination of the extent of inclusion of SWMD in general education classes to the discretion of each child’s IEP team. This team includes (a) an administrator, (b) general education teacher, (c) special education teacher, (d) parents, and (e) related services providers. The language in Chapter 56 mandates inclusion “to the maximum extent appropriate” and allows separation from the regular classroom environment “only when the nature or severity of the disability of a child is such that education in regular classes with the use of supplementary aids and services cannot be achieved satisfactorily” (Section 8-56-44, HSDE, Office of Curriculum and Instruction, 2002). In order to provide the requisite LRE, schools are required to provide an array of education settings to ensure that each student’s needs are met. Chapter 56
emphasizes the responsibility of educators to ensure availability of alternate learning services by anticipating a variety of services they may be required to provide.

The challenge for educators of SWMD is to work with the IEP team to identify each student's individual strengths and needs, and then to make an appropriate program and placement decision for that student. While IDEA, 2004 and Chapter 56 require an array of services in the student’s LRE, there has been much debate as to the interpretation of what that means for students with special needs since the inception of Public Law 94-142. This debate is further fueled by the education laws for all students.

Education laws for all students impact students with special needs. The Goals 2000 education law enacted by President Clinton and the NCLB enacted by President Bush, together with IDEA, have mandated that students with disabilities receive the same high level of instruction as do all students. These laws, and the moral obligation educators have to educate students with disabilities, have spawned much debate and research regarding the philosophy that the most appropriate LRE for students with special needs is to be fully included in the general education classes with their non-disabled peers (Friend & Bursuck, 2006; Mastropieri & Scruggs, 2000; Wood, 2006).

The inclusion concept of educating students with disabilities is a philosophy of educating such students in regular classes with the use of supplementary aids and services. There are several models of instruction, sparked by LRE legislations that support inclusion, that are already being widely implemented in schools (Friend & Bursuck, 2006; Idol, 2006; Keefe & Moore, 2004; Stainback & Stainback, 1992). The research reviewed in this chapter includes studies on inclusion as a philosophy, as well as
three specific inclusion models: (a) Co-Teaching/Team Teaching, (b) Consultation/Collaborative teaching, and (c) Content Mastery Centers (CMC).

In Hawai‘i, students with special needs can spend anywhere from 0% to 100% of their day in the general education classroom. This is true for all students with disabilities, including SWMD, who were the student participants in the current study. Although SWMD may spend 100% of their time in general education classes, they may require teaching assistants or accommodations necessary to maintain an acceptable learning environment for them while in the general education classroom.

Inclusion

Pros and Cons

There are several advantages to including SWMD in general education settings. When SWMD are included, they receive initial instruction from teachers who are highly qualified, as determined by their certification or license to teach in their content area. Typically, general education teachers in elementary schools are certified or licensed to teach across core subject areas, while secondary teachers are usually certified or licensed to teach in a particular content area. Special education teachers, on the other hand, are certified or licensed to implement specialized instruction focusing on certain skills, such as reading, writing, or math. Their expertise is in modifying or adapting instruction already presented. Students with mild disabilities who are included in the general education classroom are not then required to give up other instructional opportunities provided in the general education classroom (Swanson, 2001). These other instructional
opportunities might include small group work with peers who are not disabled or a class
discussion about a particular concept.

The disadvantage is that SWMD who are fully included in the general education
classes may not receive the specialized instruction required to develop their reading
fluency or basic math skills needed for higher level math concepts. The challenge to
educators is to find a model of instruction which will ensure that SWMD receive
appropriate grade-level content area instruction, as well as specialized instruction to meet
their academic needs (Anderson, 2006).

Inevitably, a model of instruction to meet all these needs must include some form
of inclusion of SWMD in the general education classroom. Inclusion of SWMD is
sometimes difficult to implement because of attitudes of administrators, teachers,
students, and parents regarding inclusion. Literature regarding the attitudes of
stakeholders toward inclusion indicates the importance of positive attitudes for successful
implementation of an inclusion model (Hammond & Ingalls, 2003).

Attitudes

Attitudes toward innovative programs are the most significant factors in
determining the success of a program (Hammond & Ingalls, 2003). Survey research is
one way to measure the level of satisfaction a group of individuals may have with a
program. Hammond and Ingalls (2003) conducted a study to determine teachers’ attitudes
toward inclusion. They surveyed elementary school teachers in three southwestern rural
school districts. The survey results indicated that these teachers had negative attitudes
towards the inclusion programs at their schools. Teachers reported the following concerns
Regarding the inclusion programs at their schools: (a) inadequate training of general education teachers, (b) inadequate personnel support, (c) inability to problem solve and work collaboratively, (d) disagreement about the benefit to the students with disabilities who were included, and (e) limited commitment to the program by the teachers.

Cook, Cameron, and Tankersley (2007) surveyed general education teachers to determine their attitudes toward students with disabilities who were included in their classrooms. Survey participants were 50 teachers from six different elementary schools located in northeast Ohio. Teachers were asked to respond to prompts which corresponded to the following areas: (a) attachment, (b) concern, (c) indifference, and (d) rejection. The results of the Cook et al. (2007) study indicated general education teachers were concerned about providing instruction to the SWMD included in their classrooms. This study also, however, indicated that there was an overrepresentation of teachers who reported indifference toward these students. The reasons cited for the indifference were that the general education teachers did not feel knowledgeable about how to teach these students, nor did they feel responsible for their instruction. General education teachers felt it was the responsibility of the special education teachers to provide instruction to students with disabilities.

Idol (2006) undertook a program evaluation of inclusion programs at eight schools. The study included four elementary schools, two middle schools, and two high schools. The purpose of the study was to determine if inclusion was actually being utilized at each of the schools. The first year of the program Idol (2006) she visited the four elementary schools. She conducted 125 interviews. She interviewed five
administrators, four instructional assistants, 79 classroom teachers, 24 special education teachers, and 13 support staff. Only one of the four elementary schools included their students with disabilities in general education classes 100% of the time. When teachers were asked how skilled they thought they were in making adaptations for students with disabilities included in their classes, the teachers in this school felt most strongly that they needed training in providing instruction and making modifications for these students. When the teachers were asked to report their attitudes toward including students with disabilities in their classrooms, teachers from all four elementary schools stated they were willing to try the modifications with the students. They felt that they worked collaboratively with special education teachers, and 36% of the elementary teachers reported that inclusion had a positive impact on student performance on state-wide assessments (Idol, 2006).

During the second year of the study, Idol (2006) interviewed staff at the two middle schools and the two high schools. She interviewed two principals, two interim principals, two assistant principals, 106 general education teachers, 53 special education teachers, and seven instructional assistants. The majority of the educators in all four secondary schools were in favor of teaching students with disabilities in general education classes.

Administrators, at all eight schools, reported that they felt inclusion was beneficial (Idol, 2006). Administrators at all the schools also indicated that some level of inclusion existed in their schools. Their attitudes toward the implementation of inclusion were positive. The administrators at both the elementary level and secondary level
expressed that support to the general education teachers was an important factor to ensure the success of students with disabilities in the general education classroom. Additionally, they stated that the support from the general education teachers is critical to the success of an inclusion model.

**Barriers to Inclusion**

Stakeholders of any inclusion program include the parents of the children involved in the program. York and Tunidor (1995) conducted a parent focus group interview to identify barriers to inclusion, as perceived by parents. Parents identified the following barriers to inclusion: (a) rigid curriculum standards, (b) lack of collaboration time, (c) inappropriateness of inclusion for every student, and (d) lack of resources to implement accommodations and/or modifications.

The rigid curriculum standards that concerned the parents at the time of the survey have now become increasingly stringent with the implementation of standardized testing prompted by the requirements of NCLB (Paige, 2002). General education teachers are under increased pressure to ensure that students exhibit proficiency in reading and math, as measured by mandated examinations. These assessments are used by federal and state governments to determine the level of Annual Yearly Progress (AYP) for a school. Teachers must increase their focus on the education of marginal students without disabilities. This has the potential to exacerbate the lack of collaborative time referenced in the survey conducted by York and Tunidor (1995). The parents' concerns that inclusion is inappropriate for all students suggests that additional accommodations are needed to assist the child with mild disabilities while avoiding classroom disruption.
The York and Tunidor (1995) survey also highlighted the problem of insufficient resources to implement the necessary accommodations or modifications required by inclusion. When budgetary limits impact negatively upon an inclusion program, it is necessary for educators to provide the school administrators with justification for increased funding in order to ensure compliance with the spirit of federal and state legislative mandates (York & Tunidor, 1995). Such justification is measured by student achievement. There are studies in which inclusion programs have measured the academic growth of all students, including those with mild disabilities, which would provide the justification needed to support inclusion models adopted by schools (Cramer & Nevin, 2006; Hammond & Ingalls, 2003; Keefe, Moore, & Duff, 2004; Wilson & Michaels, 2006).

Student Achievement

A study conducted by Tapasak and Walther-Thomas (1999) evaluated a first year inclusion program by measuring self-perceptions of students with and without disabilities regarding their achievement in elementary school inclusive programs. The participants included in the study were students in two kindergarten classes and students from one class in each of the other grades (1st – 5th), for a total of seven classrooms. The cognitive abilities of the children ranged from moderate to mild retardation to those students with high average abilities. There were 30 student participants with disabilities and 80 student participants without disabilities. Measures used for the pre and post testing included (a) The Play Rating Scale (Grades K-2), (b) Revised Class Play (Grades 3-5), (c) The Pictorial Scale of Perceived Compliance (Grades K-2), and (d) The Perceived
Competence Scale for Children (Grades 3-6). Parent/Teacher versions of the Social Skills Rating System (SSRS) were given to measure students' social behaviors. The study did not report each student's actual cognitive ability.

The findings of the Tapsak and Walther-Thomas (1999) study indicated that students with disabilities in grades K-2 and 3-5 had a higher perception of their cognitive abilities within the inclusive setting at post test time than they did at the time of the pre test. Teachers reported that the social skills of students with disabilities improved by the end of the year for students in grades K-2 and 3-5. These are encouraging results, although the study did report some concerns. When measuring the performance of students with disabilities, these students received more Cs and Ds than their non-disabled peers. Typical report card comments from the teachers towards the students with disabilities included references to a lack of organization and/or completion of work. The study did not include a report of any modifications or adaptations provided to the students with disabilities, but merely indicated the students were fully included. The provision of modifications may have made a difference in the students' grades. While Tapasak and Walther-Thomas (1999) reported positive attitudes and self-perceptions for those students with disabilities included in the general education, they questioned the effectiveness of the program and speculated whether the students might be served better if provided with supports while in the general education curriculum. Student achievement, after all is said and done, is the primary measure of success of a program.

Some studies measured the success of an inclusion program by student achievement. For example, Rea, McLaughlin, and Walther-Thomas (2002) examined
students in two schools. One school included children with learning disabilities in the general education classroom. The other school provided a special education resource room to students with learning disabilities. The results indicated that students with learning disabilities (mean IQ scores of 91) who were included in general education classes earned higher grades, achieved higher or comparable scores on standardized tests, and showed increased attendance as compared to those participating in special education resource rooms.

Most interesting about the Rea et al. (2002) study was the examination of the philosophical differences between the two schools. The inclusion school provided IEPs with goals and objectives in line with the grade level curriculum. The expectation from the inclusive school was that the children would meet grade level standards. This was not so at the other school that provided services to students with learning disabilities in a special education room. This study is one example in which high expectations for all students produced positive outcomes for the students with disabilities.

Other studies showed that students may need specialized instruction in different areas to build specific skills in reading, writing, or math in order to increase student achievement. For example, Klinger, Vaughn, Hughes, Schumm, and Elbaum (1998) demonstrated that students with learning disabilities were able to make significant gains in reading, but not math, when fully included. This finding is significant for educators making placement decisions for students in that they may want to investigate the different classroom dynamics in reading and in math.
Reading instruction is typically a more interactive process than math instruction (Hyde, 2007). For example, if a child has difficulty with reading comprehension and must find an answer to a particular question, the child is often given the opportunity to go back to the text to find the answer. The child with reading comprehension problems may hear the information needed within the context of a group discussion about what was read. Learning arithmetic, however, involves the application of rules, memorization, and exercises that result in a series of right or wrong answers. There is limited group interaction and little opportunity for students to improve skills through working with others. The disparate impact of inclusion between reading and math in the Kinger et al. (1998) study suggests that math and reading are not equally suited for inclusion of students with mild disabilities in the general education classroom, unless a teacher is able to differentiate math instruction, which is less amenable to interactive learning. It is important to point out, however, that Hyde (2007) proposed that teachers adapt the same reading and thinking strategies they use to increase students' reading skills to math.

The results of studies discussed in the previous section provide some insight on how inclusion impacts students with disabilities. It appears that student's perceptions of how well they do within the general education classroom increases over time (Tapasak & Walther-Thomas, 1999). This is important to consider when looking at self-esteem and increased social competence for students with disabilities. Student achievement is, however, measured by grades or test scores. The studies indicated that students with disabilities do receive lower grades than those without disabilities (Rea, McLaughlin & Walther-Thomas, 2002). This is an important factor to consider when including students
with disabilities in the general education classroom. Students' IEP teams will want to ensure the proper supports are provided to students with disabilities when included in the general education classroom.

**Program and Placement Decisions**

When making a decision whether to include a child with mild disabilities in general education, one must consider the strengths and needs of each child, as well as the benefits and disadvantages of such inclusion (Dixon-Krauss, 1996). If a child lacks certain prerequisite skills in reading, such as phonemic awareness, phonics, fluency skills, or listening comprehension skills, the child may not be able to benefit from the interactive activities at any level in the general education classrooms. If a child is not able to do basic computational mathematics, the child may not be able to apply these concepts to develop complicated math concepts.

When making program and placement decisions one must consider the needs of the SWMD (Swanson, 2001). It behooves a school to consider models of instruction in which students can receive reading and math instruction to meet their individual needs. This may mean a model of instruction that allows SWMD to be included in the general education classroom for all, or just part, of the day.

**Inclusion Models**

Inclusion is a service delivery concept that has several models a school may consider adopting. These models include (a) Co-Teaching/Team Teaching, (b) Consultation/Collaborative Teaching, and (c) Content Mastery Centers (CMC). Schools
should consider the components of each model and how they might fit the needs of their SWMD.

*Co-Teaching*

Co-teaching, or team teaching, involves both the general education teacher and special education teacher providing instruction in the general education classroom together (Keefe, Moore, & Duff, 2004). There are three different ways in which the team may elect to work: (a) The general education teacher provides initial instruction while the special education teacher walks around the room ensuring students understand the instruction; (b) the special education teacher may take small groups of students to another part of the room; (c) there is an equal distribution of the direct instruction provided by both the general education teacher and special education teacher (Wood, 2006). There is not an abundance of literature in which co-teaching is evaluated, but the few studies that do exist are presented next.

Keefe and Moore (2004), Cramer and Nevin (2006), and Wilson and Michaels (2006) reported similar findings in their studies of co-teaching. Keefe and Moore (2004) conducted semi-structured interviews with eight high school general and special education teachers. The questions elicited answers which concentrated on three major themes: (a) the nature of collaboration, (b) the roles of each teacher, and (c) the outcomes for students and teachers.

Cramer and Nevin (2006) did a mixed methodology analysis of co-teaching assessments in order to study the relationship between general and special education teachers who were co-teaching. The investigators of this study surveyed 46 co-teachers in
22 schools. They also interviewed and observed teachers from two elementary schools and two high schools. The two survey instruments used were the Co-Teacher Relationship Scale (CRS), developed by Noonan, McCormick, and Heck (2003), and the Are We Really Co-Teachers Scale, developed by Villa et al. (2004).

Wilson and Michaels (2006) wanted to know the potential for positive perception of co-teaching to support inclusive schools. To measure students’ satisfaction, they surveyed special education students and general education students from two middle schools and three high schools. The results of the survey indicated that students felt that they received the instruction and support they needed to succeed in the general education class with the co-teaching model.

The results of the studies conducted by Keefe and Moore (2004), Cramer and Nevin (2006), and Wilson and Michaels (2006) revealed that although teachers were concerned about student achievement, they reported positive outcomes for students with disabilities, which they credited to co-teaching. All three studies stressed the need for shared roles and responsibilities and recognized the way in which these responsibilities often will evolve. In one common co-teaching arrangement, the general education teacher is responsible for curriculum content, while the special education teacher is responsible for modifications (Wood, 2006). Collaboration time, however, is needed for this arrangement to work well. The issue stressed by teachers surveyed in these studies is the need for collaboration time (Cramer & Nevin, 2006; Keefe & Moore, 2004; Wilson & Michaels, 2006). During collaboration, roles and responsibilities are established, modifications are agreed upon, and communication regarding specific students occurs.
Without collaboration, teachers in all studies agreed that co-teaching is ineffective (Cramer & Nevin, 2006; Keefe & Moore, 2004; Wilson & Michaels, 2006). It was also stated in each of these studies that co-teaching is most successful when teams are self-selected or matched appropriately using different tools to build teams with similar philosophies.

*Consultation/Collaborative Teaching*

Consultation, or collaborative, teaching is a service delivery model of inclusion that can be delivered in one of two ways. In one model, an experienced special education teacher consults with the teacher who has students with disabilities in the general education classroom. In the other model, a special education teacher consults with the general education teacher and also provides direct services to students with disabilities (Schulte, Osborne, & Kauffman, 1993). Schulte et al. (1993) conducted a study examining these two methods of consultation teaching.

Schulte, Osborne, and Kauffman (1993) compared consultation to the general education teacher as a stand-alone service and consultation to the general education teacher with direct services to the students with special needs. Participants were 11 randomly selected schools. A total of 57 teachers were invited to respond to the survey instruments: (a) 21 in the consultation/direct instruction model, (b) 14 in the consultation only model, and (c) 22 in the control group. Interviews were conducted with a total of 35 teachers: (a) 21 in the consultation/direct instruction model (C/D), and (b) 14 in the consultation only model or consultation indirect model (C/I). No interviews were conducted with the control group, which consisted of those teachers providing services to
students in a special education resource room. Once the teachers were selected and agreed to participate, the teacher approached parents to elicit consent for their child's participation. If a parent agreed, proposed changes to the child's program were brought before the "special education placement committee" (p. 5). If the committee agreed, the child's program and placement was changed to inclusion in the general education classroom with consultation services to the general education teacher under the C/D or C/I model. A total of 29 children with disabilities were selected for the C/I services, and 27 were selected for C/D services.

The results of the Schulte et al. (1993) study indicated that under the consultation/direct model, students made greater overall gains, as measured by the Woodcock-Johnson Test of Achievement, than those students in the C/I model and in the resource room. However, when reading, writing, and math skills were measured separately with criterion referenced tests, students receiving services from both the C/D and C/I model made equal gains as compared to those students in the resource room. These authors also reported that teachers felt the C/D model supported greater overall achievement gains.

The results of the Schulte et al. (1993) study can be used as a reference point for the development of Content Mastery Centers. Schulte et al. demonstrated that the C/D model supported greater achievement gains for students with disabilities. Content Mastery Centers are structured in the same way as the C/D model.
**Content Mastery Center (CMC)**

The CMC is a consultation model which provides consultation to the general education teacher and direct services to the SWMD. The CMC teachers consult with the general education teacher regarding students' individual needs for modifications students will use in the CMC. CMC teachers also provide information to general education teachers regarding instructional strategies that would be useful for all students in the general education classroom. Direct instruction is provided to SWMD within the CMC classroom. It provides students with mild disabilities the opportunity to be included in general education services, provides consultation to the general education teachers, and provides direct services to students in a small group setting (Schulte, Osborne, & Kauffman, 1993). In Hawai‘i, Mrasek (2003) conducted a study that indicated success with this model. Data demonstrated that students were able to maintain satisfactory grades in the general education class curriculum while participating in the CMC on a consistent basis.

While there is no literature that supports CMCs directly, the model is designed such that it most closely resembles the consultative/direct services model described in Schulte et al. (1993). Research conducted by Schulte et al. (1993), therefore, provides a starting point from which to evaluate the CMCs. CMCs provide the strong components of inclusion models, including direct instruction from the teachers licensed and highly qualified to teach content. Students also get direct services from a special education teacher highly qualified to provide modifications and adaptations to the general education curriculum.
The literature surrounding inclusion models provides evidence that students with mild disabilities will make academic gains when included in the general education curriculum (York & Tunidor, 1995). There is little research that clearly states that a particular model of inclusion produces larger gains than the others. The literature does, however, indicate that when stake-holders have a positive attitude toward any model of inclusion, the program has a better chance of succeeding.

It is important for educators to consider not only whether to include or not include students in the general education, but also to consider the instructional strategies used within the placement. Instructional strategies add an important variable to whether or not an inclusion placement will be successful. These instructional strategies are what special educators use to fulfill the legal requirements of IDEA (2004) and Chapter 56, which states that students with disabilities must be provided with “specialized instruction” (Section 8-56-2, HSDE, Office of Curriculum and Instruction, 2002).

**Instructional Techniques**

Instructional techniques are developed and implemented in response to an established developmental theory. Effective techniques found to provide the means to maximize learning for all children, as well as those with disabilities, are those in which a teacher is able to work within a child’s zone of proximal development (Vygotsky, 1978). This means a teacher must find a way to scaffold the learning process between what a child can accomplish with assistance and what the child is able to master independently. Student assessment provides the basis for selection of the most appropriate strategies to use with students (Dixon-Krauss, 1996). Teaching SWMD requires a variety of
instructional techniques tailored to students’ needs (Friend & Bursuck, 2006; National Institute of Child Health and Human Development [NICHD], 2003; Wood, 2006).

Teacher centered and teacher assisted strategies or techniques include (a) lecture, (b) direct instruction, (c) demonstration/recitation, (d) discovery learning, (e) brainstorming, and (f) discussion (Echevarria, Vogt, & Short, 2008). For purposes of this program evaluation, research reviewed will focus on direct instruction of content and different techniques used to provide direct instruction.

**Direct Instruction of Content**

Direct instruction is defined by Friend and Bursuck (2006) as an instructional technique in which the teacher reviews previously taught information, presents and/or models new concepts, provides opportunity for guided practice, provides a student with corrections and feedback, and provides opportunities for independent practice. A teacher may use several strategies to present direct instruction. These strategies might include the use of visual aids, picture cues, charts, and outlines.

Visual aids, picture cues, and charts can include diagrams, models, story maps, or graphic organizers to assist students in organizing information in a way that makes it easier to understand or easier for students to make sense of the information. Braselton and Decker (1994) conducted a study with a class of Braselton’s fifth graders. Braselton sought to teach her students how to use a particular graphic organizer. She used direct instruction to teach students how to use the organizer.

The results of the Braselton and Decker (1994) study indicated that the graphic organizers forced students who were typically impulsive to slow down and resulted in
improved problem solving skills. The graphic organizers were developed in small groups, and students with weak problem solving skills were provided with different ways to approach the problem. Braselton and Decker (1994) stated that this led to improved language expression and the development of improved problem solving skills. It is not clear from this study whether it was the graphic organizer concept or the interaction among the students that was the main influence in improving the problem solving skills of the students.

**Student Centered Learning Strategies**

Student centered strategies allow SWMD to be independent learners. Strategy instruction provides students with mild disabilities the tools to organize information provided to them (Echevarria, Vogt, & Short, 2008; Lawrence-Brown, 2004; Lenz & Hughes, 1990). These strategies include tools for reading comprehension, the use of manipulatives for learning new math concepts, strategies that develop vocabulary, and the use of assistive technology. There are a wide variety of assistive technology devices available for SWMD.

**Assistive technology is the use of devices that enhance the performance of students with disabilities (Edyburn, 2000).** Assistive technology includes both low-tech and high-tech devices (Behrmann, 1994). Low-tech assistance includes, for example, the use of a specialized pencil grip to assist students with writing challenges, or the use of small dry erase boards to provide students the means to practice a concept and to get immediate feedback from the teacher. Low-tech assistance can also include the use of high-lighted textbooks as a means to guide SWMD to the important concepts within text.
Outlines are another tool that could be provided to students for reading and/or writing guides (Schumm & Strickler, 1991). High-tech assistance includes, but is not limited to, the use of computer technology to assist students with their reading and writing needs (Edyburn, 2000).

Reading comprehension strategies. Smith and Friend (1986) examined the use of text structure by students with learning disabilities as a reading comprehension strategy. Text structure is the organization of expository text. The authors provided several examples of typical text structures for expository text, such as enumerative, time, and compare-contrast (Smith & Friend, 1986). This study focused on five specific text structures: (a) description, (b) time, (c) cause-effect, (d) problem-solution, and (e) compare-contrast. Reported results indicated that students in the experimental group used text strategies appropriately and were able to recall content.

Borkowski, Weyhing, and Carr (1988) and Chan (1991) studied the effects of strategy instruction, as well as attribution training. The strategy instruction was used with students with learning disabilities and included instruction on how to use summarization strategies. Skills taught were (a) identification of the main idea, (b) cluster-rehearsal strategies, (c) identification of topic sentences, (d) summary of main idea, and (e) explanatory paragraph summary. All students who received the training made significant gains on post-tests as compared to students who did not receive the training. A follow-up assessment was administered two weeks after the study was completed. Again, students who received attribution training outperformed students who did not receive the training.
Wong, Wong, Perry, and Sawatsky (1986) measured the efficacy of a self-questioning summarization strategy for use by students with a learning disability when reading a social studies textbook. This was a single-subject multiple baseline study that included four boys and one girl who were either already identified as having a learning disability or suspected of having a learning disability. The students in this study were given the Gates-MacGintie Reading tests to measure their vocabulary level and comprehension prior to the training. Not all students scored below grade-level, although all students in the experiment were identified as having trouble with social studies. Results showed that all students increased their ability to recall information from their social studies text. This study also examined whether students modified the strategy once they were using it. Results indicated that students did start to modify their use of the strategy, and in most cases, these modifications made the strategy more useful to them.

Manipulatives. Manipulatives include tangible objects or models, such as cubes, to represent the base-10 number system (Lawrence-Brown, 2004). While there are few studies that support the use of manipulatives for SWMD (Wood, 2006), Cass, Cates, and Smith (2003) studied the effects of manipulative instruction with SWMD when solving for area and perimeter. They selected three high school students with learning disabilities to participate in the study. The materials included three geoboards, rubber bands, a 25-foot measuring tape, and a hand-made model of a dollhouse. The results showed that each time an intervention was used, students showed a marked increase in performance.

Mnemonics. There is a vast amount of research on the use of mnemonics. These studies indicate that mnemonics improve a SWMD’s ability to associate new knowledge
with previously learned information (Mastropieri & Scruggs, 2000). The theoretical foundation for the use of mnemonics, or more specifically the keyword method, is tied to schema theory (Piaget, 2001), which proposes that the activation of a student’s prior knowledge can assist them in learning new information. The keyword is a word and visual image with which a student is familiar. When required to recall new information, the student uses the keyword as a clue to the new information.

Condus, Marshall, and Miller (1986) used a group design to study the effects of the use of the keyword mnemonic strategy on vocabulary acquisition in children with learning disabilities. The keyword method was defined by the authors as a way in which students associate “phonetic and visual imagery components of a word with its definition” (p. 609). The participants of this study were 64 12-year-old students with learning disabilities. Students using the keyword strategy performed well on the follow-up assessments several weeks later.

Konopak, Williams, and Jampole (1991) studied the use of the keyword method for content learning. The authors described the use of the keyword method as the ability to (a) record an unfamiliar task, (b) relate the new fact to a key word with the use of a visual image, and (c) use the keyword and the image to retrieve new facts. This was a descriptive study in which three questions were asked:

1. Do students with learning disabilities acquire the use of the keyword method through instructor modeling and guidance in small group lessons?

2. What keywords and images are generated by students with learning disabilities both individually and collaboratively?
3. Does the keyword method facilitate learning for students with learning disabilities as determined by a post-test task?

Participants were 10 middle school students with learning disabilities drawn from two schools. Based on the differences in the pre and post test scores, the researchers concluded that the keyword method had merit. Interviews the researcher conducted with the students revealed that the students had a positive attitude toward using this method.

Several studies have been conducted to determine whether SWMD could learn to use mnemonics as a tool independently (Fulk, Mastropieri, & Scruggs, 1992; Mastropieri, Scruggs, & Leven, 1985; Scruggs, Mastropieri, McLoone, Levin, & Morrison, 1987). These studies also sought to show that students who used mnemonics would enhance their academic performance. The authors in all the studies concluded that students with learning disabilities can be taught to use mnemonics independently, and that this use will enhance the students' academic performance.

Assistive technology. There are informational articles that discuss the use of low-tech and high-tech assistive devices as a means for SWMD to enhance their performance in the general education curriculum. Devices discussed include the use of devices or study tools that assist teachers and/or students with (a) organization of material, (b) note taking, (c) writing tasks, (d) cognitive tasks, and (e) the modification of material (Behrmann, 1994; Edyburn, 2000). Horton, Boone, and Lovitt (1990) studied the effects of hypertext study guides with students with learning disabilities. Students sat at a computer workstation where passages from their textbook were loaded onto the computers using Hypertext software. For this experiment, the layers (different computer...
screens) included the passage to be read, as well as questions to be answered at the end of each passage. As students worked on answering the questions, they were prompted to get more information depending on whether or not their response was correct. On the fourth day of the study, a 45-item post test was given. Students showed a significant difference between pre and post test scores. One month later, another 45-item test was given, and scores indicated there was a significant amount of retention. Embedded in the 45-item test were 15 questions relating to the textbook passage that were not included in the computer program. There were no significant differences reported for the control items between pre and post testing. The scores on the pre and post tests indicated that students’ reading comprehension increased with the use of Hypertext software. The study further indicated that children retained the information over a month’s time.

Keene and Davey (1987) measured students’ use of a strategy on computer-generated text passages. This study used a group design with 36 male participants and 15 female participants all identified as having a learning disability. Students were assigned to one of the two groups. One group was assigned to read text from a printed page, while the other group was given text to read off the computer screen. Printed text was seven pages long, and the computer text was on seven different screens. Each student was given strategy prompts either on paper or on the computer screen. Cues included (a) looking back, (b) looking ahead, (c) asking themselves questions about the text, (d) saying words to themselves, and (e) noticing underlining. When students used the computer, their reading comprehension did not increase significantly. The study did show that students who read text on the computer used the looking back strategy more often.
Interactive reading strategies are helpful for students who exhibit deficits in reading comprehension, listening comprehension, and study skills (organization skills) because they allow the students to control their learning (Dixon-Krauss, 1996). If they read text from a computer, then answer questions and get them wrong, they get immediate feedback. The meaning of unknown but important vocabulary is at their fingertips. They don’t have to labor through an entire chapter of a textbook they cannot read to find the answer to a question or the meaning of a word.

Summary

Legislation mandating a free and appropriate education in the least restrictive environment for children with disabilities essentially places the burden of interpretation of these laws upon individual school systems (Yell, 1995). Educators face formidable challenges in implementing laws utilizing subjective descriptive language such as “appropriate education” and “least restrictive.” The spirit of these laws, however, seems clear; every child with a disability should participate to the extent possible in the general education environment and should be afforded any necessary accommodations and assistance required to maximize each student’s participation (CEC, 2004). Students with mild disabilities must be included in general education classrooms without creating disruption of instruction, however.

The research reviewed demonstrates a commonality of challenges for educators of SWMD. They must identify the disabilities, determine the appropriate placement of students, and locate and implement the delivery of all appropriate services. The research reviewed regarding attitudes of teachers and parents toward inclusion identifies an
absence of training for general education teachers regarding the needs of SWMD as the major stumbling block to achieving a successful delivery of appropriate services to SWMD. This chapter also presented research regarding the multiple models of inclusion a school might adopt as a means to provide instruction to SWMD. Finally, this chapter reviewed instructional techniques deemed to be successful for SWMD. All the literature and studies presented in this chapter were cited to serve as discussion points for use in this program evaluation of two Content Mastery Centers.
CHAPTER 3. METHODOLOGY

This program evaluation was a case study of two Content Mastery Centers (CMCs). Prior to conducting the program evaluation, a proposal was submitted to the Committee for Human Subjects (CHS) at the University of Hawai'i. The proposal, CHS #13838, met the ethical guidelines set forth by the CHS, and CHS provided a certificate of approval dated September 7, 2005. The proposal was then approved for an additional year on September 11, 2006.

The first part of this chapter includes a description of the methods used to collect the data. This is followed by a description of the participants and their roles in each aspect of the data collection. The final part of this section describes the instrumentation used and the means by which the data were collected, tallied, and evaluated.

Research Design

Grounded theory provides for the use of case studies to build a theory, and then use that data to provide information to stakeholders that may be useful (Gall, Gall, & Borg, 2007). It is important to provide stakeholders with data from multiple sources to provide perspectives from all aspects of the program being evaluated. In order to evaluate multiple sources of data, a mixed methods approach to collect and analyze the data is required. Gall, Gall, and Borg (2007) defined a mixed method as using both quantitative and qualitative means to collect data. Quantitative data provides the means to evaluate the way in which an educational intervention impacts student achievement. Qualitative data allows researchers to evaluate individuals' judgments or opinions of a program (Gall, Gall, & Borg, 1999). The collection of data for this study included both quantitative and
qualitative data. Data were comprised of surveys from stakeholders, interviews with
stakeholders, classroom observations, student attendance in the CMCs, grades, and state
assessment scores.

The collection of both the qualitative and quantitative data allowed for the
triangulation of data. The triangulation of data allows confirmation of one data source
from two other data sources. For example, stakeholders were provided surveys which
requested participants to answer yes, no, or sometimes. The interviews that followed the
surveys gave a sampling of participants who took the survey the opportunity to elaborate
on the same questions presented in the surveys. Classroom observations were conducted
to examine the results of collaboration within the CMCs.

Participants and Sampling Procedures

The CMC at School 1 was chosen because it had been in operation for eight years
and had been the target school in a preliminary study by the researcher (Mrasek, 2003).
The special education teachers working in the CMC were previously provided with
training by a faculty member from the University of Hawai’i at Manoa. School 2 was
located on Maui. The principals and the student services coordinators on Maui were
provided with an overview training regarding the implementation of CMCs. School 2
elected to adopt the model, and a team of special education and general education
teachers was provided with training by a staff member from the University of Hawai’i at
Manoa. The special education teachers at each of the schools were eager to have the
CMC studied to determine if the CMC did actually benefit the students as much as they
thought it did. The stakeholders were identified as the administrators of each of the
schools, the students with mild disabilities (SWMD) who received services from the CMC, the parents of the SWMD, the CMC teachers, and the general education teachers with SWMD who received services from the CMC. Letters were provided to all stakeholders regarding the purpose of the evaluation.

There were many types of sampling procedures to consider when choosing one that worked for this study. The targeted participants were the stakeholders of the CMC in the two schools. They included administrators, teachers, students, and parents. A discussion of participant selection for this study must include a short discussion of the data collection, because the selection of the participants was dependent upon the data collection instruments being used. The scheduling of students receiving services in the CMC was based on student need and was not a set schedule. This made it difficult to plan when students would be available to participate. The researcher decided that the use of convenience sampling was best suited for this research project. Convenience sampling allows a researcher to select participants within a defined population (Gall, Gall, & Borg, 2007). Gall et al. (2006) cautioned researchers in the use of convenience sampling because the data cannot be generalized to other populations with the use of statistics. That being said, however, the goal of this study was to evaluate the efficacy of two individual CMCs. Therefore, the participant sample for each school was drawn from the stakeholders directly involved with the CMC.

Two types of data were collected: (a) data requiring consent, and (b) data not requiring consent. The data that did not require consent were the data the CMCs used as part of the implementation of their program. This included attendance sign-in sheets,
modification sheets, and surveys of parents and students. The participants in this portion of the evaluation were drawn from the population of all students who attended the CMCs and their parents.

The data that required consent were data in which direct contact with students took place or confidential information was to be shared. These data included students' grades, classroom observations, and interviews. It was also necessary to collect data regarding students' eligibility for special education services, such as their cognitive scores, reading scores, and the eligibility category under which they qualified for special education services. Participants in this part of the study were those students whose parents returned the consent forms. Below is a description of the participants in each portion of the study by school. For a visual representation of the participants and the degree to which they participated, the reader is referred to Appendix A.

**School 1**

*Survey teachers.* Teachers selected for the survey were those general education teachers who had students who qualified to receive services from the CMC. At School 1, it was the third, fourth, and fifth grade SWMD who qualified to access the CMC. Therefore, it was the third, fourth, and fifth grade teachers who were selected to complete the survey. Four out of six general education teachers agreed to participate in this survey.

*Survey students.* There were just five students who attended the CMC the week the surveys were distributed. All five students completed and returned the survey. The low attendance in this CMC during this timeframe could be attributed to the time of the year. The last couple of weeks of May are close to the end of the school year and the
number of assignments required by students to be completed could have decreased. Student participants included five students who attended the CMC during one week in May. These students were given a survey to complete.

Survey parents. The five student participants who filled out the student survey were asked to bring the parent survey home, along with a self-addressed stamped envelope with the researcher's address on the envelope. Three parents filled out and returned the survey and thus were participants in this study.

Sign-in sheets. Fourteen students attended the CMC during the second and third quarters. Eleven students attended the CMC during the fourth quarter. All attendees were included in this part of the study because the information elicited showed the frequency of use of the CMC by all students. In addition to attendance data, the sign-in sheets provided information regarding the academic subject for which services were provided and the type of modifications the students received.

Observations, interviews, grades. Five students signed the participation agreement and returned the signed parent consent form at the beginning of the school year. Four students were available to be interviewed; however, there were five student participants during the classroom observations and three students participated in the collection of grades. Hawai‘i State Assessment scores were collected for three students. The other two students left the school prior to the end of the school year. The academic profile describing the five participants included their grade placement, eligibility status, their cognitive ability scores, and their reading levels. However, by the time performance
data were collected, two students had left the school. The profiles are provided in the paragraph below.

**Participant profiles.** Grade level placement, eligibility status, cognitive scores, and reading level data were collected to present the profiles of the five students who received services from the CMC and who provided consent for participation in the study. This information was important in presenting an academic profile of the student participants of this study who received services from the CMCs. The cognitive scores of each student were taken from reports in their confidential files. Some students’ files did not contain all the information required to complete the student profile. This is not unusual, as there are times when a child’s team makes the decision that a cognitive or another specific type of assessment is not necessary to determine eligibility. The cognitive scores were derived from the Wechsler Intelligent Scale for Children – Fourth Edition (WISC-IV). Each student’s file contained a reading score, as measured by the Stanford Diagnostic Reading Test (SDRT). Each student’s file also contained the eligibility criteria under which he or she qualified for special education services.

Students 1 and 5 were eligible for special education under a specific learning disability (SLD). The cognitive scores for each of these students were presented as standard scores and were reported to be in the 80s, which is considered to be in the Low Average range. Their reading scores were below the second or third grade reading level. Student 3 was eligible for special education services under a speech and language impairment (SLI). This student’s cognitive ability was in the Low Average range, and the
student's reading ability was below the third grade level. Profile data was not available for Students 2 and 4. Table 2 provides a list of each of the student participants.

Table 2.

School 1 Participant Profile

<table>
<thead>
<tr>
<th>Student #</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Grade Level</strong></td>
<td>3rd</td>
<td>4th</td>
<td>5th</td>
<td>5th</td>
<td>5th</td>
</tr>
<tr>
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<td>SLD</td>
<td>NA</td>
<td>SLI</td>
<td>NA</td>
<td>SLD</td>
</tr>
<tr>
<td><strong>Cognitive</strong></td>
<td>LA</td>
<td>NA</td>
<td>LA</td>
<td>NA</td>
<td>LA</td>
</tr>
<tr>
<td><strong>Reading</strong></td>
<td>2.7</td>
<td>NA</td>
<td>3.3</td>
<td>NA</td>
<td>3.4</td>
</tr>
</tbody>
</table>

*Note. SLD = specific learning disability; NA = not available; SLI = speech and language impairment; LA = low average.*

School 2

Survey teachers. General education teachers from grades 6, 7, and 8 at School 2 were asked to complete the survey portion of this study. These teachers were selected because each had students who qualified to receive services in the CMC. Nineteen out of 32 general education teachers returned the survey and were participants in this study.

Survey students. Student participants were 28 students who attended the CMC during one week in May and completed the survey. All 28 surveys were completed and returned.
Survey parents. The same 28 students who completed the student survey were asked to bring the parent surveys home then return those surveys to their teachers within that same week. Four parent surveys were returned.

Sign-in sheets. During the second quarter, 107 students accessed the CMC, 103 students in the third quarter, and 104 students accessed the CMC during the fourth quarter. Students were chosen to participate in this portion of the study based on the sign-in sheets provided by the CMC. Sign-in sheets consisted of the student’s name, the date of attendance at the CMC, the subject for which the student received services, and the type of modifications the students needed.

Observations, interviews, grades. There were 22 students who completed and returned both the signed student consent form and the signed parental consent form. Two students left the school soon after consents were signed. Of the 20 students, eligibility status and grades were available for all 20 students. HSA scores were available for 14 students. Six students were observed, and nine students were interviewed.

Participant profiles. For the purposes of this section, the profiles are included for the total possible participants in the data collection portions of this study that required consent (observations, interviews, and subject grades). Twenty-two consent forms were signed; however, participant data were not available for all 22 students. The profiles of each student participant indicated that Students 1, 3, 6, 7, 9, 10, 11, 12, 13, 14, 17, 18, 19, 20, and 21 were eligible for special education under the specific learning disability (SLD) category. The cognitive abilities for Students 7, 9, 10, 13, 14, 18, and 19, as measured by the Wechsler Intelligent Scare for Children – Fourth Edition (WISC-IV), were in the
Average range (90-100). Students 1, 6, 11, 20, and 21 had scores in the Low Average range (80-89), and Student 3 was in the Borderline Range (70-79).

Students 2 and 8 were eligible for special education under the category of an emotional disturbance (ED), and their cognitive levels were in the Low Average (LA) range. Students 4, 15, and 16 were eligible for special education under the category of other health impaired (OHI). The cognitive score for Student 15 was Low Average, and the cognitive score for Student 16 was Borderline (70-79). There was no cognitive score for Student 4.

The majority of the students had reading levels, as measured by the Stanford Diagnostic Reading Test (SDRT), below grade level (2nd/3rd grade). Students 17 and 19 had reading scores at the fifth grade level or above. Table 3 provides a list of each of the student participants.
Table 3.

School 2 Participant Profile

<table>
<thead>
<tr>
<th>Student Number</th>
<th>1</th>
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<th>3</th>
<th>4</th>
<th>5*</th>
<th>6</th>
<th>7</th>
<th>8</th>
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<tbody>
<tr>
<td>Grade</td>
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<td>7th</td>
<td>7th</td>
<td>7th</td>
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<td>7th</td>
</tr>
<tr>
<td>Eligibility</td>
<td>SLD</td>
<td>ED</td>
<td>SLD</td>
<td>OHI</td>
<td>NA</td>
<td>SLD</td>
<td>SLD</td>
<td>ED</td>
<td>SLD</td>
<td>SLD</td>
<td>SLD</td>
</tr>
<tr>
<td>Cognitive</td>
<td>LA</td>
<td>LA</td>
<td>B</td>
<td>NA</td>
<td>NA</td>
<td>LA</td>
<td>A</td>
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<tr>
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<td>2.9</td>
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<td>2.4</td>
</tr>
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</table>

*Left School

School 2 Participant Profile

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<th>Student Number</th>
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<th>14</th>
<th>15</th>
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<th>18</th>
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<tr>
<td>Eligibility</td>
<td>SLD</td>
<td>SLD</td>
<td>SLD</td>
<td>OHI</td>
<td>OHI</td>
<td>SLD</td>
<td>SLD</td>
<td>SLD</td>
<td>SLD</td>
<td>SLD</td>
</tr>
<tr>
<td>Cognitive</td>
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<tr>
<td>Reading</td>
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<td>2.1</td>
<td>7.7</td>
<td>2.5</td>
<td>NA</td>
</tr>
</tbody>
</table>

Note. SLD = specific learning disability; ED = emotional disturbance; OHI = other health impairment; NA = not available; LA = low average range; B = borderline range; A = average range.
Table 3 illustrates 73% of the students within this study were SLD, 9% were ED, and 14% were OHI. The cognitive abilities of the students in School 2 included 32% in the Average range, 36% in the Low Average range, and 14% in the Borderline range. Approximately 14% of the student participants did not have cognitive scores available to report. Reading scores indicated that 82% of the students in this study read below grade level, 5% read above grade level (Student 19), and 9% of the students did not have reading scores available in their file. One student left the school in the middle of the study, which accounts for the additional 4% of scores not reported. The student was included in the table because he agreed to participate and was present for other aspects of the study.

Instrumentation

Each of the CMCs was providing services to students prior to the year this study was conducted. The goals of each CMC were to encourage each student’s successful mastery of the general education curriculum and to unite the expertise of the consulting teachers and general education teachers (Salls, Brooks-Allen, Brace, Breslin, Calloway, & Miller, 1986). Each of the CMCs used particular instruments to measure the goals. These instruments included surveys, sign-in sheets, grades, and HSA data.

Surveys were used by the special education teachers assigned to the CMCs to monitor parents’, students’, and general education teachers’ levels of satisfaction with the CMCs (Fujieki, 1997). Appendices B through D contain the surveys for the students, parents, and general education teachers. Sign-in sheets were used by the special education teachers in the CMCs and measured student attendance and the modifications
implemented for each student (see Appendix E). Each of these tools was used to collect data for this study. The report card grades, as well as the HSA scores, were collected from instruments developed and standardized for use by all schools in Hawai‘i.

**Student Survey**

The student survey was initially developed by a CMC teacher in Hawai‘i in School 1 (Fujieki, 1997), in collaboration with a faculty member from the University of Hawai‘i at Manoa, Department of Special Education, to measure student satisfaction with the CMC following its initial opening in 1997. School 2 adopted this survey for their use when they opened their CMC in the 2003/2004 school year. The survey consisted of nine questions to which the students were asked to circle one of three responses, yes, no, or sometimes. Following the questions, the students were asked to circle words from a list of 14 words to describe how they felt about the services provided by the CMC. This list included seven positive descriptors and seven negative descriptors randomly mixed.

The nine questions on the survey were grouped into three categories (not identified on the survey): (a) satisfaction, (b) benefit, and (c) access to the lab. Students’ overall satisfaction with the lab was addressed by questions 1, 2, and 8. Questions 6 and 7 addressed whether students felt they were doing better because they used the lab, and questions 3, 4, 5, and 9 addressed how students perceived the frequency with which they asked their teachers to go to the CMC, rather than their teachers instructing them to go.

**Teacher Survey**

The same teacher who developed the student survey also developed a teacher survey to assess general education teachers’ satisfaction (Fujieki, 1997). School 2
adopted this survey, as well. The surveys were distributed to general education teachers by placing the surveys in their mailboxes, with a request to return them by a specified date to a designated box. Fifteen questions were grouped into four different categories: (a) collaboration, (b) benefit, (c) use of modifications, and (d) student initiated access to the lab. Questions 1, 2, 3, 5, and 8 addressed how well the general education teachers and the CMC teachers collaborated. Questions 7, 9, 11, 12, and 13 addressed how beneficial general education teachers felt the CMC was to them and their students. Questions 4, 14, and 15 addressed the degree to which general education teachers used any of the modifications in their classrooms with their entire classes. Questions 6 and 10 addressed the general education teachers' perceptions of how often students initiated opportunities to go to the CMC for their modifications.

**Parent Survey**

The parent survey, also developed by the CMC teacher at School 1 (Fujieki, 1997), consisted of six questions. Questions 1, 4, 5, and 6 asked questions relevant to how beneficial they felt the CMC was for their children. Question 2 focused on their satisfaction with the services provided by the CMC. Question 3 focused on how often they felt their child attended the CMC Homework Club.

**Sign-In Sheets and Type of Modifications**

Each CMC site used student sign-in sheets, which were created by CMC teachers at each school (Fujieki, 1997; Riley, 2004). The students were to sign in at the CMC each time they entered, even if they entered multiple times on the same day for different content area subjects. Each student had a sheet with his or her name, the subject for
which CMC services were provided during that particular block of time, and the modifications provided. A frequency count (Gall, Gall, & Borg, 2007) was compiled over the course of three quarters of the 2005/2006 school year.

*Report Cards*

Teachers provided grades on report cards based on progress toward, or attainment of, the Hawai'i Content and Performance Standards. Beginning in the 2004-05 school year, the report card was divided into two parts: (a) the regular report card, and (b) the Status Report for the six General Learner Outcomes (GLOs). These measures were used to analyze the progress that the SWMD were able to make, using the same standards for all students, when accessing the CMC. The Board of Education (BOE), State of Hawai'i Middle Level Education Promotion Policy (2002) states “Students must receive a passing grade and academic unit for each of the core content courses in order to be promoted to the next grade level” (BOE Highlights, 2005, p. 2). An academic unit is another term for a credit. These guidelines were approved by the BOE in 2002, but implementation of the policy was postponed until the 2007/2008 school year. Grades are reported as ordinal data, specifically by the letters A, B, C, D, and F.

*Hawai'i State Assessment Scores (HSA)*

These scores were collected to measure the extent to which students who received services in the CMC were able to meet State proficiency levels in reading and math, as measured by a benchmark by the State. These assessments are standardized and were developed by the State of Hawai'i. The goal of the current study was to evaluate whether
services provided to SWMD had any impact on students’ abilities to meet proficiency levels on the reading and math assessments.

Classroom Observations

Classroom observations were conducted in order to examine the daily operation of each CMC. The intent of the observations was to examine the level of interaction between the students and the teachers within each CMC. The goals of the observations were to observe what teaching techniques, direct instruction or strategy instruction, were used and how the students reacted. An additional purpose was to observe what modifications the students used as indicated on the sign-in sheets. For example, one of the modifications a student might have used, as listed on the sign-in sheets, was the use of white boards. The expectation was that the use of white boards would be observed in the CMCs. Observations were made by taking descriptive field notes of what was happening in the each of the CMC classrooms during 30 to 60 minute blocks of time.

The instruments represented in this portion of the data collection included the notebooks used for field notes, the data entry into the laptop, the printing out of the transcribed sheets, and the physical coding of the information. Coding is a process that researchers use to organize the observation data into similar themes (Creswell, 2003). In order to code the transcribed field notes, the following themes were identified and highlighted with six different colors of highlighters in the transcribed notes when they occurred: (a) direct instruction, (b) strategy instruction, (c) use of modification with assistance, (d) use of modification without assistance, (e) one-to-one assistance, and (f) small group assistance.
Interviews

Interviews with general education teachers, students, parents, and administrators were conducted in an effort to determine their levels of satisfaction with the CMC. In the interviews, participants were asked to elaborate on their survey responses. For example, the teacher survey included the following question: “Do the CMC teachers work collaboratively with you?” On the survey, teachers were to just check yes, no, or sometimes. During the interviews, they were asked these same questions, but asked to elaborate on how they collaborated with the CMC teachers.

Summary

The instruments used for this study included survey instruments and sign-in/modification sheets already formulated and used by the CMCs. The added observations and interviews served to confirm and extend information collected by the surveys and sign-in/modification sheets. Grades and State testing instruments were used as a means to measure student achievement. These are the same measures used by the State to measure student achievement. In order measure the effectiveness of services to SWMD from the CMC, one must use the same measures as the State.

Procedures

General Procedures

The Joint Committee on Standards for Education Evaluation delineated the standards for proper program evaluations (Fitz-Gibbon & Morris, 1987; Gall, Gall, & Borg 2007). The four standards they established were (a) utility, (b) feasibility, (c) propriety, and (d) accuracy (Gall, Gall, & Borg, 2007; Mertens & McLaughlin,
The data collection procedures for this project were designed using these standards. The utility of the project results were clear in that all stakeholders would benefit from knowledge regarding the effectiveness of a CMC program. The project was deemed feasible in that it involved willing participants who acknowledged a commonality of goals in evaluating CMC effectiveness. The issue of propriety was addressed by ensuring that all data collection was performed by this researcher who was mindful of all ethical and legal considerations, as evidenced by the approval of the project by CHS. Letters explaining the scope of the project and the extent to which participants would be involved were sent to all stakeholders. This included administrators, general education teachers, students, special education teachers, and parents. Accuracy in data collection was ensured by precise record keeping of interviews, observations, questionnaires, and relevant literary research. Precise records were maintained of relevant research data. Files were kept separately for each school and reviewed and updated regularly. All statistical calculations were checked for accuracy.

*Role of the Researcher.* This writer was an external evaluator. External evaluators are third party evaluators employed by an outside agency. It is important to note that this researcher was employed by the Department of Education as a special education administrator, which required direct contact with School 2. Consultation to the school regarding special education matters was required on an as needed basis. This writer presented herself as a graduate student from the University of Hawai'i at Manoa, however, and followed the confidentiality rules set forth by the CHS, as required of all graduate students conducting research involving humans. There was no need for
professional interaction at School 1. It was important for the possibility of researcher error or bias to be addressed, given that this writer was the researcher of this program (Gall, Gall, & Borg, 2007). Multiple means of data collection were utilized to minimize researcher bias. Below are the implemented data collection procedures.

**Data Collection Procedures**

*Student surveys.* At each school, teachers gave the students the surveys, and the students completed them independently. Once the students completed the surveys, teachers instructed them to place the surveys in an envelope provided by the researcher. Teachers assured students that the individual surveys would not be shared, just the information gathered from the surveys once they were tallied. As another means to provide students with the confidence that they could answer each question on the survey without their teachers seeing their responses, students were told to not put their names on the surveys. Once collected, the survey responses were tallied and scored.

*Parent surveys.* Students at School 1 were asked to bring the parent survey home to their parents, along with a stamped envelope addressed to the researcher. School 2 is located on island of Maui, and School 1 is located on Oahu. This researcher lives on the island of Maui. The cost of air travel and scheduling factored into the decision to have parents from School 1 mail the survey. School 2 was located on Maui, making the in-person collection of the surveys more feasible. Students at School 2 were asked to bring the survey home to their parents, and once it was filled out, to return it to their teacher in an envelope that was provided. A candy-bar was provided to students who returned the survey. This was the practice used when collecting surveys from students in the CMCs in
previous years, and it was found to be effective in optimizing returns. The remaining candy was left with CMC staff who shared it with the rest of the students the following week. Once collected, the survey responses were tallied and scored.

*Teacher surveys.* CMC teachers at School 1 placed the surveys in each of the general education teachers’ school mailboxes. At school 2, the principal gave permission for the evaluator to put the surveys in each general education teacher’s mailbox. Participants were asked to complete the survey and put it into an envelope marked *survey,* which was located in the front office of each school. Once collected, the survey responses were tallied and scored.

*Interviews.* Teachers and students from each school were interviewed, in addition to an administrator from School 1. Interviews were used to document a sample of teachers’ elaborations and thoughts about the services provided by the CMC. The teachers interviewed were chosen by the CMC teachers at each school. The CMC teachers at School 1 asked all the teachers who had SWMD using the CMC to be interviewed. Two of six teachers volunteered. The CMC teacher at School 2 arranged for five teachers to be interviewed, representative of those who had expressed negative comments about the CMC and those who had voiced positive comments. This author had no prior knowledge of which teachers had voiced negative feelings toward the CMC.

The sample of students chosen for the interviews were (a) those who returned their consent forms, and (b) were available in the lab at the time the evaluator was present. There were four students interviewed from School 1 and nine from School 2. The interview questions were the same as those that were on each of the surveys; however,
each participant was asked to elaborate on his or her answers. For example, general education teachers who reported they collaborated with CMC teachers sometimes on the survey were asked to report the ways in which they collaborated, as well as what the challenges were in trying to collaborate.

Parent interviews were requested through the survey form. There was a written request at the bottom of each parent survey asking if they would agree to be interviewed. If they agreed to be interviewed, they were asked to provide their phone number. There were no parents who agreed to be interviewed.

All interviews were recorded by the use of field notes (in long hand and GREGG shorthand), transcribed, and then coded around the same themes as each of the surveys. Teachers’ verbal responses were tallied in the same manner as the surveys. Comments were summarized and are reported in Chapter 4.

*Grades and attendance sheets.* Grade data, which included GLOs, were collected from the files of students who returned the consent forms. Each student was assigned a number so that there would be no identifying information reported in the study. Attendance sheets were collected on a quarterly basis. The attendance sheets included the subjects for which the students attended the CMC and the modifications provided for those students. The grade and GLO data were collected at the end of the academic year. The students’ assigned identification numbers, subject grades, and the GLO grades were recorded on a table. The number of times a student attended the CMC was tallied and also recorded on a table. The percentages were calculated by taking the total number of students accessing the CMC for a subject, multiplied by 100, and divided by the total
possible times students could have accessed the CMC for a particular subject in a quarter. The instructional strategies/modifications provided to students were recorded on the same sheet as the attendance. Each of these were tallied and recorded as percentages.

*Classroom observations.* The two CMC classrooms were observed four times each. These observations were conducted as a way to provide observable data that the modifications were being provided in the CMCs. Descriptive notes were taken during each observation at each school. Notes were transcribed, coded with a highlighter, and highlighted for specific times when modifications were provided, as well as the type of interaction or instruction that occurred between the teacher and the students.

**Timeline**

The CHS approved the project at the beginning of the second quarter of the 2005-2006 school year. Consent forms were sent home to all students who attended the CMC. In May of 2006, surveys were distributed to students, parents, and teachers. Observations were conducted in February of 2006, the beginning of April 2006, the end of April 2006, and the end of May 2006. Interviews were conducted in May after all surveys were collected. Initial data (Student Diagnostic Reading Test [SDRT], eligibility status), grade data, and HSA data were collected in the fall of 2006. This was the fall following the year of the study. The HSA data was not sent to the schools by the State until October, 2006.
Summary

This chapter included a breakdown of the program design, which was a case study of two separate Content Mastery Centers using a combination of qualitative and quantitative data. The chapter provided a conceptual framework surrounding the different types of data that were collected. The assortment of data served to triangulate the information that was gathered to ensure that all aspects of each program were evaluated and to ensure that outcomes reported by one source of data were confirmed by another source of data.
CHAPTER 4: RESULTS

This section will provide the results obtained for each portion of the study’s data collection. The data was used to evaluate the goals of the CMCs, which were the basis for the research questions of this study. The research questions were as follows:

1. How does the CMC model support SWMD in the general education curriculum as measured by students’ report card grades?
2. Are students, parents, teachers, and administrators satisfied with the CMC model?
3. How do students receiving support from the CMC perform on the Hawaii State Assessment (HSA)?

The results reported will include the demographic data for each school, followed by the results of the data collected to address each of the research questions.

Demographics

The two case studies are of two public schools with different demographics. The ethnic breakdown of the students from each of the schools is quite diverse, which is typical throughout the State of Hawai‘i. The distribution of ethnicities between the two schools studied is also quite different. School 1 is an elementary school on the island of Oahu with a predominately Caucasian and African-American population and includes a large population of military dependents. This school met the Annual Yearly Progress (AYP) benchmarks in reading and math during the year of this study. School 2 is a middle school on the island of Maui with a predominately Filipino and part Hawaiian student population. This school did not meet the AYP benchmarks in reading and math.
during the year of this study. The evaluation of each of the schools identified some similar trends among the CMCs, despite their differences in ethnic breakdown. It should be noted, however, that each program's effectiveness was evaluated independently.

The CMC at School 1 was in operation for eight years prior to the current study. A new principal started at the school during this study (2005/2006) and changed the population of students serviced in the CMC, as well as the way in which the CMC provided services to students. For eight years, the CMC provided services to students with 504 plans, as well as students with disabilities. This was not the case in 2005/2006. The CMC teachers were required to teach morning reading blocks. The philosophy of the new administrator required that students with 504 plans remain in the general education classroom to receive their modifications.

The CMC at School 2 was in its second year of operation during this study. The staff was different than in the previous year. The lead teacher in the CMC worked closely with the previous teacher and understood the CMC model of instruction. Two educational aides and another certified teacher also worked in the CMC at School 2.

The most profound influence on School 1's CMC during the 2005/2006 school year was the absence of both teachers for most of the school year. One teacher's husband became very ill, and she was out for most of the second, third, and some of the fourth quarters of the school year. The other teacher injured her leg, and she was out much of the second and third quarters of the school year. A substitute and a student teacher, in addition to three aides, ran the CMC at School 1.
Research Question 1: Success in the General Education Curriculum

Grades

Overall, students from both School 1 and School 2 experienced academic successes as measured by their report card grades and GLOs. Classroom observations were conducted to examine the instructional practices used with the students in the CMCs that might have supported their success. Sign-in sheets provided information about the amount of time students received support from the CMCs, the academic subject in which the students received the support, and the type of modifications provided to the student. The results of the data collected addressing students' academic success are reported below.

School 1. Report card grades for 3 students were gathered for quarters 2, 3, and 4 of the school year. Five students returned the signed consent forms at the beginning of the school year, however, Student 1 and Student 5 moved out of state prior to the distribution of final report cards. For purposes of this study, only the final grades of each student are reported because the State uses the final grades to determine promotion to the next grade-level. The only grades reported are those in which the student was in a general education class and received support from the CMC. There are six GLOs by which student performance is measured, and those are reported in Table 4. The GLOs are used to measure student progress toward standards-based learning. The content grades are used to measure students' abilities to meet grade-level standards in each of the content areas. Table 5 provides a breakdown of the grades students received in each of the subjects.
Table 4.

*GLO Grades – School 1*

<table>
<thead>
<tr>
<th>GLO</th>
<th>C</th>
<th>U</th>
<th>S</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self Directed Learner</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Community Contributor</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Complex Thinker</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Quality Producer</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Effective Communicator</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Effective and Ethical User of Technology</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

*Note.* GLO = General Learner Outcomes; C = consistently; U = usually; S = sometimes; R = rarely.
Table 5.

*Content Grades – School 1*

<table>
<thead>
<tr>
<th>Content Area</th>
<th>ME</th>
<th>MP</th>
<th>N</th>
<th>U</th>
<th>NA</th>
<th>*SPED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language Arts</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Math</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Science</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Social Studies</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

*Note.* ME = meets with excellence, MP = meets with proficiency, N = approaches proficiency, U = well below proficiency, NA = not applicable at this time.

*SPED.* These are the children who were in the general education classroom for part of the school day, and placed in the special education pull-out classroom for that particular subject.

All the student participants with mild disabilities in School 1 received grades that met proficiency in social studies. Two of the three students met proficiency in science, and one approached proficiency in science. Two of the three students were placed in a special education resource room for language arts and math. The student who received CMC services for those subjects met proficiency in language arts and approached proficiency in math.
School 2. School 2 is a middle school, and grades are reported differently than School 1, which is an elementary school. During the 2005/2006 school year, there were no GLO grades reported for middle school students. Grades for content and elective classes are provided in the form of letter grades.

Grades were monitored for 20 students. Report card grades were gathered for three quarters of the school year. For the purposes of this study, however, only final grades are reported. The grades reported in Table 6 are those in which the student was in a general education class that provided services. The grades the students received from their special education pull-out classes are not reported, as those classroom programs were not being evaluated.

Table 6. Content Grades – School 2

<table>
<thead>
<tr>
<th>Content Area</th>
<th>Grade</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td>F</td>
<td>SPED</td>
</tr>
<tr>
<td>Language Arts</td>
<td>0</td>
<td>2</td>
<td>5</td>
<td>2</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>Math</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>4</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>Science</td>
<td>1</td>
<td>3</td>
<td>7</td>
<td>7</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Social Studies</td>
<td>0</td>
<td>3</td>
<td>8</td>
<td>8</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Basic Practical Arts (BPA)</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>16</td>
</tr>
<tr>
<td>Health</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>16</td>
</tr>
</tbody>
</table>
Eight of the 20 SWMD received an average to above average grade (A, B, or C) in all or some of the content area classes for which they received services in the CMC. Twelve SWMD received a mix of average and low average grades or below average grades (D, F). Of these 12, 2 were the children eligible for services under the emotional disorder category, and 3 were the children who were eligible under the other health impairment category. Five of the nine with a mix of average and below average grades were children with a learning disability. Important information for the CMC teachers, general education teachers, and parents to consider when making decisions about the appropriate placements for these students includes the reading levels of these students, the amount of times they were present in the CMC, and the behaviors typical of their disability.

**Instructional Strategies/Modifications**

The use of instructional methods and modifications was monitored each day for students attending the CMC. The modification check-sheet listed 38 modifications. Embedded in this check-sheet was a place to indicate whether the student received direct instruction from the CMC in a small group or in one-to-one assistance. For the purposes of this study, the modifications on the modification check-sheet fell into either the category of direct instruction or strategy instruction. Swanson (2001) provided a distinction between the two instructional methods. Direct instruction focuses on an isolated skill, while strategy instruction focuses on the learning process. Direct instruction techniques provide students with the opportunity to get information from the teachers, see the teachers model the concept, and then practice until mastery. Strategy
instruction techniques typically include the teacher providing students with an assistive technology device or study tool, which will be referred to as a modification, to assist them in the process of completing the task. Modifications available to students included, but were not limited to, mini white dry erase boards (white boards), math manipulatives, teacher prompts to correct work, and study sheets.

*SCHOOL 1.* Direct instruction (DI) and Strategy Instruction (SI) were provided throughout the school year. The frequency of each modification use was measured by the modifications checked off on the sign-in sheets. Neither was used significantly more than the other. During the second quarter of the school year, DI was provided in small groups or one-to-one 48% of the time. SI was used 52% of the time. The most frequently used modifications included the use of white dry erase boards, the reading of directions, and the provision of a study sheet emphasizing critical information to find in text. During quarter 3, DI was used 52% of the time and SI 48% of the time. The most frequently used modifications were the use of white boards, adjusted time to complete assignments, and the reading of directions. During quarter 4, there was a sizeable difference in the amount of time used for DI and SI. DI was used 45% of the time and SI was used 55% of the time. The most frequently used modifications were the use of white boards, study sheets emphasizing critical information, adjusted time, and the reading of directions. Appendix E is a complete breakdown of the modifications used, the frequency of use, and the percentage used by quarter.

*SCHOOL 2.* Direct instruction was provided to the CMC students 13% of the time during quarter 2, while strategy instruction was used 87%. The modifications most
frequently used during quarter 2 were the reading of instructions, the use of highlighted
text, the use of a study sheet that emphasized critical information, and the modification of
the format of a worksheet. During quarter 3, DI was used 12% of the time and SI 88% of
the time. The modifications most frequently used were the reading of directions, the use
of a study sheet emphasizing critical information, and the modification of the format of
the test. In quarter 4, DI was used 20% of the time and SI 80% of the time. The
modifications used most often included the reading of directions, the use of a study sheet
emphasizing critical information, the use of highlighted text, and the use of computers. In
School 2, many more students used the CMC for a quiet work space. In the second
quarter, 12% of the time was used in the CMC for working independently, 2% for the
third quarter, and 10% for the fourth quarter. Appendix F is a breakdown of each of the
instructional strategies and/or modifications provided to SWMD by quarter.

Observations

Observations allowed the researcher to examine the instructional strategies and
modifications provided to students in the CMC. Observations at the two schools indicated
that instructional techniques reported on the modification sheets were indeed provided to
students in each of the CMCs. This included the use of direct instructional techniques,
strategy instruction, and modifications to the curriculum.

Classroom observation School 1. The observations of School 1 were conducted in
order to better understand the teaching practices used in the CMC and the instructional
modifications used to assist the students. The CMC was observed on three separate days.
The researcher was looking for the use of direct instruction and/or strategy instruction, in
addition to the modifications used for teaching, including the use of visual aids, manipulatives, or assistive technology.

The CMC was on the second floor in a classroom at the end of the hall. Around February, it was moved because one teacher was injured and needed to be in a space that didn’t require a walk up stairs. The initial CMC classroom was set up with a math corner/bulletin board at the front, where three hexagon tables and two horseshoe tables were also placed. Each table fit approximately eight students. On the left side of the classroom, there were three Apple computers, two of which were connected to the internet. On the bulletin board, there were character building words: Mutual Respect, Appreciations, No Put Down, and Attentive Listening.

On the first day, seven students attended the CMC between 10:30 a.m. and 1:40 p.m. On the second day, five students attended the CMC between 10:30 a.m. and 1:00 p.m. On day three, two students attended the CMC between 10:30 a.m. and 12:45 p.m.

During the three days of observation, the teachers utilized a variety of techniques to address the students' difficulties in completing assignments. On three occasions, the teacher re-read directions from assignments to the students using strategy instructional techniques. When re-reading the directions to her students, she was also modeling the way in which to break the directions down. She would read the directions a sentence at a time and allow time for the student to process the first step. The teacher would then read the second part of the directions.

Teachers assessed student work and prompted students to re-do information that was completed incorrectly 18 times. Of these 18 times, 10 involved review of students'
math work through the students' use of a white dry erase board. The other eight times involved the teacher correcting a writing assignment or worksheet, checking off the problems that were wrong, and having the student go back to his or her desk to re-do the incorrect problems. Re-teaching of material occurred twice. In one re-teaching session, students were provided with straws as manipulatives for a science worksheet. On one occasion, a student used a study sheet, which was a multiplication chart. Two students attending the CMC were provided with no modifications or instruction. These students only required a quiet setting in which to complete their work.

Each time the teachers re-read directions to a student or provided a prompt about where to find an answer from their text, they were using strategy instructional techniques. When assessing students' work and asking them to correct it, they included direct instruction as to how to complete the work using a combination of strategy instruction and direct instruction. For example, the teachers assessed students' math work from the white boards the students used to work out the problem prior to copying it onto their paper. One student needed help with a math problem. He showed it to the teacher. The teacher used a different color dry erase marker, explained what part of the problem was wrong, and worked the problem out on the white board. The teacher then watched the student do the next problem to be sure he understood how to complete the rest of the problems. This was an example of direct instruction.

Classroom observation School 2. The CMC was set up in a white trailer at the front of the campus. There were two double seat student desks up against the front wall, along with one student desk and a bookshelf. There were a total of three white boards,
two adjacent to the front wall, and one at the opposite end of the room near the teacher
desks. In the middle of the room, there were four round tables and one large rectangular
table. Against the back wall there was a study carol, a student desk, two desks with
computers, a rolling book cart, another study carol, and a teacher desk. The bulletin
boards provided information about the school’s vision, the “Tribes” agreement, and the
Language Arts standard.

The first observation occurred during a morning block. This researcher was there
from 8:00 a.m. until 11:00 a.m. At 8:55 a.m., school had been in session for more than 40
minutes. The special education teacher stated that they were not as busy in the CMC as
the previous year because of the longer class periods. The prior year classes were 35
minutes long. This school year, they were 84 minutes long. During this session, the
teachers re-read the directions to the one student who came to the CMC, and he was able
to complete the assignment independently.

The second observation was conducted between 10:00 a.m. and 12:30 p.m. At
10:15, one student attended the CMC and was provided a study sheet to assist him in
preparing for a science test. The third observation also was conducted from 10:00 a.m.
until 12:30 p.m., but was on a different day of the week. Four students attended the CMC
during that time frame. One student needed a quiet place to take a test. Three other
students participated in small group instruction and a discussion of a geography project.
During this activity, the teacher provided instruction to the three students on a geography
assignment they brought with them to the CMC. On their maps, students were to locate
specific places listed on the worksheet. The teacher instructed the students on the use of
the latitudinal and longitudinal grid lines as a means to locate a specific site. The teacher then modeled for the students how to do this. He guided them through a practice problem, and then allowed them the opportunity to work independently while periodically checking on their progress. This was an example of a direct instruction strategy.

During the classroom observations at School 1 students were provided (a) direction instruction 11% of the time, (b) strategy instruction 11% of the time, (c) modifications with assistance 61% of the time, (d) modifications without assistance 6% of the time, and (e) just needed a quiet place to work 11% of the time. Small Group instruction and one-to-one instruction overlapped with all instruction discussed above. Of the assistance observed 89% was in a small group 11% of the instruction observed was one-to-one.

During the classroom observations at School 2 students were provided (a) direct instruction 50% of the time, (b) strategy instruction 17% of the time, (c) modifications with assistance 16% of the time, and (d) 17% just needed a quiet place to work. There were no modifications without assistance observed. There was no one-to-one assistance observed at School 2. Small Group instruction overlapped with all instruction discussed above, except for the students who just needed a quiet place to work. Observations allowed the researcher to examine the instructional strategies and modifications provided to students in the CMC. Observations indicated that both direct instruction and strategy instruction were provided to students in each of the two school's CMCs.
**CMC Attendance**

*School 1.* Special education students in Grades 3 through 5 qualified to access the CMC. Students went to the CMC for services in reading (Rdg), math (MA), social studies (SS), language arts (LA), science (Sci), and grammar and writing (GW). Student attendance in the CMC was monitored for three quarters of the school year. Throughout these three quarters, 14 students attended the CMC at least 10 times per quarter. The percentage breakdown of students attending the CMC by quarter and subject is presented in Table 7. For example, during quarter 2, 43% of the visits to the CMC were for reading.

<table>
<thead>
<tr>
<th>Category</th>
<th>Rdg</th>
<th>MA</th>
<th>SS</th>
<th>LA</th>
<th>Sci</th>
<th>GW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qtr. 2</td>
<td>43%</td>
<td>48%</td>
<td>4%</td>
<td>0.5%</td>
<td>0.5%</td>
<td>4%</td>
</tr>
<tr>
<td>Qtr. 3</td>
<td>30%</td>
<td>36%</td>
<td>15%</td>
<td>0.0%</td>
<td>13%</td>
<td>6%</td>
</tr>
<tr>
<td>Qtr. 4</td>
<td>15%</td>
<td>49%</td>
<td>14%</td>
<td>0.0%</td>
<td>9%</td>
<td>13%</td>
</tr>
</tbody>
</table>

*Note.* Rdg = reading; MA = math; SS = social studies; LA = language arts; Sci = science; GW = grammar and writing.

*School 2.* Special education students included in any general education class in Grades 6-8 qualified to access the CMC. Student access of the CMC was monitored for three quarters of the school year. During the second, third, and fourth quarters, 127 students accessed the CMC at least one time. Fifty-two students accessed the CMC at
least 10 times during at least one quarter. The percentage breakdown of students accessing the CMC by quarter and subject is presented in Table 8. During the second quarter, 107 students accessed the CMC. Students could access the CMC for a particular subject for 36 out of the 44 student days in the quarter. During the third quarter, 103 students accessed the CMC. There were 42 student days and 32 days a student could access the CMC for a particular subject. During the fourth quarter, 104 students accessed the CMC. There were 46 student days and 36 days a student could access the CMC for a particular subject. School 2 had block scheduling so there were days within the week a student was not scheduled to attend a general education class that also required attendance in the CMC.

Table 8.

*CMC Attendance – School 2*

<table>
<thead>
<tr>
<th>Category</th>
<th>Sci</th>
<th>SS</th>
<th>MA</th>
<th>LA</th>
<th>Rdg</th>
<th>BPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qtr. 2</td>
<td>27%</td>
<td>60%</td>
<td>4%</td>
<td>6%</td>
<td>2%</td>
<td>1%</td>
</tr>
<tr>
<td>Qtr. 3</td>
<td>33%</td>
<td>51%</td>
<td>4%</td>
<td>9%</td>
<td>3%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Qtr. 4</td>
<td>30%</td>
<td>52%</td>
<td>9%</td>
<td>5%</td>
<td>3%</td>
<td>1%</td>
</tr>
</tbody>
</table>

*Note.* Sci = science; SS = social studies; MA = math; LA = language arts; Rdg = reading; BPA = Basic Practical Arts.
Research Question 2: Program Satisfaction

Stakeholders' satisfaction with a program is one way to measure the success of the program (Hammon & Ingals, 2003). In this section, the results of the surveys and interviews of the students, parents, teachers, and administrators are presented. Information obtained from the surveys will provide insight as to the strengths of the CMC programs, as well as any barriers to its success, as identified by the stakeholders. The surveys indicated the teachers and students from both schools were satisfied with the CMC model. The survey responses from parents at both schools were too low to determine their level of satisfaction. The interviews with students and teachers indicated that students and teachers were satisfied with the CMCs. The interviews also revealed, however, that even though teachers were satisfied with the CMC model, they had some concerns about the time allotted to collaborate appropriately. The results of the data which addressed program satisfaction are described below.

School 1

Survey teachers. There were six surveys distributed to the third, fourth, and fifth grade general education teachers at this school. These teachers represented those who had students receiving services from the CMC. Four (N = 4) surveys were returned, which represents a 66.7% return rate. Most teachers responded that they were satisfied with the collaboration with the special education teachers, and that they thought the CMC was beneficial to their SWMD. Table 9 illustrates the breakdown of how the teachers responded to the categories within the survey.
Table 9.

*Satisfaction Survey – Teachers, School 1*

<table>
<thead>
<tr>
<th>Category</th>
<th>Yes</th>
<th>No</th>
<th>Sometimes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collaboration</td>
<td>68%</td>
<td>19%</td>
<td>13%</td>
</tr>
<tr>
<td>Beneficial</td>
<td>61%</td>
<td>17%</td>
<td>22%</td>
</tr>
<tr>
<td>Use of Modifications</td>
<td>67%</td>
<td>25%</td>
<td>8%</td>
</tr>
<tr>
<td>Access</td>
<td>0.0%</td>
<td>50%</td>
<td>50%</td>
</tr>
</tbody>
</table>

*Survey students.* There were five surveys distributed to students who attended the CMC over a three day period in May. All five (N=5) of the surveys were returned, for a 100% return rate. The CMC teacher distributed the surveys and had the students return them in an envelope provided by the researcher. A majority of the students reported they were satisfied with the services they received from the CMC. Table 10 illustrates the breakdown of the student responses by category.
Table 10.

Satisfaction Survey – Students, School 1

<table>
<thead>
<tr>
<th>Category</th>
<th>Response</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td>Sometimes</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>100%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Benefit</td>
<td>80%</td>
<td>0.0%</td>
<td>20%</td>
</tr>
<tr>
<td>Access*</td>
<td>30%</td>
<td>40%</td>
<td>25%</td>
</tr>
</tbody>
</table>

*One response was left blank which equals the 5% not reported for this category.

There were 14 descriptive words students could circle to describe how they felt about the CMC services they received. A total of three of the words were circled by the students. These words were (a) happy, (b) boring, and (c) helpful. Of the words chosen, happy was chosen 50% of the time, boring 25%, and helpful 25%. Two students did not complete this section of the survey.

Survey parents. Five parent surveys were sent home with the students, along with postage paid return envelopes for parents to mail the complete survey back to the researcher. Three parents mailed in the surveys (N=3), which is a 60% return rate.

Questions 1, 4, 5, and 6 measured how parents felt their children benefited from the CMC. Question 2 measured parents' overall satisfaction with the CMC. Question 3
measured whether their child had accessed the after-school Homework Club. Table 11 presents a breakdown of the responses by category.

Table 11.

*Satisfaction Survey – Parents, School 1*

<table>
<thead>
<tr>
<th>Category</th>
<th>Yes</th>
<th>No</th>
<th>Sometimes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benefit</td>
<td>100%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>100%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Access to HW Club</td>
<td>0.0%</td>
<td>100%</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

Interviews with teachers and students were conducted as a follow up to the surveys. The same questions were posed in the interviews as were presented on the survey, however, participants were given the opportunity to expand on their answers. Students were chosen because of their availability; they were in the CMC on the day interviews were conducted.

*Interview teachers.* Two third grade teachers agreed to be interviewed. Both teachers believed the benefit of the CMC for a child depends a great deal on who is running the lab. A discussion surrounded the history of the CMC, as well as the fact that for this particular year, both the CMC teachers were out for long periods of time due to illnesses. Both teachers stated that they gave projects to the CMC teachers ahead of time,
but not the daily work. Communication was reported as a challenge. One teacher stated that she works more closely with the “pull-out” kids, those kids who are in a special education class, for a particular subject. Both teachers agreed that students would have a hard time if the CMC was not running.

Interview students. Four students were interviewed. One student was interviewed individually, and the following class period, three students were interviewed as a group. The one student interviewed was also a student whose grades were monitored (Student 1). Student 1 reported that he came to the CMC for math, reading, and spelling. He thought that the CMC helped him, and he believed that he was doing better. He reported happily that he usually earned MPs. He guided the researcher to the progress chart on the wall in which an ice cream cone with different numbers of ice cream scoops represented grades. He reported that he usually earned two scoops, which is equal to Meets Proficiency (MP).

Three other boys were interviewed as a group. One boy stated that most of his help was on tests. The second boy reported that he loved the CMC because he got to stay in the other class and learn about volcanoes erupting, and then got to make one. He reported that his volcano erupted outside the classroom, which was disappointing to him. He did, however, elaborate and say he was very happy to be a part of the class. The three students as a group agreed that they liked coming to the CMC. They felt the CMC helped them to do better.

Interview administrator. The researcher decided to interview the administrator of School 1 because she was not the administrator who was involved with the original
implementation of the CMC. The questions developed for this interview followed the
same themes as the surveys. Questions were (a) Do you feel the general education teacher
and CMC teachers collaborate?; (b) How do you explain to the parents the function of the
CMC?; (c) What outcomes for SWMD who attend the CMC do you hope for?; and (d)
Do you think the CMC is successful in maintaining students in the general education
classroom and meeting content standards in core areas? The interview appointment was
made over the phone a week prior to the actual date of the interview.

The administrator responded favorably to all questions posed. She stated that the
teachers collaborated regarding student progress and modified services at the
individualized education plan (IEP) meetings as needed. She reported that the teachers
explained the CMC services to parents at these meetings, as well as sent letters home to
parents explaining the services provided to students within the CMC. The administrator
stated that SWMD were able to feel like a part of the general education classroom
community because they were able to stay in the classroom for group work. Finally, she
maintained that, without a doubt, the CMC successfully assisted SWMD in meeting
content standards in the core areas.

School 2

Survey teachers. Thirty-two surveys were handed out at School 2. Nineteen (N =
19) of the teacher surveys were returned for a 59% return rate. Most teachers responded
that they were satisfied with the collaboration with the special education teachers and that
they thought the CMC was beneficial to their SWMD. See Table 12 for a breakdown of
the results.
Table 12.

*Satisfaction Survey – Teachers, School 2*

<table>
<thead>
<tr>
<th>Category</th>
<th>Yes</th>
<th>No</th>
<th>Sometimes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collaboration</td>
<td>45%</td>
<td>18%</td>
<td>36%</td>
</tr>
<tr>
<td>Beneficial</td>
<td>80%</td>
<td>7%</td>
<td>12%</td>
</tr>
<tr>
<td>Use of Modifications</td>
<td>59%</td>
<td>28%</td>
<td>12%</td>
</tr>
<tr>
<td>Access</td>
<td>18%</td>
<td>58%</td>
<td>21%</td>
</tr>
</tbody>
</table>

Survey students. A total of 28 surveys were distributed to students who attended the CMC over a three day period in May. One hundred percent of the surveys were returned. The CMC teacher distributed the surveys and had the students return them in an envelope provided by the researcher. Table 13 presents a breakdown of the student responses by category.
Table 13.

*Satisfaction Survey – Students, School 2*

<table>
<thead>
<tr>
<th>Category</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>81%</td>
</tr>
<tr>
<td>Benefit</td>
<td>59%</td>
</tr>
<tr>
<td>Access to HW Club</td>
<td>39%</td>
</tr>
</tbody>
</table>

There were 14 descriptive words students could circle to describe how they felt about the CMC services they received. Positive responses were chosen 86% of the time, while negative responses were chosen 14% of the time.

*Survey parents.* There were 28 parent surveys sent home with the students. Four (N = 4) parent surveys were returned for a 14% response rate. Table 14 presents the breakdown of the response by percentages. The response rate was not sufficient to draw any conclusions. Possible reasons for this low response rate will be considered in the discussion section in Chapter 5.
Table 14.

Satisfaction Survey – Parents, School 2

<table>
<thead>
<tr>
<th>Category</th>
<th>Yes</th>
<th>No</th>
<th>Sometimes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benefit</td>
<td>88%</td>
<td>13%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>100%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Access</td>
<td>75%</td>
<td>25%</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

Interviews teachers. Two sixth grade teachers and three eighth grade teachers were interviewed. The CMC teacher chose the teachers to be interviewed. Her objective was to provide a cross section of those teachers who used the CMC effectively and those who did not. The questions asked mirrored the questions on the Teacher Survey. Overall, all teachers were glad the CMC was available and felt that the students would struggle a great deal more if there was no CMC. All of the teachers expressed some frustration at the amount of collaboration between themselves and the CMC teachers. The general education teachers felt that they had no input on the accommodations given to students, and they expressed concern that some modifications may exacerbate a student’s problem with completing assignments. They reported how strongly they felt about a student’s requirement to meet standards. Both sixth grade teachers and eighth grade teachers
reported giving the CMC teachers their work and tests ahead of time. One sixth grade teacher reported she used, within her regular class, some of the study guides the CMC teachers used for the special education students.

*Interviews students.* One sixth grader, two seventh graders, and five eighth graders were interviewed. All students except for one seventh grader felt they were doing better because they were able to go to the CMC. The seventh grader who did not feel he was doing better reported that he did not do his homework, and that was why his grades were not getting better. All students reported they enjoyed going to the CMC. One student reported that he liked going to the CMC because “it was spaced out better – better to read.” Another student reported that the teachers in the CMC explained things better, and that they changed the tests to multiple-choice, which made the tests easier.

**Research Question 3: Performance on Hawaii State Assessments**

The HSA scores reported in the following section are the students’ proficiency levels in Reading and Math. Students received one of the following scores in each area, Well Below Proficiency (WB), Approaches (AP), Meets (M), or Exceeds (E). A description of the students’ HSA scores for each school is presented in the next section. The scores collected from students at both schools indicate that support from the CMC did not impact the ability of SWMD to meet proficiency in the State reading and math assessment.

**School 1**

School 1 met the Annual Yearly Progress (AYP) benchmark during the year of this study. However, most of the SWMD did not meet proficiency on HSA in reading or
math. HSA scores were available for Students 1, 2, 3, 4, and 5. Student 1 was the only student who scored as approaching proficiency (A) in reading and math. Students 2-4 all scored well below (WB) proficiency in both reading and math. Of the student participants whose HSA scores were available for review, 20% were able to score in the approaching proficiency range. There were no students who met proficiency.

School 2

School 2 did not meet the AYP benchmarks during the year of this study. HSA scores were available for Students 1, 2, 7, 9, 10, 13, 14, and 17. Forty percent (40%) of the students who were participants in the collection of grade data had HSA scores available for review. Students 1, 2, and 7 approached proficiency in reading. All students scored well below proficiency in math. Of the students whose HSA scores were available, 8% scored as approaching proficiency in reading. There were no students who met proficiency in reading and math.

Summary

This chapter reported the results of the CMC data. The sections were broken down to directly correspond to the research questions. Chapter 5 is a discussion of the results, how the results reflect the goals of the CMCs, the implications presented by the data, correlations to the literature on inclusion, limitations of the study, and recommendations for future research.
CHAPTER 5: DISCUSSION

This program evaluation was designed to assess the effectiveness of CMCs in assisting students with mild disabilities (SWMD) to meet the requirements of the general education curriculum. The goals of the CMCs were to (a) create conditions that encourage students' successful mastery of the general education curriculum, (b) help students learn their strengths and weaknesses and how to cope with these, (c) aid students in becoming independent learners, and (d) unite the expertise of classroom educators and consulting teachers to provide student success. It was possible to measure SWMD success in the general classroom through quantitative analysis since data could be collected to establish the level of student achievement. In the sense that content teaching was initiated by the general education teachers and conducted by CMC instructors, the results reflected a joint effort. However, since no formal collaborative procedures had been established, no measurable data such as frequency of meetings or memorandums could be accumulated. The lack of formal collaborative procedures underscores the need for increased teacher interaction in order to realize the goal of uniting the expertise of general and CMC teachers. The research, interviews, surveys and observation evidenced a general recognition of the importance of furthering this goal and has prompted the suggestions for further research.

Measures of effectiveness included a review of academic performance on the General Learner Outcomes (GLOs) and the Hawai'i State Assessments (HSA). Classroom observations, surveys, and interviews provided insights regarding participant satisfaction with CMCs. In determining the effectiveness of the CMCs, case study
information was considered regarding the usage of available assistive technology and the extent to which the CMC services were utilized.

Preliminary research for this evaluation of Content Mastery Centers (CMCs) concerned the history and legislation in regard to the education of SWMD. The general language of these laws placed the responsibility for interpretation on educators, who must determine requirements and methodology for compliance. Although the wording of both federal and state legislation may be vague, the spirit of the law clearly expresses the intention that every SWMD participate in the general classroom experience to the maximum extent possible (IDEA, 2004). The purpose of this study was to determine if CMCs are effective in providing sufficient supplementary support to enable SWMD students to maximize their learning potentials in the general education classroom.

In order for a student with a mild disability to be successfully assimilated into a general classroom, some arrangements must be made to address their particular learning difficulties (Friend & Bursuck; Swanson, 2001; Wood, 2006). Ideally, these arrangements would provide overall academic improvement and participant satisfaction in the least restrictive environment (LRE). Several authors reported the results of research conducted on several models of inclusion (e.g., Cramer & Nevin, 2006; Keefe, Moore, & Duff, 2004; Shulte, Osborne, & Kaufman, 1992; Wilson & Michaels, 2006). The results of these studies did not demonstrate that all SWMD who availed themselves of services improved in all subjects, or that all stakeholders were satisfied with every aspect of the program. The information obtained from the results of the current study is resonant of the literature. Teacher and student surveys indicated that both groups are satisfied with the
services provided by the CMC. Teacher interviews, however, indicated frustration with the lack of formal collaboration time provided for them to work with the CMC teachers.

Creating Conditions that Encourage Successful Mastery of the General education Curriculum

The CMCs in this study clearly have created the conditions that encourage students’ successful mastery of the general education curriculum. The student brings problematic assignments received in the general education classroom to the CMC to receive assistance. There, the CMC teacher identifies the barriers to the successful completion of an assignment that the student is experiencing. For example, in several instances, the root of a learning problem the student brought to the CMC was a failure to understand directions. The teacher demonstrated a way to breakdown the directions to achieve clarity. This enabled the students to follow the direction for the specific assignment and learn a method to breakdown the directions which the student might learn to apply to assignments independently.

The GLO data and academic grades in the case studies indicated that SWMD can successfully satisfy the requirements of a general education curriculum with the learning support from a CMC. Although all participants had average to below average cognitive abilities, they were all well below grade level in reading. Students’ inability to read at grade-level will usually impact their performance in other content areas. When examining the student participants’ cognitive abilities, one would predict that the students would have the skills necessary to grasp the concepts of what they are learning, provided the
information was presented in forms other than reading (Fuchs & Compton, 2004; Rea, McLaughlin, & Walther-Thomas, 2002).

The grades and the GLOs collected for this study indicated that over half the children receiving support services from the CMCs were able to earn average to above average grades. At the middle school level, 40% earned average grades, 45% earned a mix of average and below average grades, and 15% received below average grades. Of the students who received below average grades, 67% were ED and 33% were Other Health Impaired (OHI). Children with ED or OHI often exhibit behaviors that impact their ability to succeed in the classroom. It may have been more appropriate for these children to have a behavior plan that was followed in the general education classroom along with counseling services. The CMCs are designed to provide academic modification and to manage minor misbehaviors within the classroom. Students with behavior disorders, or students who display non-compliant and impulsive behaviors, require a model in which their behaviors are shaped to establish appropriate interpersonal social-behavior competencies (Gresham & MacMillan, 1997).

Attendance data revealed that students who attended the CMC and continued to do so, on a regular basis, were able to receive average to above average grades. Those students whose grades remained below average did not spend as much time in the CMC as those students who did well. Those students who did not perform satisfactorily were placed in special education resource rooms for more structured specialized instruction. This information substantiates the literature articulating the need for an array of services
to be available to meet all the individual needs of SWMD (CEC, 2004; Fuchs & Fuchs, 1994).

The grade data, modification data, and attendance data collected and evaluated for this study indicates that the CMCs were able to create conditions that encourage successful mastery of the curriculum. HSA data did not yield the same positive results. However, when looking at the HSA data for the two schools, the results of this study are reflective of the HSA data for the general education students.

Students’ scores from both schools indicated they were not able to meet proficiency in reading or math. School 1 met AYP the year this study was conducted. The HSA scores for the special education population were not reported because the special education population at School 1 was too small to activate this particular cell. School 2 did not meet the AYP benchmarks. This means there were not a sufficient percentage of students within the entire school population who met proficiency. The fact that the students with disabilities at School 2 did not meet HSA proficiency is consistent with the results of most students in the school. While the CMC was successful in assisting SWMD to meet standards within the classroom curriculum, it did not enable them to meet proficiency in specific skills such as reading and math as measured by the HSA assessments.

Uniting the Expertise of the Consulting Teachers and General Education Teachers

The goal of the CMCs to unite the classroom teachers and consulting teachers is one that is difficult to achieve and one that has not been completely satisfied in the
programs studied here. Although the teacher surveys indicated that the general education teachers collaborated with the consulting teachers, interviews with the general education teachers indicated the goal of creating a strong united effort has not been realized. Collaboration was informal and when time permitted. Successful collaboration can be enhanced through administrative changes which would provide time for thorough collaborative meetings. This study investigated the overall satisfaction of stakeholders with the CMCs as one way to examine the relationship between the general education teacher and the consulting teacher. The modification data also provided some input regarding the work and time dedicated to creating the modifications.

The teacher surveys revealed that the participating teachers reported that the CMCs were beneficial to the SWMDs. However, the surveys also revealed that the general education teachers indicated strongly that communication between the CMC teachers and themselves was insufficient. Problematic interaction between classroom teachers and special education teachers is consistent with the literature regarding collaboration. Those responding to the surveys believed that school administrators should provide time for formal meetings between CMC staff and general educators so that they may collaborate in learning enhancement plans for SWMD.

Classroom observations corroborated the teachers’ views that collaborative meeting time should be provided to allow general and special education teachers to formulate learning development plans for SWMD. This finding is consistent with the literature in which the lack of opportunity to collaborate was identified as a barrier to inclusion (York & Tunidor, 1995). Observations confirmed that such collaborative efforts
produced positive results. Teachers in School 2, with the benefit of only fleeting communication, established a procedure that enabled the CMC staff to assist students in completing general classroom assignments. The general education teachers maintained bulletin boards which listed student assignments and long term class projects. This helped CMC teachers prepare to help students work on particular tasks and/or to contribute to long term assignments. General education teachers provided vocabulary lists that the CMC staff kept on file to provide students with study exercises. Teachers were also able to provide direct instruction activities to re-teach concepts, such as reading a map, as a result of brief collaboration.

The absence of formal collaboration limits the potential effectiveness of CMCs. Services in this study included instructional enhancements, such as direct instruction and strategy instruction. Reviewing the relevant research, however, reveals an arsenal of modifications which include the use of assistive technology and visual aids available to assist SWMD, all of which were virtually untapped in these CMCs (Behrmann, 1994; Dixon-Krauss, 1996; Edyburn, 2005). For example, the use of mnemonics has also been effective for vocabulary development and reading comprehension for SWMD (Condus, Marshall, & Miller, 1986; Fulk, Mastropieri & Scruggs, 1992; Konopak, Williams, & Jampole, 1991). Interactive computer software, such as Hypertext, has been shown to increase reading comprehension in SWMD (Horton, Boone, & Lovitt, 1990). Such methodology is unlikely to be utilized without collaborative efforts of the CMC teacher and the general education teacher to identify appropriate application. Selection of technology to support SWMD cannot be accomplished by special educators in isolation.
In order to identify a relevant learning modification, it is necessary to define a content learning goal, identify the deficiency interfering with the learning process, and then apply the appropriate learning strategy (Dixon-Krauss, 1996). Ideally, the general education teacher will define the content learning goal and describe the knowledge the student must absorb. The special education teacher can then use this information to choose an appropriate modification instruction to address specific barriers to content learning. These modifications can then be applied by the CMC staff when delivering educational assistance and used in the general education classroom as well. Conditions such as these would create the united efforts of the CMC staff and general education teachers.

The success of a CMC approach for SWMD should reflect the combined efforts of general education classroom and CMC staff. It would appear that formal conferencing needs to be established in any school system that aspires to maximize the potential of this program. Collaborations would require efficient communication to limit the expense and classroom disruption related to classroom teacher participation. However, the time expended on this endeavor would appear to be well invested and should result in improved learning progress for SWMD.

The teachers interviewed for this study expressed frustration regarding the lack of collaborative opportunities for teachers with students who were receiving CMC services. When a school commits to providing a CMC facility, the school administration needs to commit professional resources that will enable it to meet its potential. No true consulting relationship can exist without considerable interaction between participants. Funding for
special education services should support time that the general education teacher can devote to collaboration with their special education counterparts. The CMCs in this study reported a united effort as indicated by the surveys and the modifications used. Unfortunately, that effort was minimal.

Implications

In spite of the criticism regarding the opportunities for collaboration, the teachers surveyed were satisfied with the CMCs in that they believed they were beneficial in enabling SWMD to maintain placement in the general classrooms. They anticipated enhanced accomplishments if they could work more closely with the CMC staff. Teachers at School 2 expressed that it was much better to have the CMC than not.

The results of the student surveys in both schools indicated that a majority of students were satisfied with the program. When asked to select descriptors for the program, most words selected were positive, although there were minority votes for ‘boring.’ This response is inevitable in that this is a likely response for some students’ reactions to any learning program. All students interviewed enjoyed the general classroom atmosphere, and all but one student said their grades were improving because of the CMC. The exception admitted that his lack of improvement could be attributed to his failure to do his homework.

The results of the student interviews reflected the children’s enjoyment of the general education atmosphere. These SWMD evidenced no sense of identity as special education students. They seemed to view the CMC as a handy place to receive extra help. The potential enhancement of self-esteem for SWMD might be a major advantage of the
CMC model. There is an unfortunate stigma attached to the designation of a special education student. Since these students are included in the general education classroom, their visits to the CMC are just viewed as going for extra help. Students with mild disabilities often suffer from low self esteem, which contributes to their learning difficulties (Salend & Duhaney, 1999). Any efforts to provide special education services which draw attention to learning deficiencies can exacerbate students' learning problems while attempting to ameliorate them. All children, whether or not they have mild disabilities, want to belong (Thompson & McKenzie, 2005).

Legislation mandating the LRE for SWMD has produced the unfortunate side effect of extensive labeling of children (Thompson & McKenzie, 2005). In order to obtain funding for special education, students who require services must be classified in one of the myriad categories which qualify them for special education services. This categorization of learning difficulties, which have been designated as disabilities, can cause a different kind of restrictive environment if students are aware of these labels.

The self-esteem of students can be adversely affected by the notion that they suffer from a disability because they learn differently than the majority of their peers. The term disability, as commonly used, implies a permanent condition (Finlay & Lyons, 2005). Many students who are failing in school are experiencing temporary learning barriers which schools must address. Barriers to learning, such as reading deficiencies or emotional disturbances, are addressed through services available for students designated with mild disabilities. It is important, however, that the recipients of the services not classify themselves as SWMD or with any other label which would inhibit their
ambitions or aspirations. A truly least restrictive environment is one in which children do not receive discouraging information about their capabilities which will restrict the scope of their expectations for the future.

Students who receive special education in designated classrooms are certainly aware that the special designation is not a particularly happy distinction. Their classroom associations are limited to students with a variety of learning problems who are likewise barred from admittance to regular classrooms. This can be an ongoing tragedy for many students because “regular” is exactly what most school children want to be. This environment can also inhibit social development because it isolates children from neighboring peers in the school district.

The inclusive classroom is an important advance in the successful education of SWMD. As the literature demonstrates, SWMD improve their social skills in this environment (Cook & Tankersley, 2007; Hammond & Ingalls, 2003). All students surveyed and interviewed for this study indicated they liked being in the general education classroom. This was evidenced by the enthusiasm one particular boy in School 1 displayed over the volcano project he had completed a few days prior to the interview.

The benefits of inclusive classroom education cannot address the extra services that students classified as SWMD are legally entitled to receive. The CMC concept offers a solution to the dilemma of maintaining students in regular classrooms while endeavoring to provide additional services to address particular learning obstacles. CMCs provide students with the special services they need without depriving them of the general education experience.
Recommendations for Future Research

It would be beneficial to conduct a quantitative study evaluating the efficacy of the CMCs as they relate to state assessments. HSA assessments are being piloted this year in science, and the social studies HSA will be forthcoming. Evaluating students’ HSA scores in these content areas would be an important contribution in determining the level of effectiveness of the CMCs in assisting SWMD to succeed in the general education curriculum.

Case studies of individual students would provide an opportunity to examine each aspect of the CMC and how it affects each student’s achievement. A comprehensive view of how well strategies used within the CMCs work for SWMD could be examined by curriculum based assessments provided to students over short periods of time. This could be taken a step further to determine how many of the strategies used in the CMCs by SWMD would be useful in general education to assist students who fail to meet HSA proficiency standards.

All students, regardless of labels, should receive the services they need to overcome a learning barrier. If CMCs provided services for all students, there would be no need for labeling. If general education teachers were affiliated with CMCs on a rotating basis to provide CMC assistance for any students who need services, the facility would be available to all students as needed. This would eliminate another distinction separating students with learning difficulties from the general education population.

The Comprehensive Student Support Services (CSSS) is a construct implemented in Hawai‘i public schools to insure that all students receive the appropriate level of
services they need to succeed in their classes (Office of Curriculum, Instruction, an
Student Support [OCISS], State of Hawaii, Department of Education, 2004). However,
success is now measured by proficiency standards that are significantly higher than that
which has been required in many classrooms. This study has demonstrated that the CMCs
were successful in enabling SWMDs to meet standards within the classroom curriculum.
Research could explore whether the same approach could enable general education
students to meet the new state standards. Many students without identified learning
problems which entitle them to special services have differing strengths and weaknesses
in subject areas. While following a general education curriculum, it is difficult to
thoroughly address individual student weaknesses in specific areas such as reading or
math which may be barriers to their success in the HSA examinations. A study could
address whether a reverse inclusion would be appropriate for the general education
students to access the CMCs.

It seems apparent from the results of the current study that the education of
SWMD must be a joint effort of general classroom and special education teachers. It
would be enlightening to conduct an extensive survey of general education teachers to
identify the extent to which they accept responsibility for the education of SWMD in
their classes. Survey questions could also probe their evaluation of the methods they
consider most likely to enhance the learning of these students. The literature indicated
that general education teachers did not believe they had sufficient training to provide
proper instruction to SWMD. It would be beneficial to survey the general education
teachers at CMC schools to determine their level of confidence in teaching their SWMD.
Further research could examine the two stated goals of the CMCs which were not addressed in this study. One goal is the ability of the CMCs to help students identify their strengths and weaknesses. The other goal is the ability of the CMCs to aid students in becoming independent learners. It would be beneficial to conduct a study to determine to what extent CMCs are able to reach these goals.

Improving the Effectiveness of Content Mastery Instruction

There are numerous teaching strategies and techniques which have been found successful in assisting SWMD. The data collected in this study regarding modifications used in the CMC indicated that many strategies were not being utilized. The effectiveness of CMCs would be enhanced if both CMC and general education teachers were provided with training in a range of teaching modifications and strategies.

There should be opportunities for general education teachers and CMC teachers to exchange ideas with others working in the field to learn what strategies and techniques are proving most successful. The creation of a website for educators could provide an opportunity to share information regarding how to establish a CMC, how to comply with record keeping for special education entitlement, and how to promote teacher communication within time and budgetary constraints.

This kind of networking could also provide an opportunity to share specific teaching problems and to receive advice from those who have handled similar difficulties. All teachers and administrators are facing conflicts between the need to provide inclusive education for SWMD and pressure to raise performance of all students to meet higher scholastic standards measured by government imposed testing. An
opportunity to exchange information regarding problems and solutions would surely benefit educators facing these challenges.

Limitations

The current study focused on two public schools with different demographics. The ethnic breakdown of the students from each of the schools was quite diverse, which is typical throughout the State of Hawai'i. The distribution of ethnicities between the two schools was also quite different. School 1 was an elementary school on the island of Oahu with a predominately white and black student population. This is reflective of the military base community which was built around the campus. This school met the Annual Yearly Progress (AYP) benchmarks in reading and math. School 2 was a middle school with a predominately Filipino population. School 2 did not meet AYP in reading or math during the study school year. The evaluation of each of the schools identified some similar trends among the CMCs at each of the schools despite their differences in ethnic breakdown. This study is limited in its ability to make direct comparisons and forecast the results of CMCs in other schools. It is, however, useful in its ability to assist schools in setting up a basic framework for a CMC. It would then be up to individual schools to modify the CMC format to meet the needs of the student population of their school. This would be true of any program newly established in a school.

The CMC at School 1 was running for eight years prior to this current study. A new principal started at the school at the time this study began and changed the population of students to whom services would be provided and the way in which those services would be provided. The CMC staff was given the responsibility of reading
blocks (classes) which reduced the amount of time formerly available to SWMD. The most profound effect on the CMC during the 2005/2006 school year was the absence of the teachers for a good part of the school year. The lack of the CMCs master teachers for much of the study limits the ability of the study to present an accurate description of what typically happens in the CMC at School 1.

The parent surveys conducted in this project produced no overwhelming responses regarding parents’ attitudes or satisfaction with the services their children were receiving from CMCs, although the literature provided information regarding barriers to inclusion as perceived by parents (York & Tunidor, 1995). The surveys may have yielded a better return rate had they all been mailed home with return envelopes provided for their convenience. The parents’ perceptions would be an important contribution to the improvement of services for their children attending the CMC. With that said, it is important to note that parents of SWMD who receive services from the CMC are fully informed regarding the assistive services their children receive at each student’s IEP meeting. It is also important to note that CMC teachers send letters home to parents at the beginning of each school year explaining the scope of services provided by the CMC. According to the administrator of School 1 during the interview, there were no parent complaints. There were no parents complaints reported to this researcher.

The interviews were not tape recorded. The groups being interviewed were small. The researcher was able to keep up with the interaction among the interviewees. The researcher felt that to bring a tape recorder into a small group discussion would be
intrusive and inhibit candid discussion. It is possible, however, that tape recording the sessions would have yielded more complete results.

The sample of participants within the study was small, which required the use of non-probability sampling. Patton (1987) cautioned researchers in the use of non-probability sampling, as it does not lend itself to the generalization of results. The use of probability sampling in this study would require the selection of an even smaller sample size of participants. For the purposes of the current study, non-probability sampling was considered sufficient. The generalization of results was not the intent of this study. It was the intent of this study to evaluate the effectiveness of two individual programs.

While there are limitations to the study, the ability of the study to address each of the research questions was satisfied. The grade data showed that the SWMD receiving services from each of the CMCs were able to succeed in the general education curriculum. Surveys and interviews indicated that students, teachers, and administrators were satisfied with the CMC.

Conclusion

The teacher surveys indicated that while the teachers were satisfied that the CMCs were beneficial to SWMD, the lack of collaboration time with the CMC was of concern to them. Teachers are responding to new legislative requirements for general education students to meet higher testing standards. This requirement, along with the fact that the SWMDs did not meet proficiency standards on the HSA assessments, indicates there is still more work to be completed to ensure the success of SWMD in all areas of academic performance.
In order for schools to successfully implement CMCs, it is important to ensure that all stakeholders are willing to proceed. Administrators need to commit to funding the appropriate resources, which includes appropriate staff for the CMC. This also includes special education teachers and educational aides. Resources also include supplies and material for the CMC and a sufficient amount of space to house the staff and supplies. Administrators also need to allocate collaboration time for the CMC teacher and the general education teachers. CMC teachers and general education teachers require appropriate training. Both CMC teachers and general education teachers should be provided with extensive training in the use of modifications. Prior to the implementation of CMCs, IEP teams for individual students need to determine that the CMC is the appropriate placement for a SWMD, and determine what modifications are best suited for the child.

The CMC model for facilitating the learning outcomes of SWMD provides an environment in which these objectives can be realized. For students, the CMC model provides a non-judgmental form of learning. It is good for a student with learning difficulties to experience some education without consequences associated with grades. The results of this program evaluation indicate that the CMC model of learning for SWMDs is an effective approach in supporting SWMD in the general education classroom.
### APPENDIX A. NUMBER OF PARTICIPANTS

<table>
<thead>
<tr>
<th>Participants</th>
<th>Sign-in by Quarter</th>
<th>Modifications</th>
<th>Surveys</th>
<th>Interviews*</th>
<th>Grades*</th>
<th>Obs.*</th>
<th>HSA*</th>
<th>SAT9*</th>
<th>Elig*</th>
<th>IQ*</th>
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<td></td>
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<td>Q3 - 14</td>
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<td>Q4 - 11</td>
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<td><strong>School 2 - Students</strong></td>
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</table>

*Data requiring Consent – Not all this confidential data was available from each student’s file. There are times when IEP teams do no request standardized assessments to be administered.
## APPENDIX B. STUDENT SURVEY

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<thead>
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<th>Question</th>
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<th>No</th>
<th>Sometimes</th>
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</thead>
<tbody>
<tr>
<td>1. Do you think the CMC has helped you?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Do you like working with the CMC teachers?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Do you attend the Homework Club after school?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Do you ask to go to the CMC for help?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Do you take your tests in the CMC?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Have your grades gotten better?</td>
<td></td>
<td></td>
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<tr>
<td>7. Have your work habits gotten better?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Do you like attending the CMC?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Do your friends ask if they can attend the CMC?</td>
<td></td>
<td></td>
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</table>

Circle each of the words that describe your feelings about the CMC.

Happy
Angry
Lucky
Good
Boring
Embarrassed
Bad
Excited
Unhappy
Not helpful
Thankful
Helpful
Upset
Fun
APPENDIX C. TEACHER SURVEY

Question
1. Do you conference with the CMC teacher? (either formally/informally)
2. How often do you conference with CMC teachers?
3. Do the CMC teachers work collaboratively with you?
4. Do you use any of the modified work for your students not assigned to the CMC?
5. Are you kept informed of each of your student’s performance in the CMC?
6. Are students reluctant to go to the CMC?
7. Do you feel the CMC is addressing the needs of the students?
8. Do you provide the CMC teachers with worksheets, tests, etc. ahead of time so that prior preparation in the CMC is possible?
9. Do you feel after school assistance in the CMC is helpful to the students?
10. Do students not assigned to the lab request passes to utilize the CMC?
11. Have you noticed an increase in the self-esteem of your students who utilize the CMC?
12. Do you feel the CMC is beneficial for you?
13. Do you feel that the CMC is beneficial for the students?
14. Are you satisfied with the modifications and adaptations the CMC is providing?
15. Are students sent to the CMC for re-teaching of a skill or concept, review for tests and taking tests?

ANY COMMENTS:
<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>Sometimes</th>
</tr>
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<tbody>
<tr>
<td>Do you think the CMC is helping your child?</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Does your child like working with the CMC teachers?</td>
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<tr>
<td>Does your child attend the Homework Club after school?</td>
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<tr>
<td>Have your child's grades gotten better?</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Do you notice an increase in your child's self-esteem since accessing the CMC?</td>
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<tr>
<td>Have your child's work habits gotten better?</td>
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COMMENTS:
## APPENDIX E. MODIFICATIONS – SCHOOL 1

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<th>Modification</th>
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<th>Percent</th>
<th>Q2 Frequency</th>
<th>Percent</th>
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<td>Utilize Manipulatives</td>
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APPENDIX G. STUDENT PARTICIPATION AGREEMENT

Agreement to Participate in Content Mastery Center (CMC) Study
Kathleen Dimino
Primary Investigator
808-250-9105

This research project is being conducted as a component of a dissertation for a doctoral degree. The purpose of the project is to collect data to evaluate the effectiveness of students' participation in the Content Master Center (CMC).

Data collection will include information from data sheets from the CMC, report card grades (including the General Learner Outcome grades), standardized assessments, state-wide assessments, survey data and classroom observations. The duration of the project will be one school year.

Research data will be confidential to the extent allowed by the law. Agencies with research oversight, such as the UH Committee on Human Studies have the authority to review research data. The data will be presented with all identifiable information removed; names, birthdates, identification numbers will not be included in the presentation of the data. All research records will be stored in a locked file in the primary investigator's office for the duration of the research project. Audio tapes will be destroyed immediately following transcription. All other research records will be destroyed upon completion of the project.

No invasive procedures will be used. Participation in this research project is completely voluntary. You are free to withdraw from participation at any time during the duration of the project.

Participating in this research may be of no direct benefit to you. It is believed, however, that the benefits in evaluating the participation of students in CMC will provide valuable information to schools for implementing CMCs effectively in their school and thereby providing students with disabilities to participate in a program that allows them make satisfactory progress in the general education curriculum with.

There are no alternative procedures to report, no risks of physical injury. The data being collected is data that is already available to subjects' parents.

If you have any questions regarding this research project, please contact the researcher at 808-250-9105.

If you have any questions regarding your rights as a research participant, please contact the UH Committee on Human Studies at (808) 956-5007.

Participant:

I certify that I have read and that I understand the foregoing, that I have been given satisfactory answers to my inquiries concerning project procedures and other matters and that I have been advised that I am free to withdraw my consent and to discontinue participation in the project or activity at any time without prejudice.

Student Participant Signature

I herewith give my consent to the participation of my minor child in this project with the understanding that such consent does not waive any of my legal rights, nor does it release the principal investigator or the institution or any employee or agent thereof from liability of negligence.
APPENDIX H. PARENT LETTER

September 2, 2005

To the Parent or Guardian of ________________.

The purpose of this project is to collect data to evaluate the effectiveness of students’ participation in the Content Mastery Center (CMC). Data collection will include information from data sheets from the CMC, report card grades (including the General Learner Outcome grades), standardized assessments, state-wide assessments, survey data, and classroom observations. The duration of the project will be one school year.

No invasive procedures will be used. The data will be presented with all identifiable information removed; names, birthdates, identification numbers will not be included in the presentation of the data.

The benefits expected from this project will be to provide the field with data that shows the effectiveness of the CMC in assisting children with disabilities in accessing the general education curriculum. There are no alternative procedures to report, no risks of physical injury. The data being collected is data that is already available to subjects’ parents.

You can reach me at 808-250-9105 if you have any questions or concerns.

Very truly yours,

Kathleen Dimino, M.Ed.
Principal Investigator
APPENDIX I. TEACHER PARTICIPATION AGREEMENT

Agreement to Participate in
Content Mastery Center (CMC) Study
Kathleen Dimino
Primary Investigator
808-250-9105

This research project is being conducted as a component of a dissertation for a doctoral degree. The
purpose of the project is to collect data to evaluate the effectiveness of students' participation in the
Content Mastery Center (CMC).

Data collection will include information from data sheets from the CMC, report card grades (including the
General Learner Outcome grades), standardized assessments, state-wide assessments, survey data, and
classroom observations. The duration of the project will be one school year.

Research data will be confidential to the extent allowed by the law. Agencies with research oversight, such
as the UH Committee on Human Studies have the authority to review research data. The data will be
presented with all identifiable information removed; names, birthdates, identification numbers will not be
included in the presentation of the data. All research records will be stored in a locked file in the primary
investigator's office for the duration of the research project. Audio tapes will be destroyed immediately
following transcription. All other research records will be destroyed upon completion of the project.

No invasive procedures will be used. Participation in this research project is completely voluntary. You
are free to withdraw from participation at any time during the duration of the project.

Participating in this research may be of no direct benefit to you. It is believed, however, that the benefits in
evaluating the participation of students in CMC will provide valuable information to schools for
implementing CMCs effectively in their school and thereby providing students with disabilities to
participate in a program that allows them make satisfactory progress in the general education curriculum
with.

There are no alternative procedures to report, no risks of physical injury. The data being collected is data
that is already available to subjects' parents.

If you have any questions regarding this research project, please contact the researcher at 808-250-9105.

If you have any questions regarding your rights as a research participant, please contact the UH Committee
on Human Studies at (808) 956-5007.

Participant:

I certify that I have read and that I understand the foregoing, that I have been given satisfactory
answers to my inquiries concerning project procedures and other matters and that I have been advised
that I am free to withdraw my consent and to discontinue participation in the project or activity at any
time without prejudice.

Teacher Participant Signature
APPENDIX J. PARENT PARTICIPATION AGREEMENT

Agreement to Participate in
Content Mastery Center (CMC) Study
Kathleen Dimino
Primary Investigator
808-250-9105

This research project is being conducted as a component of a dissertation for a doctoral degree. The purpose of the project is to collect data to evaluate the effectiveness of students' participation in the Content Master Center (CMC).

Data collection will include information from data sheets from the CMC, report card grades (including the General Learner Outcome grades), standardized assessments, state-wide assessments, survey data and classroom observations. The duration of the project will be one school year.

Research data will be confidential to the extent allowed by the law. Agencies with research oversight, such as the UH Committee on Human Studies have the authority to review research data. The data will be presented with all identifiable information removed; names, birthdates, identification numbers will not be included in the presentation of the data. All research records will be stored in a locked file in the primary investigator's office for the duration of the research project. Audio tapes will be destroyed immediately following transcription. All other research records will be destroyed upon completion of the project.

No invasive procedures will be used. Participation in this research project is completely voluntary. You are free to withdraw from participation at any time during the duration of the project.

Participating in this research may be of no direct benefit to you. It is believed, however, that the benefits in evaluating the participation of students in CMC will provide valuable information to schools for implementing CMCs effectively in their school and thereby providing students with disabilities to participate in a program that allows them make satisfactory progress in the general education curriculum with.

There are no alternative procedures to report, no risks of physical injury. The data being collected is data that is already available to subjects' parents.

If you have any questions regarding this research project, please contact the researcher at 808-250-9105.

If you have any questions regarding your rights as a research participant, please contact the UH Committee on Human Studies at (808) 956-5007.

Participant:

I certify that I have read and that I understand the foregoing, that I have been given satisfactory answers to my inquiries concerning project procedures and other matters and that I have been advised that I am free to withdraw my consent and to discontinue participation in the project or activity at any time without prejudice.

Parent of minor student participant signature
To __________________________ (student name)

The purpose of this project is to collect data to evaluate how well the Content Mastery Center (CMC) works for students. Data collection will include information from sign-in sheets from the CMC, report card grades (including the General Learner Outcome grades), standardized assessments, state-wide assessments, survey data, and classroom observations. The duration of the project will be one school year.

The data will be presented with all identifiable information removed; names, birthdates, identification numbers will not be included in the presentation of the data.

The benefits expected from this project will be to provide the field with data that shows the effectiveness of the CMC in assisting children with disabilities in accessing the general education curriculum. There are no alternative procedures to report, no risks of physical injury. The data being collected is data that is already available to your parents.

Participation in the project is voluntary and information will only be collected about your progress with your parent’s permission.
References


