Abstract

This phenomenological study documents the implementation of continuous improvement (CI) in school library media centers. CI is an aspect of Total Quality Management based on the collection and analysis of data for decision-making. The participant group consisted of seven secondary and eleven elementary school library media specialists working in the Rochester, Minnesota public school district.

Data collection occurred between 1998 and 2003, consisting of observations, interviews, and artifacts. The study's results indicate the application of CI tools and processes to the operation of the school media center can be successful. Implementation of CI requires training, reinforcement, and models in order to become an institutionalized operational strategy. Specific examples of CI implementation are included in Chapter 4.

Dedication

I dedicate this dissertation to my father, John William Markwell. Much of who I am as a person is the result of the things he taught me.

I also dedicate this dissertation to my mentors, Dr. Luther Brown who told me in 1972 that I should get a doctorate; Dr. Carl Savage who encouraged me to reach for my potential; and Dr. Fran McDonald a role model and friend.

These people, so special in my life, are greatly missed; my memories of them have helped sustain me.

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The efforts and the cooperation of the library media specialists of Rochester, Minnesota Independent School District (ISD 535) contributed greatly to the completion of this dissertation. I appreciate being given permission by the administration of ISD 535 to conduct this study, observe in the library media centers, and use the data collected in this dissertation.

Additionally great thanks go to the ETRA Department at Northern Illinois University for their support and encouragement. Special recognition goes to Dr. Janet Giesen, for her assistance in proof reading drafts of this work. Also, a thank you goes to Dr. Rebecca Butler for her suggestions, constant encouragement, and occasional rescue.

Most of all, my appreciation goes to my husband Larry, my first reader and my daughters Rachel, Sarah, and Rebekah for their understanding through the years of my course work and dissertation writing. My daughters' encouragement and good natured but recurrent reminders of "Mom, shouldn't you be working on the dissertation" helped keep me on track in addition to getting back at me for my years of nagging them about their homework.

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Chapter 1

Statement of Problem

Introduction

As part of the national educational reform movement, the use of continuous improvement principles is becoming a framework for educational decision-making in some public K-12 school districts (Bonstingl, 1996). The federal government has supported this movement through the Baldrige National Quality Program. The stated goals of this program are "to enhance the competitiveness, quality, and productivity of U.S. organizations for the benefit of all residents" (National Institute of Standards and Technology, 2002a). The 2003 Education Criteria for Performance Excellence "provide a systems perspective for understanding performance management. They reflect validated, leading-edge management practices against which an organization can measure itself" (National Institute of Standards and Technology, 2002b). The State of Minnesota supports the use of continuous improvement through the Minnesota Academic Excellence Foundation (MAEF). "MAEF is the primary advocate for promoting and recognizing the importance of academic excellence in all Minnesota elementary and secondary students, schools, and communities" (Minnesota Academic Excellence Foundation, n.d.). The foundation's web site provides a variety of resources and training information for educators in the use of quality (continuous improvement) processes and tools. MAEF also sponsors a variety of awards, incentives, and recognitions to schools and teachers.

Bonstingl (1996) discussed continuous improvement as one aspect of Total Quality Management (TQM). In Chapter Two of *Schools of Quality,* Bonstingl described how W. Edward Deming and others developed TQM and how these theories and

practices were being applied in American education. The American Association of School Administrators' (1992) book *Creating Quality Schools* defined continuous improvement as the "study of processes within an organization to produce constant improvement through evaluation and implementation of ideas, learning, and suggestions" (p. 7). Bonstingl (1996) described continuous improvement as people monitoring and judging their own work to improve quality and assisting others to improve their work. Within the model used by the Independent School District 535 Rochester, Minnesota (ISD 535) continuous improvement (CI) is a process of fact-based decision-making aligned with the district's mission statement, goals, and objectives. Table 1 profiles the student and instructional staff.

Table 1

Student and Instructional Staff Demographics 2001-2002

Population	Statistic
K-12 enrollment	15,877
Free and Reduced Meals	23.3%
LEP Services	12.4%
Special Education Services	10.4%
Non-Caucasian Population	20.54%
Teachers Full Time Equivalent	870
Classroom Aide Full Time Equivalent	214.7

Note: From Minnesota Department of Education. *Minnesota data analysis: Demographic summary*. http://cflapp.state.mn.us/CLASS/selection/SelectionController

ISD 535 is comprised of three high schools, four middle schools, fifteen elementary

schools and nine specialized educational programs

As school districts adopt continuous improvement as a management system, all members of the school community are asked to work with the processes and tools of continuous improvement that have been developed within TQM. Library media specialists looking for information about how to implement continuous improvement in their media centers find there is a lack of literature to support their efforts (Martin, 1993). The existing literature supports the concept and references successful implementation but lacks implementation ideas or strategies.

Discussion of the Study

Problem

Several areas have been identified that are not addressed in the literature. (a) School library media literature does not answer the question of how school library media specialists are implementing continuous improvement in their library media centers. (b) There is no reporting on the effects of continuous improvement implementation on the instructional, consultative, and management processes within the library media centers. (c) The effect of implementing continuous improvement in the library media centers on student achievement is not reflected in the literature.

The literature of continuous improvement in libraries comes primarily from academic, public, and special, such as medical, research, and business libraries (Brophy & Coulling, 1996; Jurow, 1993; Jurow & Barnard, 1993; Weingand, 1997). This literature provides little assistance to school media centers because of differences in administrative structures, primary services, and patrons. Martin (1993) states “the TQM gurus have not made specific recommendations for libraries” (p. 4) in implementing

TQM processes. Due to the lack of literature about continuous improvement implementation in media centers, library media specialists can turn to the education literature for information. Library media specialists may adapt CI models designed for school classrooms to meet some needs of the library media center; however, a classroom and a library media center are not the same environments. Thus, implementing continuous improvement processes in media centers becomes a trial and error process for library media specialists. The study of this adaptation and implementation of CI will provide needed information to the school media center community.

This study presents the experiences of eighteen school library media specialists, in one public school district, attempting to make continuous improvement processes integral to the way they work. The library media specialists were asked to discuss their successes and failures in implementing CI. Artifacts of CI implementation gathered for this study represent preliminary models for future library media center application.

Background for the Study

In response to encouragement from the Minnesota State Department of Education, the Board of Education of Independent School District 535 Rochester, Minnesota and the district's senior leadership made a commitment, in 1995, to Total Quality Management (TQM) as a management model (*1998 District Assessment*, 1999). The adoption of the TQM model was part of the district's restructuring begun in 1994. ISD 535 leadership selected the Pinellas County, Florida schools TQM model as the core around which to build the district's model. During the 1996 and 1997 school years, the ISD 535 Leadership Council was given four days of initial CI training. Trainers from Pinellas County, Florida schools Quality Academy conducted the training. The teaching staffs

from eight buildings were given two days of training during August 1997. These training sessions provided a core of staff to support the continued implementation of TQM. Training was expanded to all interested staff through two-day workshops offered in January, June, and August 1998. During this time, the ISD 535's TQM model was refined. While the TQM model was continued with minor changes, the model's name was changed to *Continuous Improvement*. This name change reflected the ISD 535 stated goals for improving student achievement and reduced resistance of district staff to the business language of TQM. A number of authors have also noted the negative response to the business language of TQM by educators experienced by the ISD 535 schools leadership (Jurow and Barnard, 1993; Martin, 1996; O'Neil, 1994).

Staff development trainers for the continuous improvement model were identified from within district employee groups during the 1998-99 school year. On-going staff development classes, conducted by this trainer cohort, were designed for administration, teaching, and support staff. The position of Director of Continuous Improvement was added to the district administrative cabinet, thereby completing the institutionalizing of the commitment to the continuous improvement model.

The ISD 535 Media Services coordinator realized the importance of actively fostering the implementation of continuous improvement within the ISD 535 Media Services department. With assistance from four library media specialists who had participated in the August 1997 TQM training, the Media Services coordinator proposed to the department staff the beginning of a ISD 535 Media Services department continuous improvement initiative. This continuous improvement initiative included the development of customer satisfaction surveys and piloting the use of continuous

improvement tools in the twenty-three library media centers. The ISD 535 Media Services department staff supported the initiative and the ISD 535 administrative cabinet approved it. The focus of this research is the implementation processes and results of this continuous improvement initiative.

Purpose of the Study

The purpose of this study was to document the experiences of library media specialists in the ISD 535 as they implemented continuous improvement processes and tools in their library media centers. The researcher gathered data to illustrate how continuous improvement was being used. The perceptions of the library media specialists about the usefulness and successes they have had with continuous improvement processes and tools were examined. The study provides a record of both successful and unsuccessful experiences in order to provide the basis for continuing application of continuous improvement in ISD 535 library media centers. Artifacts were gathered to illustrate how continuous improvement tools have been adapted for use in the library media center. The use of these artifacts is described in Chapter 4. Library media specialists were asked about problems encountered while using these tools.

Library media specialists in other school districts may be interested in introducing continuous improvement to their media center programs. The library media specialists in this study were asked what should be in place before beginning this journey and what is needed to sustain the process.

Justification for the Study

In 1997, a preliminary review of the literature regarding the application of continuous improvement in school media centers found no directly related literature. In

response to an email inquiry from the researcher, the American Library Association and the American Association of School Libraries indicated they were unaware of any school library media programs using continuous improvement in management or instructional processes (personal communication, March 1997). The TQM trainers from Pinellas County, Florida, who were guiding the implementation of continuous improvement in ID 535, were asked about the use of continuous improvement by the media services department of the Pinellas County School District. They were unaware of any application within the media services department (M. Caldwell, personal communication, August 11, 1998). The inability to identify relevant literature or existing media center use of CI left the study's research group unaided in finding ways to implement continuous improvement. Subsequent searches for relevant literature, during this study, revealed a dearth of TQM or continuous improvement in school library media center literature.

As the use of TQM and continuous improvement becomes more prevalent in public schools, library media specialists may be asking how they can use the principles and tools in their media centers. A body of written knowledge about how continuous improvement affects the operations of the school media center may be helpful to library media specialists attempting to find their way in the TQM management system. The study of the ISD 535 library media specialists' implementation of continuous improvement provides a needed addition to the library media body of knowledge.

Delimitation

This study represents the experiences a group of K-12 public school library media specialists in Independent School District 535 Rochester, Minnesota. The extent to which their experiences with continuous improvement has relevance to the K-12 library media

specialists in other school districts was not considered as part of this study. One exception is the consideration the researcher has in making recommendations based on findings of this study.

Continuous improvement processes and tools were the limited focus of this study. The broader scope of Total Quality Management as a system and other subsets of TQM are discussed only as related to the concepts of continuous improvement in the school media centers studied.

Research Questions

In an attempt to understand how continuous improvement processes and tools can be used in library media centers, a number of questions were examined:

1. What feelings do library media specialists express about the use of continuous improvement in their media centers, buildings, and the district?

2. How do library media specialists decide what continuous improvement tool or process to use?

3. How is continuous improvement being used in the instructional, consultative, and management processes of the media center program?

4. What barriers inhibit the use of continuous improvement?

5. What is needed in order to further the implementation of continuous improvement?

6. How has continuous improvement affected student achievement?

Overview of the Study

The eighteen library media specialists of the ISD535 Rochester, Minnesota were asked to participate in this study. These library media specialists work in twenty-three

school buildings in a K-12 public school district. With the exception of one, all are licensed library media specialists with teaching experience of two to thirty years. The library media specialists were interviewed using a set of predetermined questions, which are provided in the study's Appendix A. These interviews were taped for transcription. The library media specialists were also asked to provide copies of artifacts from CI implementation and to discuss how the artifacts were used. The library media specialists were asked to notify the researcher about times when the use of continuous improvement tools with students or teachers could be observed.

Data from the interviews, observations, and discussion of artifacts were analyzed for common themes and patterns. Data were compared to determine if there were differences between implementation of continuous improvement at elementary, middle school, and high school levels.

Definitions

Artifacts. Documentary evidence, such as pictures, recordings, written records, and physical articles, collected as representations of a culture, are artifacts. These items "enrich what you see and hear by supporting, expanding and challenging your portrayals and perceptions" (Glesne, 1999, p. 59). For the purpose of this study, artifacts were paper, electronic, or photographic representation of continuous improvement tools used in school media centers.

Baldrige Education Criteria. Seven criteria, with rating scales for each, make up the Baldrige Education Criteria (Karathanos & Karathanos, 1996). These criteria are "designed to help … develop an internal assessment of … [the] transformation process and to provide a basic understanding of the scope of the Baldrige program in education"

(Bonstingl, 1996, p.114).

Baldrige National Quality Program. Established by Public Law 100-107 in 1988, the Award Program was designed to help U.S. companies improve products, services, customer satisfactions, and overall performance. Education and health care were added to the program in 1999. The program sets performance standards and encourages partnerships (National Institute of Standards and Technology, 2002a).

Consensus. A decision making process where the result is "everyone in the group can live with the decision and will support it" (O'Neil, 1994, p.170).

Continuous improvement. An underlying theme of TQM is "a philosophy and a set of graphical problem-solving tools" (Jurow & Barnard, 1993, p. 4). The philosophy leads individuals or organizations to adopt "methods and measurements to systematically collect and analyze data for the purpose of improving the processes identified as critical to the organization's mission" (Jurow & Barnard, 1993, p.4). An example of a continuous improvement process is the Plan, Do, Study, Act (PDSA) cycle. "These techniques are used in determining the present status and then generating options for improvement" (Carson & Smith, 1993, p. 36).

Customer. "Anyone who receives a product, information, or service from another individual or department" (O'Neil, 1994, p. 171). In the case of the library media center program, the direct customers were students, faculty and staff, administers, other library media specialists, and parents.

Library Media Center. The school library media center is "an active, technology-rich learning environment with an array of information resources" (American Association of School Librarians and Association for Educational Communications and Technology,

1998, p. 1). These information resources include a wide variety print and non-print materials. The library media center is an integral part of the learning process. Research has documented the connection between student achievement and library media centers (Library Research Service, 2002). The media center program promotes collaboration between classroom teachers and library media specialists to insure that students develop reading, information and technology literacy skills.

Library Media Specialist. A school library media specialist is a teacher, with licensure as a library media specialist, who "serves as an information specialist, teacher, and instructional consultant" (Turner, 1993, p. 4). The role of the library media specialist extends beyond management of the media center to the integration of literacy skills throughout the curriculum.

Management. Management is comprised of those activities that are involved with the "planning, organizing, leading, and controlling the functioning of a media center" (Prostano & Prostano, 1999, p. 34).

Total Quality Management. Total Quality Management is described as "a system of continuous improvement employing participative management and centered on the needs of customers" (Jurow & Barnard, 1993, p. 2). Key components of TQM are employee involvement and training, problem solving teams, statistical methods, long-term goals and thinking, and recognition that the system, not people, produces inefficiencies (Bonstingl, 1996; Glasser, 1998; Jurow & Barnard, 1993). Libraries can benefit from TQM in three ways: breaking down interdepartmental barriers; redefining the beneficiaries of library services as internal customers (administration, staff and students) and external customers (parents, home-schoolers); and reaching a state of

continuous improvement (Jurow & Barnard, 1993, p. 2).

Tools. Continuous improvement tools are the instruments used "for generating and organizing ideas, evaluation ideas, analyzing processes, determining root causes, planning, and basic data handling and statistics" (Tague, 1995, p. xviii). These tools have traditionally included flow chart, fishbone diagram, Parento chart, scatter diagram, PDSA cycle, histogram, and control chart. Other tools such as the affinity diagram, force field analysis, the Five Whys, and cross-impact matrix are recent additions to the tool group (Bonstingl, 1996).

Summary and Conclusion

The principles of TQM, as adapted for education, are being incorporated into the management process of many schools (Chappell, R. T.,1994). Like other employees in TQM schools, the school library media specialists are looking for ways to integrate TQM into their programs. This study follows a group of school library media specialists to document their experiences in using continuous improvement.

An examination of the literature related to continuous improvement in libraries provides a foundation for conducting the research for this study. The review of the literature, found in Chapter 2, sought for examples of continuous improvement application relevant to the school library media center environment. The review of literature also clarifies and expands on some basic constructs of continuous improvement.

The methodology for this study, described in Chapter 3, lays the foundation for and guides the collection of data documenting the experiences of the ISD 535 library media specialists as they explore the implementation of continuous improvement in the daily operation of their media centers.

Chapter 4 illustrates the library media specialists' use of continuous improvement using the data from interviews and collected artifacts. Chapter 5 summarizes the analysis of the collected data, draws conclusions about the use of continuous improvement by the ISD 535 library media specialists, and makes recommendations for further study.

Chapter 2

Review of the Literature

Introduction

This researcher's initial searches for literature connecting continuous improvement (CI) to school media centers resulted in extremely limited success. During the duration of this study, only a few literature items were found directly related to the use of continuous improvement in school library media centers. The largest body of useful literature centered in academic libraries, with other tangential literature coming from public and special libraries. This literature review, therefore, strongly reflects the influence of library environments other than school library media centers. The review of the literature is prefaced by a brief description of the literature search process used by the researcher.

Search Strategies

Initial literature searches were conducted using the on-line subscription periodical data bases Proquest Platinum, Proquest Education Professional from University Microfilms Inc., Wilson Web, and H. W, Wilson database, EBSCOhost electronic journals service, and Infotrac, a Gale Group database. Later in the study Ohio College Library Center (OCLC) databases provided search access to Library Literature, PerAbs, Article First, Wilson Select Plus, and Electronic Collections Online (ECO). Educational Resources Information Center (ERIC) databases were searched directly via the Internet and in full text via OCLC. A limited amount of periodical literature was found relevant to Total Quality Management (TQM) and continuous improvement in school library media centers. These searches, however, resulted in a wealth of tangential periodical literature.

Searches were made of library catalogs using the MnLINK, a gateway to online academic, public, special and school library catalogs in Minnesota, Virtual Illinois Catalog, a gateway to 600 library catalogs in Illinois, and OCLC WorldCat, a merged catalog of libraries from around the world. Like the periodical literature, the library catalog searches resulted in few directly relevant materials but a wealth of tangential material. In addition to the previously mentioned databases, searches were made in Books in Print, Inspec, and Educational Abstracts.

A Dissertation Abstracts search resulted in two tangential dissertations, *An Assessment of Total Quality Management on a K-4 School* by R, J. Bartoletti (2000) and *Total Quality Management Implementation in Three Community College Libraries and/or Learning Resources Centers* by T. S. Byrd (1997). While neither dissertation related directly to library media centers, the dissertations did provide additional insights to the TQM implementation process and reinforced the concept of successful application in schools and libraries.

Table 2 details the primary search terms identified by the researcher. These terms were used in a variety of combinations. Primary terms were combined with each other as well as with the combining terms. All terms were used in varying combinations using Boolean strategies as well as truncation and proximity. In addition, searches were conducted using compound query with nesting.

Attention was paid to thesaurus and term directories within the searched databases, allowing term adjustments to fit the constructs of the database. The help files of each database were consulted in order to adjust searching strategies to match the parameters of each database. These actions were taken to ensure the best possible search

results.

Table 2

Search Terms

Primary Terms	Combining Terms
Libraries	Administration
Media center	Management
School library media center	Quality
Total quality management	Total quality education
TQM	
Continuous improvement	

The searches of both periodical and monograph literature resulted in a large number of references to continuous improvement and TQM as applied to academic and public libraries. Few periodical references and no monographs were found for school library media centers and TQM or continuous improvement. The literature identified as potentially useful was obtained via interlibrary loan or downloaded from databases. After reviewing downloaded periodical articles, copies of the original article were obtained for those that had relevance to the research.

Reference lists and bibliographies found in the literature were reviewed for additional source information. A number of items found in literature references were located via interlibrary loan through the Library Development Services, Department of Education, State of Minnesota prior to 2001 and through Northern Illinois University Founders Library in 2001 and through the end of the study.

The following review summarizes the results of the literature found through repeated searches. The literature review is divided into foundation concept sections titled, Total Quality Management and Continuous Improvement Fundamentals, followed by library application sections, Successful Implementation of CI in Libraries, Applications of Continuous Improvement, providing support for implementation, collaborative role, administrative role, Barriers to Implementation and Customer Service. The final sections discuss literature pertaining to the use of continuous improvement in the Collection of Data and the role of Mission, Vision, and Goals. The reader will find the terms TQM and continuous improvement sometimes used interchangeably within the literature review. Because the Independent School District 535 (ISD 535) Rochester, Minnesota Public Schools changed their terminology from TQM to continuous improvement, this researcher has attempted to maintain some consistency in the use of the term continuous improvement. The term TQM reflects the philosophical structure developed by Deming and his associates. The term continuous improvement encompasses customer focus and the use of processes and tools for the collection and analysis of data in order to obtain improved results.

Total Quality Management

The American statistician, W. Edwards Deming developed a theory about improving the quality of manufactured goods. Prior to World War II some American businesses, such as Bell Labs and Western Electric, had implemented Deming's statistical methods to the manufacture of goods. After the war American production changed from a quality attitude to one of quantity. It was at this time Deming went to Japan to assist in a census. Deming, at the request of General Douglas MacArthur, began

working with Japanese industry as they rebuilt what had been destroyed in the war. In Japan, Deming found his ideas accepted and implemented by the industrial complex. Using Deming's and later fellow 'quality gurus' Juran's and Crosby's ideas, the Japanese successfully applied the principles of TQM to rebuild their manufacturing industries.

Businesses in the United States during the 1960's and 1970's began looking for a second time at TQM. The successful rebuilding of the Japanese manufacturing industry made American businesses such as Ford and General Motors reconnect with Deming and his theories of quality. Since the 1980's, TQM has been applied, to varying degrees, not only in manufacturing but also non-profit and academic settings (Bonstingl, 1996; Jurow & Barnard, 1993; Walton, 1986).

"Total quality management as practiced today combines theories, models, and tools developed by Dr. Deming and fellow 'quality gurus' Joseph Juran and Philip Crosby" (Jurow & Barnard, 1993. p. 2). For further information about the growth of TQM a number of writers including Bonstingl (1996), Carson & Smith (1993), and Jurow & Barnard (1993) could be consulted.

Spiegelman (1994) describes TQM as "nothing more than an organized approach to improvement" (p. 106). This organized approach to management and improvement has been found a useful system by many. According to Jurow & Barnard (1993) "TQM is a system of continuous improvement employing participative management and centered on needs of customers" (p. 2-3).

The Association of School Administrators (1992) lists the following as essential concepts when applying TQM theory to education:

1. Meeting and exceeding the needs of 'customers'

2. Working for continuous improvement
3. Collaborating with other agencies
4. Identifying common and special causes of variation
5. Looking at and managing schools as systems
6. Seeing problems as stemming from the system and its processes
7. Not blaming the employees or students
8. Working in teams
9. Investing in employee education and training
10. Believing that people want to do well and will take responsibility
11. When they see a purpose for their work. (p. 3)

Libraries of all types are concerned with meeting what they perceive as customer needs and a concern for the services provided. The application of continuous improvement to libraries could provide a systematic method of analyzing these functions.

Continuous Improvement Fundamentals

Many writers agree that continuous improvement is a prime concept within the TQM (Daughtery, 1996; Karathanos & Karathanos, 1996; Riggs, 1993). Continuous improvement is a process-based concept supported by a variety of data collection and analysis tools. Riggs (1993) states "continuous improvement is at the core of TQM" (p. 76). This core is further defined by Daughtery (1996) in stating, "the idea of continuous improvement emphasizes the value of striving to surpass the prevailing standards rather than just accepting the achievement of these standards" (Daughtery, 1996, p. 87). Striving to reach higher standards of performance requires identifying the performance activities, the measurement tools, and the analysis processes. Mackey & Mackey (1992) state that

libraries must move "from measuring results to measuring the process by which the results are achieved" (p.58). This can be accomplished by using "specific methods and measurements to systematically collect and analyze data for the purpose of improving the processes identified as critical to the organization's mission" (Jurow & Barnard, 1993, p. 4). The potential problem for anyone approaching continuous improvement is identifying the processes and tools to use.

The American Association of School Administrators (1992) identifies two aspects of total quality management that are vital to the restructuring of schools. These are "a systemic approach to the practice of continuous improvement" (p. 1) and "a new set of tools for uncovering the flaws in the system that cause less than desirable results" (p. 2). Tague's ten-step process, described below, or any other systematic process for the identification and solution of problems are viable for implementing this first requirement.

These new tools are frequently referred to in the literature as graphical tools and techniques for planning, data collection, and analysis (Bonstingl, 1996; Cleary & Duncan, 1997; Jurow & Barnard, 1993; Mackey & Mackey, 1992; Tague, 1995). These tools collect feedback, develop planning skills, assist in process and case analysis, help in gathering, organization, and displaying data, and provide methods for data analysis as part of the CI process. Tague (1995) lists and describes the use of more than 50 tools. Tague (1995) details a ten-step process for creating improvement. Table 3 presents Tague's ten-steps and compares them to common TQM terminology for the same step. Each of the ten steps includes a set of questions.

Table 3

Tague's Ten-Step Process

Common Terminology	Quality Terminology
What do I or we want to accomplish?	Identify mission.
Who cares and what do they care about?	Identify customer requirements.
What are we doing now and how well are we doing it?	Assess current state.
What can we do better?	Define preferred state, problems, and improvement opportunities.
What prevents us from doing better?	Identify barriers and root causes/
What changes could we make to do better?	Develop improvement solutions, strategies, tactics, and plans.
Do it.	Implement plans.
How did we do? If it didn't work, try again.	Monitor results, recycle if necessary.
If it worked, how can we do it every time?	Standardize.
What did we learn? Let's celebrate.	Conclude project.

Note. Constructed from *Quality Toolbox* by N. R. Tague, 1995, Milwaukee: ASQ Quality Press, p. 12)

Along with the questions are suggestions for tools to use in the processes of expanding, focusing, planning, and collecting and analyzing data. Tague's book, *The Quality Toolbox*, provides a step by step guide which includes detailed description of the tools, when and how to use the tools, and possible things to consider before using a tool.

Table 4

Tools and Their Use

Use Category	Tool
Collect Feedback	Issue Bin
	Plus Delta
Develop Planning Skills	Flowchart
	Work Flow Diagram
	Check Sheets
	Rubrics
Process and Case Analysis	Fishbone Diagram
	Force Field Analysis
	Affinity Diagram
	Consensogram
Gathering, Organizing and Displaying Data	Control Chart
	Run Chart
Data Analysis	Pareto Chart
	Surveys
	Check Sheets

While authors vary in the number of tools suggested and sometimes differ in the best uses for the tools, there are some tools repeatedly found in the literature. Table 4 lists and categorizes some of the more commonly mentioned new tools. Detailed explanations of how to use the tools and in what situations they may best be applied are found in the

books by Cleary & Duncan (1997 & 1999), (McClanaham & Wicks, 1993) and Tague (1995).

One of the continuous improvement goals for libraries "is to address the needs of customers above all other concerns" (Daughtery, 1996, p. 87).. Continuous improvement relies "on hard data about customer needs, preferences and products, services and processes" (Rux, 1993, p. 39). Libraries can use the data collected from customers as the basis for planning and improving products, services, and processes" and then "measure our plans and improvements against customer satisfaction" (Rux, 1993, p. 39). Rux continues by indicating libraries can use continuous improvement processes to collect data about customer needs in order "to target and orchestrate limited resources for maximum impact" (p. 39).

A considerable number of articles written about customer satisfaction are found in the periodical literature. Peter Hernon has written about customer satisfaction for several years. It is his opinion that identifying what customer satisfaction is for library customers is a poorly understood concept (Hernon, 1999). Hernon suggests that preliminary to measuring customer satisfaction, validity of the concept must be established. Identifying the needs of the customers can be approached by asking key questions (Jurow & Barnard, 1993) of library staff and customers and responding effectively to the answers. "By paying attention to both service quality and customer satisfaction, libraries … ensure that services meet or exceed customer expectations" (Hernon, 1999, p. 12).

Successful Implementation of Continuous Improvement in Libraries

An abundance of literature describes libraries where the adaptation of TQM and continuous improvement concepts to libraries has been occurred. This literature relates

successful implementation. “TQM embodies certain values and approaches common to research libraries today, yet several of its defining and most extraordinary elements—continuous improvement, quality tools and measurement, and customer-focused planning – are not commonly applied in libraries” (Jurow & Barnard, 1993, p. 3). However, there are a number of reports of successful implementation of continuous improvement in libraries. Master’s (1996) sites the success demonstrated by Harvard College Library and Oregon State University Libraries as evidence that TQM has been successfully implemented in many libraries. Batz & Rosenburg, (1999) report on the success of the Hunterdon Regional High School media center. She attributes this success to a superior program that has implemented the principles of continuous improvement.

Continuous improvement cannot be implemented without a commitment to training. Mackey & Mackey (1992) state, “quality results when every individual in the library understands and adopts the philosophy of never-ending improvement and when all the processes of the library operations are in statistical control” (p. 61). How does a library staff reach a high level of acceptance of the continuous improvement philosophy? According to (Riggs, 1994), “an effective TQM process is gradually implemented in a library” (p. 7). Implementation must begin with training. “Without proper training and education, staff cannot be expected to do their jobs properly, which leads to low morale and fear” (Mackey & Mackey, 1992, p. 61). This training, based on the principles of continuous improvement and statistical processes, must provide continuing training in basic and expanding job skills. As continuous improvement is applied to library processes, tasks will be redefined; previous routines may be changed or eliminated. All library staff need to understand retraining is an active part of the continuous improvement

process. (Rux, 1993) claims "TQM trusts and trains the people who do the actual work to perform the measurements and design the improvements" (p. 39). "Training in systems analysis, problem solving, teamwork, critical thinking, data collection and display, and statistical analysis" (Rux, 1993) are imperative for all staff in libraries wanting to respond effectively to their customers. In addition, the continuous improvement process creates a learning organization that provides long-term benefit to the library (Rux, 1993).

Discussing the implementation of continuous improvement in school library media centers (Rux, 1995) says a "focus on 'customers' means we know why school libraries exist in the first place" (p. 13). The primary customer focus of school media centers is on students. Rux continues by discussing the need to prove the effectiveness of the student instruction done as part of the media center program. Rux believes the continuous improvement processes can provide that proof. Learning to use the continuous improvement processes and tools to measure the effectiveness of a media center's instructional program may prove useful. However, no literature about TQM or continuous improvement was found that describes specifically how to use the processes and tools to measure media center effectiveness.

Applications of Continuous Improvement

Literature about applying continuous improvement to libraries and specifically school library media centers mostly presents generalized statements. Master's (1996) considers libraries a good place to apply TQM because of the service orientation of librarians. This speaks to the focus on the customer concept that is a core value of TQM. Hague (1995), while not speaking to the application of continuous improvement, provides more specific applications of customer focus. Hague (1995) places an emphasis

on facilitating access to material, applying rules consistently, having customer advisory committees, and promoting ownership on the part of students. These are all applicable continuous improvement goals. The question of how to begin implementation remains with the library media specialist.

Barron (1994) sees a direct relationship between the national school library media vision contained in *Information Power: Guidelines for School Library Media Programs* (American Association of School Librarians and Association for Educational Communications and Technology, 1988) and the principles of continuous improvement as developed by Deming. *Information Power* clearly states the school library media specialist's professional vision and sets forth a detailed set of goals. Barron (1994) encourages the library media specialist to "assume a stronger leadership role" (p.50) sharing the vision, helping to develop the vision of our schools and district, improving communication skills, strengthen teaming, and develop networks. *Information Power: Guidelines for School Library Media Programs* and the revised, 1998 edition, *Information Power: Building Partnerships for Learning* provide strong guidelines for developing quality school media programs. However, they do not provide suggestions for measurement of the accomplishment of those goals from a continuous improvement point of view.

Instructional role. Found within *Information Power* (*American Association of School Librarians and Association for Educational Communications and Technology,* 1998) is a concise vision of the instructional role of the media program. At the vision's core is the development of the skills to access and use information in all formats. Rux *(1995)* is the only author found to address continuous improvement in the instructional

role of school media center. He stresses the importance of identifying ways of measuring what is being done and communicating it to the decision makers. With in the instructional role, Rux (1995) includes staff development for students, staff, and parents, particularly in the area of technology usage.

The instructional role is primary for a school library media specialist. By initial training, the school library media specialist is a teacher. Becoming a library media specialist provides a teacher a way different from but allied to the classroom, for helping students maximize their learning. "Deming's work is predicated on the belief that everyone is intrinsically motivated to learn and no one wants to fail" (Blankstein, 1996, p. 26). Applying this belief to the instructional role and the collaborative role of the school library media specialist increases the likelihood of meeting customer needs.

Collaborative role. In addition to direct teaching, the library media specialist plays an important part in the learning process of a school through collaborating with classroom teachers. The American Association of School Librarians and Association for Educational Communications and Technology (1998) identifies collaboration with teachers as one of the three primary roles of the school library media specialist. Using continuous improvement terminology, teachers are an internal customer of the school media center. Jurow (1993) suggests there are "four key questions help to define internal customer requirements:

1. What do you need from me?
2. What do you do with what I give you?
3. Is there any gap between what you need and what I give to you?
4. Is there anything I'm giving you that you don't need?" (p 4)

These questions could serve library media specialists well in evaluating the quality of their collaborative work with teachers. Question one, restated in situation appropriate ways, would help a library media specialist open a dialogue with teachers about how the media center could assist in reaching the curricular goals of the classroom. Question two, would help identify the role the media center materials play in the learning process. The other questions could help the library media specialist evaluate the effectiveness of the materials provided by the media center and lead to collection improvement.

Sirkin (1993) applies TQM principles to library operations by offering possible activities such as asking what hinders service, providing effective orientations, providing a list of services, and smiling. These suggestions support the establishment of an effective collaborative relationship between classroom teachers and the library media specialist.

Administrative role. The administration of the media center is the third primary role of the school library media specialist. Included in this role is the management of staff, budgets, and gathering and reporting of data. Within the administrative role the library media specialist establishes processes for the operation of the media center, develops marketing plans and materials, develops programs, and evaluates collections, instruction, and all functions within the media center program. Continuous improvement processes and tools may assist in these administrative tasks.

Continuous improvement requires the collection and analysis of data in order to improve processes. Mackey & Mackey (1992) state "the idea is to leap from measuring results to measuring the process by which the results are achieved" (p. 58). Flow-charting a process is one way of examining the process for improvement; however, Mackey & Mackey (1992) state "flow-charting a process is not enough" (p. 58). The

library administrator must learn how to connect data with flow-charted processes to identify when and how the processes are operating well or need to be changed. Evaluating changes in a process or systems at periodic points is important. Users change, as do their needs (Mackey & Mackey, 1992). As user needs change, the processes and procedures within a library setting must change to meet the new customer requirements. In the administrative role the school library media specialist must look for processes and procedures that may be optimized by continuous improvement.

Sirkin (1993) makes several suggestions for applying continuous improvement processes including reprioritize jobs, publicize changes, activate outreach programs, evaluate the physical layout of the media center, create advisory groups, and evaluate policies. Mackey & Mackey (1992) recommend examining the acquisition process and the vendors, make vendor choices based on quality of service and product not on price. These types of activities help begin what Mackey & Mackey (1992) say must happen: library administrators must "take the necessary steps to improve the actual processes" (p. 61).

Barriers to Implementation

The implementation of continuous improvement is not without potential problems or barriers. There is agreement in the literature that any plan for implementing continuous improvement must include consideration of potential barriers.

Jurow and Barnard (1993) identify the following barriers to implementing TQM: (a) use of business terms that are foreign to libraries and which indicated to some that high standards are not currently in place, (b) length of time to implement TQM principles, (c) professional resistance to customer driven decision making. Martin (1993)

in discussing TQM and continuous improvement says

What does seem clear is that the difficulties of translating its concepts into practice, the need for individual application of those concepts to each particular situation and the fact that most existing good practice for comparison is in the manufacturing sector have presented severe stumbling blocks. (p. 4) "Resistance to Deming can be fierce, since his philosophy departs so radically from the original basis of the educational system" (Blankstein, 1996, p. 28). Education has a long tradition of being primarily teacher lead rather than student lead. Deming's focus on the customer and the worker (students) requires a major change in practice for many educators.

Customer Service

St. Clair (1997a) states "all successful information operations are recognizing that the authority of the customer is the authority to which we and our information delivery operations are responsible" (p. 17). "To operate without asking what the user needs is to be self-serving" (Mackey & Mackey, 1992, p.58). While responding only to what the library staff thinks the customers want is self-serving, responses to customer request must have a "fitness for purpose" based on stated mission and goals (Martin, 1993, p. 7). "TQM works because it is customer focused, because it relates to the very goals that information management specialists are aspiring to achieve" (St. Clair, 1997a, p. 18).

Data Collection

Continuous improvement is a process driven by data. Mackey & Mackey (1992) say "the theory is that if the process is under statistical control, a quality end product will follow naturally" (p. 61). The continuous improvement "process requires a great deal of research using flow charts, control charts, brainstorming, and other information gathering

and generating techniques. These techniques are used in determining the present status and then generating options for improvement" (Vickery, 1993, p. 36). As important as the collection of data is, it is the processes of the data evaluation which provides insights for improvement. Hanson (1998) states evaluation provides information that can "clarify options, identify strengths and weaknesses, and provide information on key contextual factors affecting the program" (p. 44). Library staff, customers and administrators must understand that "statistics are used to measure the process by which ends are achieved, not the end results" (Mackey & Mackey, 1992, p.61). Data are needed to make "informed decisions" about the effectiveness of a process (Hanson, 1998, p. 45). People participating "in the evaluation process" will support an improvement process because they have a "shared understanding" developed from being part of the data collection and analysis process (Hanson, 1998, p. 45).

Vision, Mission, and Goals

Vision and mission statements help define the primary role a library plays in its community. The statement of goals details the activities of the library that leads it to fulfilling its stated mission and moves the library toward that vision. Without goal statements a library may have a difficult time identifying what it is expected to do and how it should function to meet customer needs.

"The library's vision is what you want your organization to become in the future. It must be self-defining and contain the organization's values, core beliefs, and fundamental attitudes" (Orenstein, 1999, p. 45). The vision is the beginning of a strategic plan which includes mission statements, goals, objectives, and strategies. The formation of a vision, a mission, and goals provide staff the ability to "define what they are going to

do, how they are going to do it, and what the benefits would be after it was done" (Vickery, 1993, p. 36). "A strategic plan lends credibility to the quality improvement process" (Riggs, 1993, p. 74).

Pryor (2001) recommends a mission statement should be developed by representatives of a library's stakeholders. This allows the stakeholders to "determine what they really care about that will foster the vision" (p. 21). Through discussion, the stakeholders can "write a mission statement that states their purpose and vision in a memorable statement" (p. 20).

From the mission statement a "library media specialist should develop a single goal, several objectives, and an action plan for each objective that will lead to the vision" (Pryor, 2001, p. 21). It is the goals statements that provide the library media specialist or librarian a clear direction for action. The data collection and analysis conducted as part of the continuous improvement process measures the degree to which the goals are achieved.

Summary and Conclusion

The principles of TQM developed by Deming, Juran, and Crosby have been successfully applied in libraries. The application of TQM or continuous improvement as reported in the literature has emphasized customer satisfaction, identification of mission and goals, using appropriate tools to collect and analyze data that measures the effectiveness of libraries. The literature from academic, special, and public libraries as reflected in the writings of Brophy & Coulling (1996), Jurow (1993), O'Neil (1994), Riggs (1994), and others offer specific suggestions that may be applicable to school library media centers. Literature from within the school library media environment such

as Blankenstein (1996) and Rux (1993, 1995) provided indications that continuous improvement principles could work, but lacks specifics of that application in practice.

Chapter 3 details the methodology for this research study. It will define the specifics of collecting data in a variety of forms and discusses the process of analyzing these data. The analysis will lead to the development of a descriptive narrative of the experiences of the Independent School District 535 Rochester, Minnesota, public school library media specialists' experiences in learning about and integrating continuous improvement principles and processes in their media centers.

Chapter 3

Methodology

Introduction

This chapter presents the methodology used in the study of the implementation of continuous improvement in the media centers of the Independent School District 535 (ISD 535) Rochester, Minnesota, public schools. The researcher's focus is in describing the experiences of the library media specialists as they try to implement continuous improvement in their media center programs and in identifying the meaning of that experience. This chapter describes the research design, research participants, the researcher, instrumentation, data analysis, and validity and reliability as they pertain to the study.

Research Design

This is a qualitative study examining the experiences of eighteen school library media specialists in their attempt to implement continuous improvement processes and tools within their media centers. This study is designed to illustrate the library media specialists' experiences beginning with training in continuous improvement and follow through implementation of the processes, tools, and strategies presented in the training. The research reports not only what the library media specialists did but also how they felt about the implementation process.

Qualitative research. Qualitative research is involved with the process and meanings of interactions. The researcher is involved, over a period of time, observing and collecting data about the how something is experienced. Data sources includes interviews, collection of artifacts such as pictures and charts, graphs, and other

participant's constructions, and observation field notes (Denzin & Lincoln, 2002; Fraenkel & Wallen, 2000; Miles & Huberman, 1994). The researcher is, as discussed by Fraenkel and Wallen (2000), "describing in detail all of what goes on in a particular activity … rather than on comparing effects of a particular treatments" (p. 502).

Within qualitative research methodology there are a number of approaches open to a researcher. The question for this researcher became what qualitative approach best fit this study. Reading Creswell's (1998) discussion of the five traditions of qualitative research, this researcher narrowed the study to either a case study or a phenomenological study. Analyzing the differences between the case study and the phenomenological study as presented by Creswell, this researcher felt the group experience of the ISD 535 library media specialists fit best into a phenomenological research approach.

Phenomenology. Phenomenology is the study of an experience from the perspective of the individual, focusing "on descriptions of how people experience and how they perceive their experience of the phenomena under study" (Glesne, 1999, p.7). The phenomenon under examination in this study was that of implementing continuous improvement in school media centers. Moustakas (1993) describes the phenomenological study as distilling from the experiences of the participants a primary meaning. This study sought to identify that primary meaning.

Developing common meanings from the individual experiences of the ISD 535 library media specialists as they worked with continuous improvement was a goal of this study. Creswell (1998) says a phenomenological study describes "the meaning of the lived experiences for several individuals about a concept" (p. 51). The library media specialists in this study lived the experience of implementing continuous improvement

both as individuals in their separate buildings and together as they shared their experiences. Glesne (1999) states, “researchers seek to make sense of personal stories and the ways in which they intersect” (p. 1). The individual stories told by the library media specialists combined to describe a shared experience. The group story may support and improve the experience for the whole through its sharing.

Data Collection

According to Moustakas (1993) the typical data collection in phenomenological investigation is the long interview. Other writers such as Creswell (1998) and Glesne (1999) suggest the inclusion of artifacts such as pictures and constructed objects and observations as part of the data collection. The data sources for this study included, but were not limited to:

1. Participant’s reactions to the continuous improvement process obtained through interviews.
2. Experiences of library media specialists with the application of continuous improvement tools in media center instruction documented
3. Changes in the ISD 535 Media Services department because of the continuous improvement initiative as reported in interviews.
4. Descriptions of continuous improvement training.
5. Customer satisfaction surveys developed by ISD 535 Media Services department staff and the survey results.
6. Implementation of program changes resulting from survey results as described by library media specialists.

Interviews and observations provide rich narrative data of how the library media

specialists used continuous improvement in their programs. The collection of artifacts provides supportive documentation to the narrative.

Participants

Moustakas (1993) describes the participants of a phenomenological study as needing to have the same phenomena experience and to have a commitment to the research participation. In 1997 the study's participants unanimously agreed to participate in structured training and attempt to apply continuous improvement to their roles as school library media specialists. Within the first year, the library media specialists also agreed to allow this researcher to record their experiences for a potential research endeavor. Therefore, participants in this study are a purposive sample. Fraenkel and Wallen (2000) state the purposive sample differs "from a convenience sample in that researchers … select a sample that they believe, based on prior information, will provide the data they need" (p. 114). A purposive sample is more desirable than a sample of convenience, which Glesne (1999) describes as having "low credibility" (p. 29). This purposive sample meets requirement stated by Moustakas (1993) that in phenomenological research all participants must have experienced the same phenomenon. All library media specialists in this group had opportunities for the same basic training in continuous improvement. This training is described in Appendix B.

Participant group. The participant group consisted of eighteen library media specialists. Seventeen library media specialists are licensed with master's degrees. The other library media specialist is an experienced classroom teacher with a strong background in children's literature and has learned to be a library media specialist on the job. At the beginning of the study four of the library media specialists had three to five

years of media center experience; nine had six to nineteen years experience; and five had twenty or more years of media center experience. All participants had experience as classroom teachers before becoming library media specialists. Table 5 provides additional demographic information about the library media specialists.

Table 5

Library Media Specialists Demographics

Grade Level	Male	Female
Elementary (k-5)		9
K-8		1
Middle School (6-8)		4
High School	1	3

Four participants were among the early adopters of continuous improvement as presented in ISD 535. These early adopters came from elementary and middle schools. They attended the first teacher continuous improvement training sessions provided by the school district. Two high school library media specialists had not taken the district provided training but had participated in ISD 535 Media Services department continuous improvement training and activities. All of the other library media specialists attended at least the first of the two school district training sessions at some point during years two to four of this study.

These participants were unique to the general population of library media specialists because of the training in which they participated for continuous improvement. Their experiences and feelings about the use of continuous improvement processes and tools may not be legitimately generalized to the whole population of library media

specialists in the state of Minnesota or across the nation.

Researcher

The researcher began a career as a library media professional in 1969. This career included positions in public schools as a library media specialist, as a regional library media consultant, as a district library media coordinator, and as an assistant professor in library media education. The career experiences and an active program of continuing education in the library media field provided the researcher strong background knowledge from which to draw for this research study.

The role taken by the researcher during this study was not only appropriate for the research, but was also aligned with the personality and operational style of the researcher.

Participant observer role. The researcher worked with this group of library media specialists for six years as coordinator for the ISD 535 Media Services department providing leadership and support, but did not have a supervisory relationship with the participants; supervision was the responsibility of individual school-building principals. This leadership and supportive role allowed the researcher to take a participant observer role. Glesne (1999) describes the advantages of the participant observer as being able to observe how the actions of research participants correspond to their words; see patterns of behavior; experience the unexpected, as well as the expected; and develop a quality of trust with your others that motivates them to tell you what otherwise they might not (p. 43).

Overt participant role. Because of this researcher's relationship with the participant group, an overt participant observer role was a natural fit. Within the phenomenological research approach, "the observer's focus is on how members of the …

[study] … apprehend and act upon the object of their experience" (Gubrium, 2000, p. 489). As a participant observer, the researcher had unique opportunities to make this type of observation. Fraenkel and Wallen (2000) stress the participant observer in an overt observation must tell the participants about the observation being done. "The researcher makes no effort whatsoever to manipulate variables or to control the activities of individuals, but simply observes and records what happens as things naturally occur" (Fraenkel & Wallen, 2000).

During the last two years of the study (2001 – 2003), the researcher's role changed to that of non-participant observer. The media services leadership position was eliminated due to the school district's restructuring of positions in response to budget deficits. As a result, this researcher assumed a new professional position, outside the school district.

Instruments

The primary data collection instrument for this study was face-to-face interviews and on-site observations. The collection of artifacts such as pictures, video and participant-constructed items added to the total collected data.

Interviews. Each of the interviewing sessions used open-ended interview questions. The first interview included questions required for a report to the superintendent of Independent School District 535 Rochester, Minnesota on the Media Services department quality initiative. The second question set repeated the first questions and added new questions to meet the needs of this study. A third interview repeated previous questions and added additional questions if needed. An interview guide with the open-ended interview questions was used to provide consistency in the

interviewing process.

The first interview questions asked: (a) what are the pluses (activities that should be continued) that helped us move forward in using continuous improvement? and (b) what were the deltas (activities that need to be changed) to help in moving forward in using continuous improvement?

The second and third interview questions repeated the questions from the first interview and additionally asked (a) how are CI tools selected? (b) how helpful is continuous improvement to you? (c) what are the barriers to using continuous improvement? and (d) specifically how is continuous improvement being used in instruction, consultation with teachers, and management of the media center?

Procedures. Fraenkel and Wallen (2000) note one of the general characteristics of qualitative research is the use of the natural setting as a source of data. Each of the participants was interviewed in their library media center. In addition to this being a comfortable setting for the participants, being in the library media center provided access for the researcher to observational data. Before beginning the interviews, each participant was provided detailed information about the study and asked to sign a permission form which briefly describes the study and researcher's data collection techniques. The interviews were approximately one year apart. An interview guide, outlining predetermined questions, formed the basis for each interview. The researcher conducted the interviews by taking field notes and tape-recording the interviews. Transcripts of the tapes provide validity to the filed notes and assisted in member checks. Fraenkel and Wallen (2000), Creswell (1998), and Glesne (1999) support using audio and video taping of interviews however, they also caution about being aware of the pitfalls of

recording, including transcribing time. The researcher sought help for the transcription process.

Anecdotal notes were made over the duration of the study to record day-to-day interactions between the researcher and participants as they progressed in the implementation of continuous improvement.

Artifacts. Artifacts collected from the participants during the study document the use of continuous improvement. Glesne (1999) suggests asking, "research participants to produce documents" to enrich and support the observational and interview data collection (p. 59). The artifacts illustrate and reinforce the data collected during the interviews. These artifacts include samples of tool implementation such as consensograms, posters, diagrams, student work, data collection charts and photographic evidence and are discussed in Chapter 4.

Validity and Reliability

Validity. The trustworthiness of the data collection and analysis process can be established through carefully using accepted techniques and following standard procedures. Creswell (1998) places responsibility for verification on the researcher. To that end, this researcher employed several methods to maintain validity and reliability.

This research utilized the following other verification techniques discussed by Glesne (1999), Martin (1993) and Creswell (1998). First, the researcher should establish an extended relationship with the research participants which allows for verification of observation and conclusions. Second, member checking, in which the study participants provide feedback on the accuracy of the data collection and its interpretation. Third, the researcher should use rich, thick description in data analysis to provide the reader the

opportunity to engage with the data. Fourth, the process of triangulation in which multiple data collection processes are used to check one set of data against the others. The researcher looked for observational and artifact data to collaborate or support information obtained from interviews. Fifth, the researcher must consider and deal with issues of researcher bias.

Relationships .Glesne (1999) states that time is a valuable element in establishing the trustworthiness of research; time at the research site, time with the participants' building relationships and interviewing. The researcher worked with the participants for two years before beginning this study thus, established an environment of trust. During the study, participants focused on the implementation of continuous improvement as a goal of the school district, but were also aware that the researcher was gathering data for the study. The participants' cooperation with the research continued throughout the study.

Member checking. As analysis of data proceeded, participant review of the researcher's data interpretation assisted in maintaining accuracy (Glesne, 1999). This study's participants were asked to review the interpretation of the transcriptions. Corrections in interpretation were made when requested, which was seldom.

Rich, thick description. The voice of the participants provided description that allows the reader to glimpse the experience being studied. In addition to the words of the study participants, photographs and other documents help in authentically describing the phenomenon being studied.

Triangulation. Glesne (1999) discusses triangulation as a process to establish the trustworthiness or validity of the data gathered in research. Triangulation is the "cross-checking of data using multiple data sources or multiple data collection procedures"

(Fraenkel & Wallen, 2000, p 673). In order to establish data validity as discussed by Glesne (1999), Creswell (1998) and Fraenkel & Wallen (2000) this research was conducted using multiple data sources. Specifically these multiple data sources are multiple interviews, observations, and document (artifact) collection that provided a basis for triangulation.

Bias. The researcher was aware of the possibility for bias in the collection and interpretation of data. The long-term relationship between the participants and the researcher presented the possibility of data corruption due to personal relationships. Glesne (1999) suggests using an interview guide and audio taping interview to help reduce researcher bias. The researcher used an interview guide and audio taping, as well as participant review of the data interpretation in order to limit possible bias in this study. Participant understanding of their anonymity also helped to insure responses were truthful rather than politically correct.

The use of an interview guide also provided consistency and allowed a high standard of replication from one interviewee to another in each interview. The repetitive process of interviewing in this study is consistent with recommendations from Fraenkel and Wallen (2000). The repetition of questions in the first and second interviews provided a means for checking the consistency of answers given by participants. Audio taping the interviews provided a high level of reliability in recording of the interview responses. The use of observation and artifact collection in addition to the interviews all provided a means in which triangulation assisted in maintaining validity and reliability in this study.

Threats to Internal Validity

Issues of internal validity are frequently outside the control of the researcher and must be considered in the research design in an attempt to reduce their effect on the research results, (Fraenkel & Wallen, 2000). Preparing for the possibility of unforeseen occurrences during the study can help prevent damage to the study. Following the research design also helps maintain validity. When unplanned events occur the researcher should be careful to note them within the study results.

History. The researcher recognized that among the participants in the study there may be some history threat. History threat refers to events happening to the participants which may influence the results of the study. Each participant existed within a unique building environment. Some buildings may have been more involved with the use of continuous improvement than other buildings thereby creating a different environment. Some participants may have found the implementation of continuous improvement easier than others due to previous experiences or their personal ability to implement change. Since this study gathered data on how the participant group as a whole experienced the implementation of continuous improvement, the researcher noted the historical events related to the implementation as they were discovered, but does not see these events as detrimental to the study's internal validity.

Maturation of subjects. The library media specialists in this study were working as a supportive team while each was individually implementing continuous improvement in their library media center. There was an expectation within the participant group that some members would mature more quickly in the use of continuous improvement than others. As each participant reported successes or failures in the implementation process,

the participant group as a whole matured. The support and celebration within the participant group as they shared successes and failures acted as a continuing catalyst in continuing the implementation experience. While the researcher was aware of possible negative maturation or Hawthorne effects and took them into consideration, the positive group dynamics in place before the study began was expected to continue into the study and acted as a counter balance to these threats.

Location. The major data collection for this study took place in the library media centers of ISD 535. While the physical environments of each facility differ in design, age, and attributes, the functional environments were similar. The factor of location threat was considered by this researcher to be minimal because there was a basic philosophical alignment between all participants in the study. This basic philosophy was expressed in the ISD 535 Media Services department mission and goals statement created by the study participants. Variations in the physical environment did not impede the philosophical environment that was common to the participants.

Instrumentation. Instrumentation threats to internal validity as described by Fraenkel and Wallen (2000) were controlled by the use of an interview guide, the repetition of interviews at periodic intervals with careful notation of variations in interviewing experiences, and the use of one data collector for all interviews. The collection of data was standardized in an attempt to reduce internal validity issues: all interviews took place within the participants' library media centers, all interviews were audio taped to assure accurate transcription of participants' remarks. Interviews were conducted during one-week periods in order to prevent data collector fatigue as described by Fraenkel (2000). Since interview periods were approximately one year apart, neither

the data collector nor the participants were affected by frequency of interviews.

Regression and implementation. This researcher examined the chances of regression threat and implementation threat. The participant group was approaching a new management technique. The participants were on equal footing and the goal of the study was not to measure how successful they were but only to note what successes were achieved. As a result, the regression threat was minimal. The implementation threat was likewise minimal since all participants had equal access to a variety of CI tools and processes for implementation. Important to the study was what each participant found they could use successfully, not on a comparison between individuals. If threats to internal validity were noticed, the researcher noted and included them within the findings report.

Mortality. In many research situations, the loss of members from the subject group may be detrimental to the research (Fraenkel & Wallen, 2000). Since the requirements of this study demanded common experience in training and the bonding that formed in a group working toward a common goal, no subjects lost from the study were replaced. The researcher felt the loss of a minimal number of participants would not adversely affect the study results. Data gathered before a participant left the study were used in the data analysis unless the participant requested their data be eliminated. The loss of participants is noted within the reporting of the research findings.

Ethical Issues

The participants in this study and researcher, as participant observer, shared a unique bond. As they learned with and from each other, the researcher and participants created a unique learning community. Glesne (1999) describes this type of learning

community as a relationship based on trust, and collaboration. Relational ethics is a core of this form of research and friendship is accepted within the methodology. Creswell (1998) discusses four ethical concerns faced by researchers as they collect and analyze data and publish their reports. These ethical issues are (a) protection of participant anonymity, (b) revealing the purpose of the research study, (c) sharing "off the record" information, and (d) sharing personal experiences. Each of these ethical concerns was carefully addressed by the researcher not only because of the need for researchers to observe ethical practice but also because of the trusting relationship established with the participants.

Planning. Protecting the rights of the human subjects was accomplished through careful planning of the research design. Risks to participants were identified and risk reduction measures were implemented. These measures included security of all communications, interview tapes, and establishment of anonymity. A process was established to provide participants with a full disclosure of the research study methodology and their rights as participants. A human subjects form was submitted to Saint Mary's University of Minnesota for review and approved. This process helped assure the planned protections of human rights was adequately provided within the study.

Subject risk. Creswell (1998) This researcher has considered the possible effect on the participants if the research is published. To prevent participants' individual identities from being exposed all quotations used in the research report were attributed to pseudonyms to disguise identity. Care was also taken by the researcher to prevent written descriptions from revealing identities.

Researcher responsibility. All participants in this study received both a verbal and

written description of the research study. Participants were asked to sign a human subject's form that clearly detailed the participants' rights and fully disclosed all aspects of the research including the participants' right to withdraw from the study.

Since this research was conducted within ISD 535, permission was obtained from the Director of Curriculum and Instruction before conducting interviews and observations. The school district's administrative cabinet approved the initiative that underlies this research in approving the proposal submitted by the ISD 535 Media Services department. This initiative proposal included department staff training; stipend after school department meeting time for planning; and funding for conducting surveys. The school district's administrative cabinet required that periodic reports be made describing the ISD 535 Media Services department's activities and results. The requirements for the periodic reports were built into the research study.

Notification. A participant's consent form was submitted to Saint Mary's University of Minnesota for review. This review provided an additional safeguard for the participant.

Deception. In this research study, revealing the purpose was both an ethical issue and imperative to obtaining needed data. While much of the data needed for this study could have been obtained through the researcher's personal relationship with the participants without disclosing the research objective, it would have been unethical to use that information for the researcher's benefit without full disclosure.

Individual freedom. The participant consent form clearly indicates participants were able to withdraw from the study at any time. In addition, as interviews were conducted participants were reminded that they did not have to continue their

participation in the study and that they were not required to answer all of the interview questions.

Subject discomfort. All participants were asked to volunteer for this study. They were provided with a copy of the consent form which identified potential risks. During the study participants were reminded of their rights as study participants. In order to maintain the trusting relationship established with the participants the researcher respected not only the confidentially of the participants but also their time constraints and convenience needs.

Results dissemination. All participants were given access to the study results as they were developing. They were asked to verify their own data contributions. During the final analysis and writing stages of this study participants were offered the chance to review the study report in draft form. All participants have been offered a copy of the completed study in either print or electronic form.

Undesirable consequences. Because this study was conducted in conjunction with the implementation of continuous improvement in ISD 535 the researcher had some concern with possible negative consequences to the participants. In order to eliminate this possibility all reports provided to ISD 535 were produces in an aggregate form. Participants were given repeated assurance of anonymity.

Confidentiality. The sharing of personal experiences between library media specialists and this researcher about using continuous improvement was vital to this study and has been readily disclosed in the study reporting. Since interviews occasionally wandered from the immediate question and topic, incidental personal experience not dealing with the study was considered “of the record” and protected information. Such in

formation was eliminated from interview transcriptions. When “off the record” information was vital to the validity of the research the researcher attempted to obtain collaborating “on record” data. If collaboration could not be obtained the information was not included as part of the research.

In order to protect the confidentiality of the participants pseudonyms were assigned to all interview transcriptions and school identifications were removed from artifacts. People who provided any assistance to the researcher in this study had no access to the identity of the participants.

Data protection. Data collected during this study has been kept in secured storage at my home during this study. This stored data will remain in my custody until it is destroyed or returned to the participants. The data will not be kept longer than June, 2005.

Data Analysis

Data analysis began with an initial reading of interview transcripts followed by coding. The preliminary coding schema was based on key words. Additions to the coding schema developed as needed to sort and arrange data. A code book, according to Glesne (1999), is a valuable method of keeping track of code schema. This researcher maintained a codebook as a Microsoft word-processed document. Transcripts of interviews as well as observation field notes were entered into the word processing program. Data coding took place within the word-processed document. This allowed key word searching to assist in the analysis process. As the transcripts were read care was given to identifying individual statements that indicated how the phenomena under study were being experienced. Moustakas (1993) describes this technique, called horizonalization, in which each

interview and each statement is viewed as equal in value. The statements are examined without comparison or judgment. These individual statements formed the first level of analysis and helped establish themes for further analysis. The statements of experience were then grouped into clusters of meaning, removing duplicate statements. Naturally occurring major themes from the horizonalization process and key words from the research questions "create[d] an organizational framework" (Glesne, 1999, p. 135). Further division occurred as sub-themes emerge.

As the data analysis took place, narrative descriptions that exemplified themes and experiences were identified for use in a textual description of the experience being studied. Included in this textual description are common and opposing responses to interview questions. Data analysis and the textual descriptions provided answers to the primary research questions: (a) how continuous improvement was being used and (b) the perceptions of the library media specialists about the usefulness and successes they have had with continuous improvement

Summary

Phenomenological research processes were used through out the study. This qualitative study collected data using observation, interviews, and artifact collection. The analysis of the collected data relied on the coding of interview transcriptions, and the techniques of triangulation. The researcher maintained an on-going relationship with the eighteen study participants in order to facilitate continued data collection and check for accuracy of data interpretation. The researcher maintained cognizance of the need to accurately report data and analysis, to protect the participants' anonymity, and to keep the participants informed about the progress of the study.

Chapter 4 presents the data analysis along with a synthesis of meanings and a distilled essence of the experience as described by the Independent School District 535 Rochester, Minnesota library media specialists. Chapter 5 presents a summary of the study, a discussion of implications and suggestions for further research.

Chapter 4

Analysis of Data

Introduction

The purpose of this study was to document the experiences of library media specialists in Independent School District 535 (ISD 535), Rochester, Minnesota as they implemented the district's continuous improvement program in their library media centers. The research questions for this study are:

1. What feelings do library media specialists express about the use of continuous improvement in their library media centers, buildings, and the district?

2. How do library media specialists decide what continuous improvement tool or process to use?

3. How is continuous improvement being used in the instructional, consultative, and management processes of the library media center program?

4. What barriers inhibit the use of continuous improvement?

5. What is needed in order to further the implementation of continuous improvement?

6. How has continuous improvement affected student achievement?

This chapter focuses on the analysis of the collected data from interviews, observations, and artifacts. The data analysis included listening to interview tapes while reading transcriptions to check for accuracy; reviewing observation notes; the examination of artifacts; and the coding of transcripts, notes, and artifacts. Coding of the data evolved as an on-going process and provided a means to sort and resort the data. Data set comparison, using the process of triangulation, helped to identify common

concepts between data sets. As discussed by Glesne (1999) and Creswell (1998), the triangulation process compares data from different sources to establish trustworthiness or validity of the data. In addition, the triangulation of the data helped to provide confirmation and completeness in finding answers to the research questions. Each data source contributed to the answers for research questions.

The discussion of findings is prefaced by a brief study background followed by the findings for each of the research questions. Interview responses, artifacts, and observational notes were coded, and then analyzed using the process of triangulation in order to determine the primary experiences related to each research question. Quotations from the interviews are verbatim transcriptions of the interview tapes.

Supporting and expanding the narrative presentation of the findings are quotations from the participants and graphics from the artifact collection. In order to provide protection of participant identity, pseudonyms identify each quotation. Because there is only one male among the participants, the researcher used gender-neutral pseudonyms. Table 5 lists these pseudonyms.

Data collection for this study began in the fall of 1998 and continued through February 2003. At the end of the data collection, sixteen of the original eighteen library media specialists remained employed in the district. Two media specialists had retired. The closing of two old elementary buildings resulted in combining students and staff from the closed buildings into one new building, thus eliminating one position. The media specialist hired to fill the remaining vacancy was not included in the study. The study encapsulates the ISD 535 library media specialists four years of experience implementing continuous improvement.

Table 6

Participants' Pseudonyms by Grade Level

Elementary	Middle School	High School
Alex	Taylor	Austin
Ashley	Bailey	Casey
Morgan	Corey	Drew
Dylan	Sam	
Jordan		
Pat		
Sidney		
Chase		
Robin		
Shannon		
Tory		

Background

During the fall of 1998, the eighteen library media specialists of ISD 535 embarked on an exploration of how a program of continuous improvement (CI) could affect their media centers. The district provided training provided a common knowledge base for the library media specialists. Brainstorming, experimentation, and sharing sessions provided on-going support and encouragement to the library media specialists.

Training. The school district established a training schedule as part of the district's staff development academy. This training was available to all district

employees. The first training session introduced the historical and philosophical foundations of Total Quality Management and the Total Quality Schools system, terminology, and basic quality tools. The second two-day training focused on classroom application, development of classroom and school improvement plans, and using system checklists based on the Baldrige Educational Criteria for Performance Excellence. These checklists are provided in Appendix C.

ISD 535 contracted with the Pinellas County Schools, Florida Quality Academy to provide initial continuous improvement training to district administration and staff and on-going consultation. For a complete discussion of the continuous improvement training, see Appendix B.

Using the CI process. During the three school years proceeding June 2001, the media specialists tried a variety of continuous improvement tools in efforts to improve their interactions with students and teachers. Library media specialists shared their attempts at monthly department meetings. This monthly sharing helped spread CI innovations from building to building. The sharing also provided a supportive environment in which to discuss problems and get helpful suggestions. As the ISD 535 Media Services Coordinator, this researcher was able to visit buildings to see these efforts in action. During these observation visits, documentation was made of the continuous improvement processes in use. The notes from these observations became an integral set of data used in the triangulation analysis for this study. During the first part of June 2000, at the request of the ISD 535 Superintendent, this researcher interviewed library media specialists. The library media specialists were asked to identify their successes with using continuous improvement processes. Additional interviews were conducted in December

2001 and February 2003.

Research Questions

What Feelings do Library Media Specialists Express About the Use of Continuous Improvement in Their Library Media Centers, Buildings, and the District?

The library media specialists were asked to reflect on their interactions with the continuous improvement training and implementation. Casey's comments were reflective of many responses. "Media staff in some areas are learning, planning, and using the training in isolation. Each building needs to commit to learning and using this system."

Influence on Library Media Center

Pat reflected on nearly four years of learning how to implement continuous improvement by saying:

> The thing continuous improvement left with me in my head was how do you help the kids to help themselves? And so, that is a dramatic way of looking at it. In that way it is easier to come up with ideas. How do you keep them engaged, how do you keep them responsible for their own learning, how do you keep them interested in what they are going to accomplish?

Jordan responded with "I guess I am trying to find ways to be more efficient because we just don't have time to waste."

Influence on the Department

The library media specialists were working with continuous improvement in their library media centers, within the Media Services department, and for some, within their buildings. This variety of CI involvement created a variety of experiences and responses. Casey summarized the general feeling about the affect on the department by stating:

> Media personnel have grown together. Department communication has improved. Delineating our service, goals, and processes has helped the cohesiveness and interdependence of all of us. Bringing our issues forward and airing them with the whole group has put us all on the same page.

In a variety of ways, other participants also indicated the department members were sharing more and the sharing of data was helpful. Alex said, "It would have been so helpful to have had the increased sharing earlier. We save so much time by not reinventing the wheel." Pat echoed that in saying, "I enjoyed sharing ideas and curriculum plans with other media specialists."

Needs for the Future

The continuous improvement process includes evaluating existing processes and planning for improvement. In brainstorming sessions during the spring of 2000, the library media specialists identified projects, activities, or procedures to consider for the future as priority goals. The department staff willowed the list to three goals using an affinity process. This process allows for the organizing of the results of brainstorming through grouping similar items together. "Lobby to allow the Media Services department to meet as a whole group on staff development days. We need additional training," suggested Chase. Austin added, "Everyone needs to take both parts of the continuous improvement training." Fifteen of the media specialists indicated the need to have more time as a group to meet and train. One library media specialist, Alex, suggested the department consider twice a month meetings instead of the current monthly meetings. The Media Services department staff identified additional whole group meeting time as a primary goal.

Continued work by the department staff identified more involvement of library media center paraprofessionals as a second goal. Dylan introduced this by saying, “The paraprofessionals work as part of a team in the media centers. Their input and point of view is very important. The timing of meetings currently does not fit their schedules very well.”

The third goal carried forward from the previous year. That goal was to continue finding effective ways to use continuous improvement within the media centers and share the experiences within the department.

Several items emerged in the discussion were easily accommodated through adjustments in current practice. A request to E-mailing agendas and meeting minutes to all department staff, rather than just the library media specialists needed only the merging of email address lists. Pat’s suggestion of flow-charting of budgeting and ordering process to help everyone understand the process better resulted in two of the Media Services office secretaries volunteering to accomplish the task.

Other items, such as changes in budgeting practice and other district policy issues were beyond the control of the department to change. The continuous improvement model specifies that before a system can respond, customer needs must be valid. One issue of validity is whether the system has the capacity to respond. Items discussed that were outside the Media Services department’s control but within administrative control were passed on to the administrative system of the district.

Goal revision and improvement plan evaluation became an on-going part of the department processes. A committee of Media Services department staff was formed each year to revise the improvement plan and present it to the department. The approved plan

was submitted to the ISD 535 school board annually as required of all departments and buildings.

How Do Library Media Specialists Decide What Continuous Improvement Tool or Process to Use?

The selection of an appropriate tool or process was often difficult for the library media specialists since there were no existing models for library media center application. Most library media specialists relied on the *Process Improvement Tools* handbook received during training and the sharing of ideas between library media specialists. A few of the media specialists used the additional resource books on use of continuous improvement tools purchased for each building by the Media Services department. The analysis of interviews, observations, and artifacts showed most library media specialists used only a few tools with which they had become very comfortable. These tools included flow charts, consensograms, and affinity charts.

Jordan, one of the library media specialists who continuously searches for new applications of continuous improvement said:

> You have to be creative, I keep the books on my headboard of my bed 'cause every once in a while I'll think of something and then refer to that. And I have some in the professional collection at school and some in my office. I don't use them as often as I used to. Like last year, I used them more than this year. Some of it I have engrained, you don't have to go to the tools resources for some cases.

Many of the library media specialists expressed a desire for additional models of tool use specifically designed for application in the library media center. Because such models have not been found in the professional literature, the library media specialists need to

continue developing their own models and sharing them within the Media Services department.

How is Continuous Improvement Being Used in the Instructional, Consultative, and Management Processes of the Library Media Center Program?

The roles of the library media specialist are described in *Information Power* (American Association of School Librarians and Association for Educational Communications and Technology, 1998). The instructional role is primary and involves helping students develop information literacy skills and life long reading habits. The consultative role encourages collaborative planning of lessons with classroom teachers, team teaching of students, and assistance in locating and developing learning resources. The management role consists of all tasks necessary for the effective operation of the library media center. The library media specialists found ways to apply continuous improvement processes and tools within each of these roles.

Instructional Use of Continuous Improvement

This section is details individual CI tools and processes used by the library media specialists. The researcher observed CI tools and processes used by library media specialists within their teaching processes and collected artifacts that represented that use when possible. The CI tools were identified by library media specialists during interviews as being important in gathering data used in decision-making about instructional needs, curriculum development, and student learning. Kris said, “It [data collection] really has been helpful, just in the way I deal with the kids and trying to make sure they can get what I am trying to teach them.” There was a great deal of sharing of successful use of these tools and processes between the library media specialists. In an interview Jordan

said, “within the elementary [library media specialist group] we have shared different ways we have done and utilized CI and other people have gotten ideas and adapted them to their own buildings.”

Affinity chart. An affinity chart is used to organize large numbers of ideas into logical grouping. Encouraging student to read is an important activity of a library media specialist. Many of the library media specialists looked at ways the continuous improvement process could help increase reading and meet students’ reading interests. Trish talked about how she was “using affinity charts to get opinions on what students prefer to read and aid in purchasing.”

Figure 1. An example of an affinity chart used for staff development. Following the generation of staff development needs, the needs were grouped by commonality and displayed in a consensogram format for decision-making.

Sidney applied the consensogram in another way. “I wanted the student to tell me what they need/want to learn more about pertaining to library ‘stuff’. We used the results to do some lesson planning. This gave the students some input into what they were

learning."

Consensograms. A consensogram is used to quickly obtain information for decision-making or to get a feeling for how a group values issues or topics. Jordan detailed the use of consensograms to find out information about students reading tastes.

> During February I made several very large posters with 'I love to read FICTION' and other genres and popular types of books. Each student, K-5, was given special colored dot stickers. For example, red hearts for kindergarten, blue dots for second grade. Students were given an opportunity to vote the way they felt about the heading on the poster. The fourth grade girls who suggest that I total each poster for each grade level added up these posters. This has helped me in ordering new materials throughout the school year. These posters were put on display in the media center afterwards for all to see.

The idea of using affinity charts and consensograms was adopted by many of the media specialists. Jordan brought masters of the designs to a department meeting for each of the media specialists. Several of the media specialists used these as models for similar data collection.

Sidney told of her application of the consensogram to reading, "After book talks on Maud Hart Lovelace selections, students marked the one that they are most interested in reading. In the spring after reading the books, they [students] compared their fall selections to how well they actually liked the books." This comparison provided information to students about the perceived "good read" quality of the books and provided the library media specialist with added insight to the student's reading tastes.

Figure *2.* Illustration of the use of a consensogram for a Maud Hart Lovelace Award

before and after comparison.

Consensograms were one of the most frequent CI tools used by the library media specialists. The use of consensograms was the tool most frequently discussed in interviews, observed hung in library media centers, and collected as artifacts. The library media specialists noted that consensograms are easy to construct and administer, they provide a quick visual analysis, and students are willing participants in consensogram activities. Pat took a slightly different approach with the same technique:

> I wanted to advertise the Maud Hart Lovelace contest. Each time a kid reads a book on the contest list, he could put a sticker on the graph. We have a running tally of what is read. Also, the kids can keep a running tally of the book they liked best so far using another chart.

Many of the library media specialists developed creative adaptations of the consensogram

chart process. These creative forms helped to keep the technique fresh and exciting for both students and media center staff.

Figure 3**.** Illustration of a creative approach to using the consensogram technique use with the Minnesota's grades 3-8 reading contest, the Maud Hart Lovelace Award.

Instead of the traditional column approach, a tree represents the consensogram choices. Each leaf on the tree represents a Maud Hart Lovelace Award book nominee. Students sign their names by the appropriate leaf after they finish reading a book. This not only

tracks what books are most popular but also identifies the students who are reading them.

While talking about quality tools, Corey said, "The quality tools I found most helpful were the affinity diagram and consensograms. Students responded well to these, and I liked having immediate results that students can easily see and understand."

Control charts. A control chart is a graph that allows analysis of data about a specific process over time. Pat described a monthly graph showing which class had the most overdue books. "Overdue books are of course a big problem in all libraries. I thought a graph that visualized overdues by classroom would keep the problem visible for all the kids, yet would not shame anyone in particular." At the secondary level, Dylan said "I am working on a chart for overdues. I did a graph chart. I am really frustrated by the high number of overdue materials."

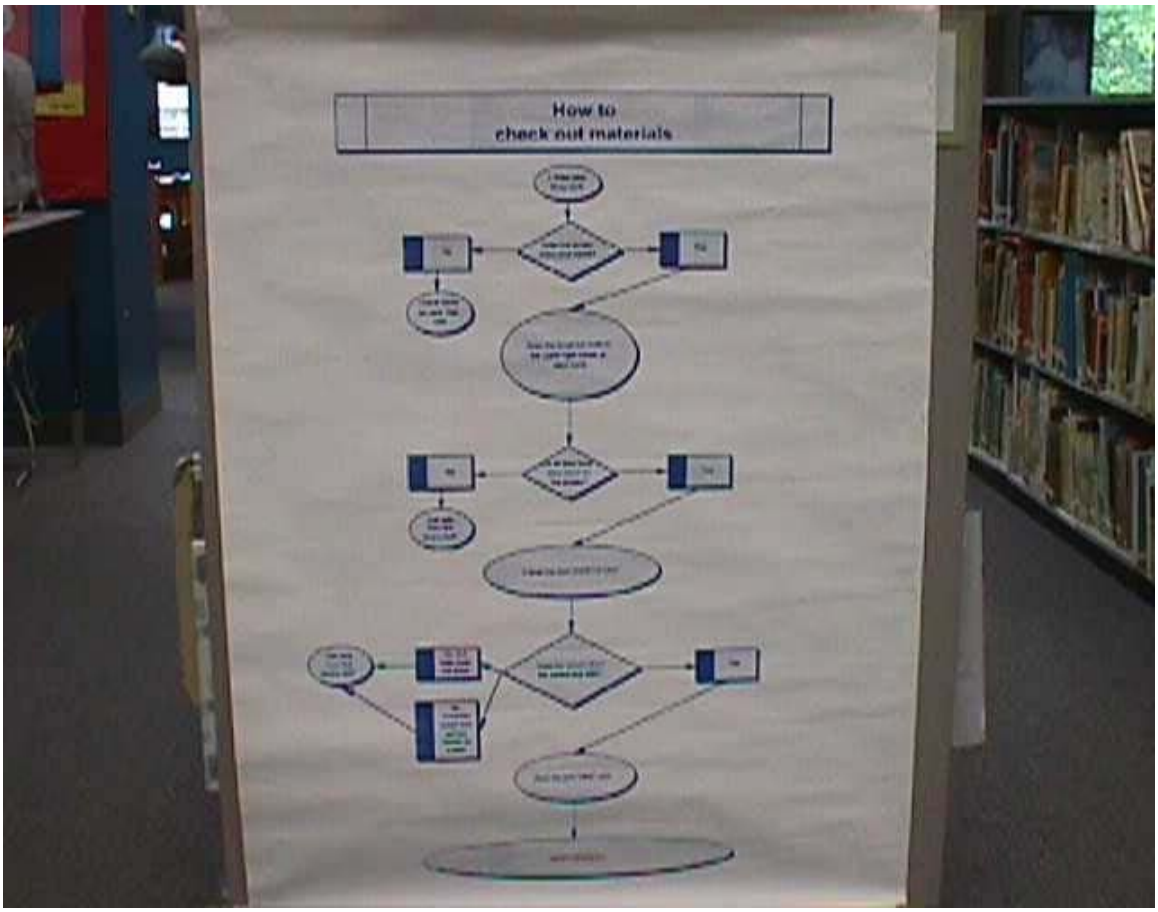
Other library media specialists used control charts to chart class behavior during times when the students were in the library media center while their teacher was on planning time. This helped the students assess their own behavior record and identify when control measures needed to be taken.

Flow chart. A flow chart is a graphic representation of the steps in a process. Sidney integrated a curriculum goal with this quality tool. Sidney helped students to flow chart the process of selecting and checking out a book. "Creating a flow chart is a fifth grade grad standard. This gave the students a real life application and helped the media center at the same time." Jordan said:

> We have a flow chart to show student the steps on how to check out materials using the laser gun at the desk. I would like to make more flow charts: how to find a book on the computer and on the shelves, how to use the index of a book, etc.

The students like having the guide at hand if they forget.

Figure 4. Flow Chart for book check out designed by Jordan's students.

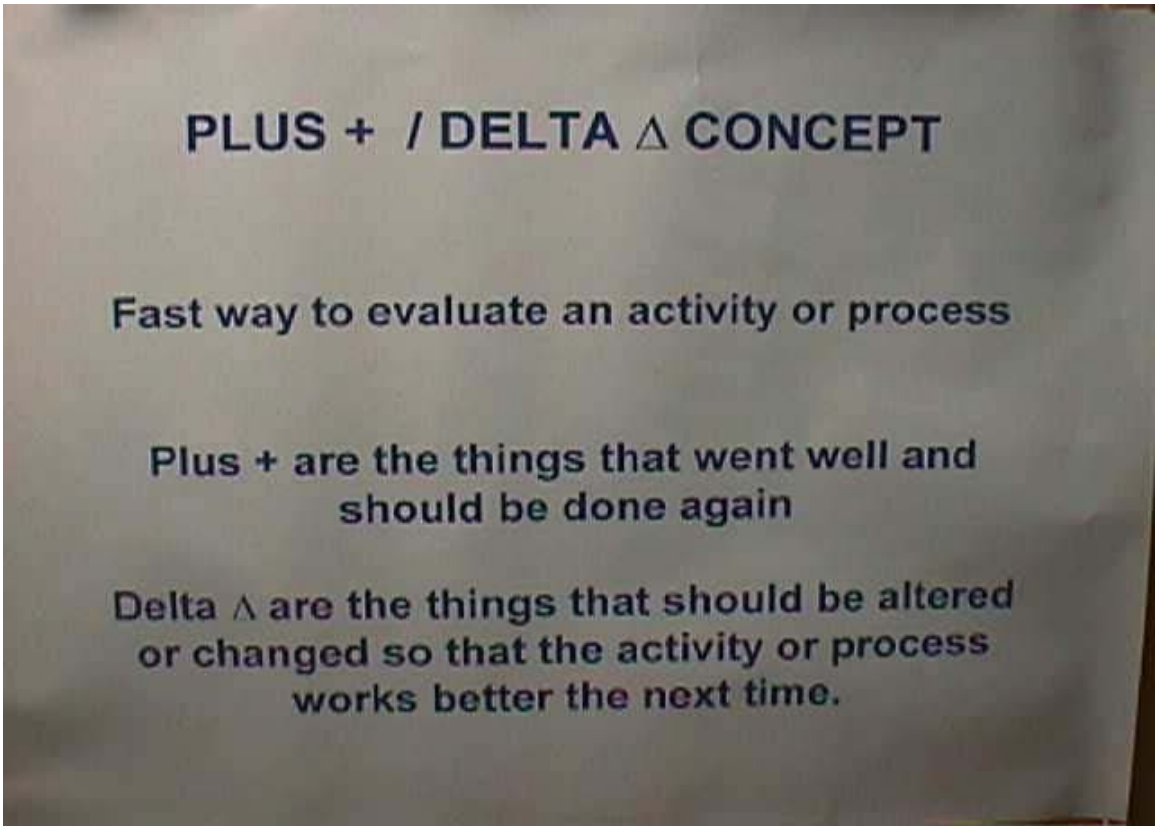


Making the flow chart large was accomplished using a poster maker owned by the school district. The flow chart illustrated in Figure 4 is the only flow chart artifact collected. Flow charts were not frequently observed in library media centers, however, they were frequently mentioned in interviews. Printed materials within the ISD 535 school district commonly included flow charts of processes.

Fist to five and plus/delta. Evaluating a lesson or activity is often difficult to do within a library media center because students are scheduled into the media center for a limited amount of time. As a result, the ability to quickly take the "pulse" of a class is important. The fist to five evaluation asks for a vote to be indicated by using one hand

held high. A fist indicates a negative response, five fingers indicates a high degree of agreement.

Figure *5*. Description of the "plus/delta process" which is used to identify two or three things that worked well and should be done again and things that need to be changed to make a more successful environment.



Shannon talked about using plus/delta at the end of a class.

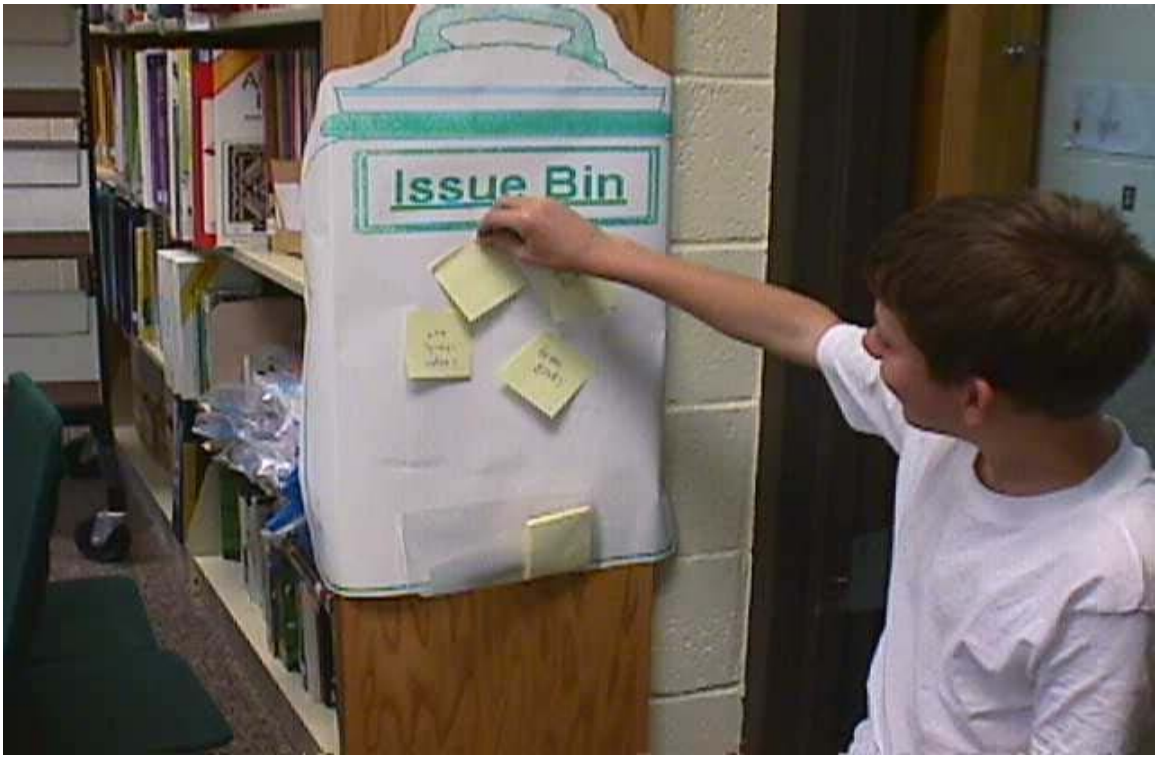
> I'd like to think that I am responsive to the reactions of student to the lessons and projects. I know that I am always revamping lessons based on how I perceived it was going. Having the student impressions helps. Getting that immediate feedback takes only a minute or two and allows me to adjust before I do the lesson with another class.

Many of the media specialists liked using the plus/delta strategy as well as using the fist

to five voting technique to get quick, immediate feedback. Bailey said, “It’s not that it’s a bad idea, I’m just usually running too fast to query my customers.”

Another method of obtaining feedback from students and staff is the use of an issue bin, Figure 6. The issue bin is usually a poster but may be a jar, box, or other container used for collecting notes. These “Issue Bin” notes can be suggestions for improvement of the media center, problems that need attention, requests of many types and occasionally “pat on the back.”

Figure *6.* Illustration of a student using the “Issue Bin” to leave a note for the library media center staff**.**



Setting expectations. In order for learning to take place efficiently, students must understand what is expected of them. Sidney applied a concept from the training workshop in the media center. During continuous improvement training the need for students to take responsibility for how the classroom operates was emphasized. Sidney

worked with the students in each of the classrooms in her building to help them in "setting their expectations for behavior in the library media center. Sidney found "students know what they want for the environment. When they set the rules, they follow them better."

Figure 7. Illustration of a table tent used as part of behavior management in a middle school library media center.

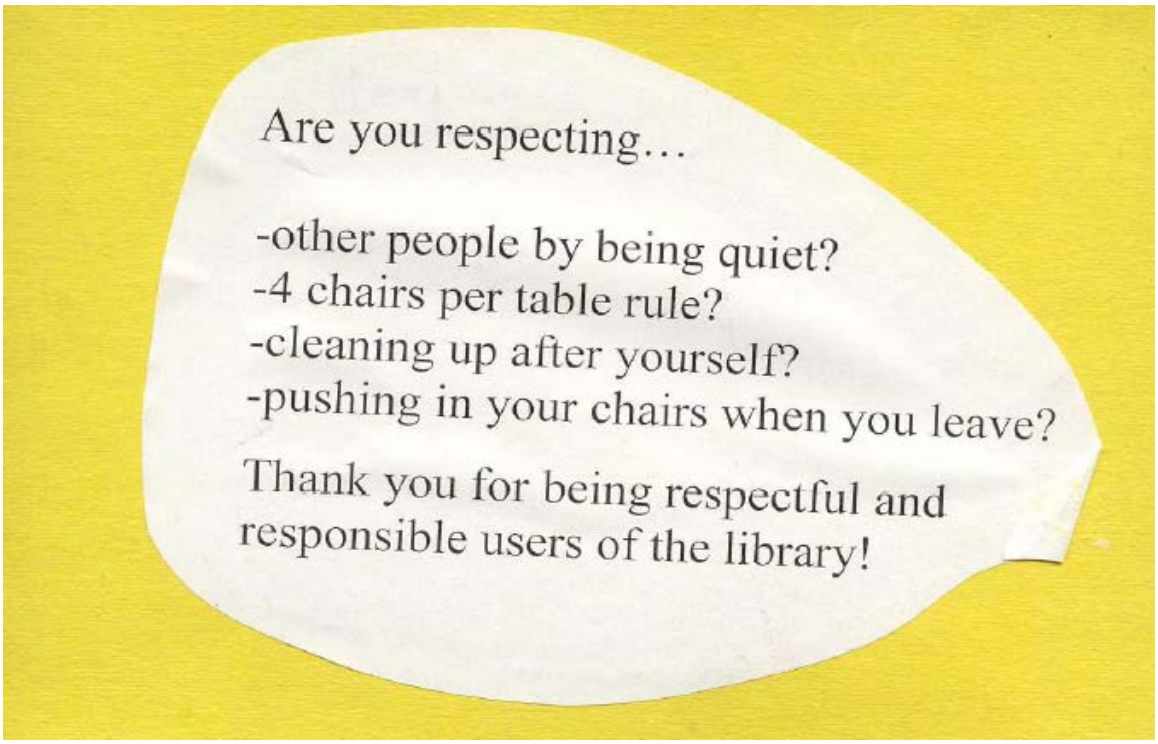


Table tents can be used when students need reminders about behavior. The library media center staff can either point to the part of the card that describes the undesired behavior or quietly ask the student to think about which behavior they need to pay attention.

At another school, the library media specialist used a rain stick to alert students to undesired behavior. Turning over the rain stick made a pleasant rain-like sound. Jordan said:

I think it made kids more accountable they knew if I turned over the rain stick

someone was misbehaving and it wasn't pointed out to the class they just knew it was like every time I turned over the rain stick each kid was self checking themselves – there was no issue with it. I can turn over the rain stick without stopping my lesson. It is unobtrusive.

Figure *8.* Illustration of a rain stick. A dried cactus stem that, when turned on end, causes seeds slowly move, creating a rain-like sound.

*Scaffolds for student independence***.** A goal for library media specialists is to promote independent use of libraries and information. Students can often work independently in the library media center with the assistance of job aids, checklists, charts, signs, and other assistance techniques. These scaffolds provide temporary prompts for students while reducing the time the library media center staff spends repeating directions and providing assistance for repetitive questions. Using scaffolds helps students develop their independent work skills. Media center staff reported the use of scaffolds gave them more time to work with students and staff who really needed their assistance.

The library media specialists improved shelf labeling and section labeling in order

to improve student and staff ability to find materials. This simple scaffolding technique was well received by students at all levels. Money was allocated from the Media Services department supply budget to support purchase of shelf and section labeling supplies. The funding encouraged library media specialists to undertake the evaluation of signage throughout their media centers. In addition to labeling shelving, some library media specialists added room maps, hanging signage, and other directional information to assist their patrons. Improved shelf and section labeling made finding materials more efficient not only for students and teachers, but also for parents and volunteers working in the library media centers.

Figure 9. Clear labeling on an elementary library media center shelving section with clear labeling.

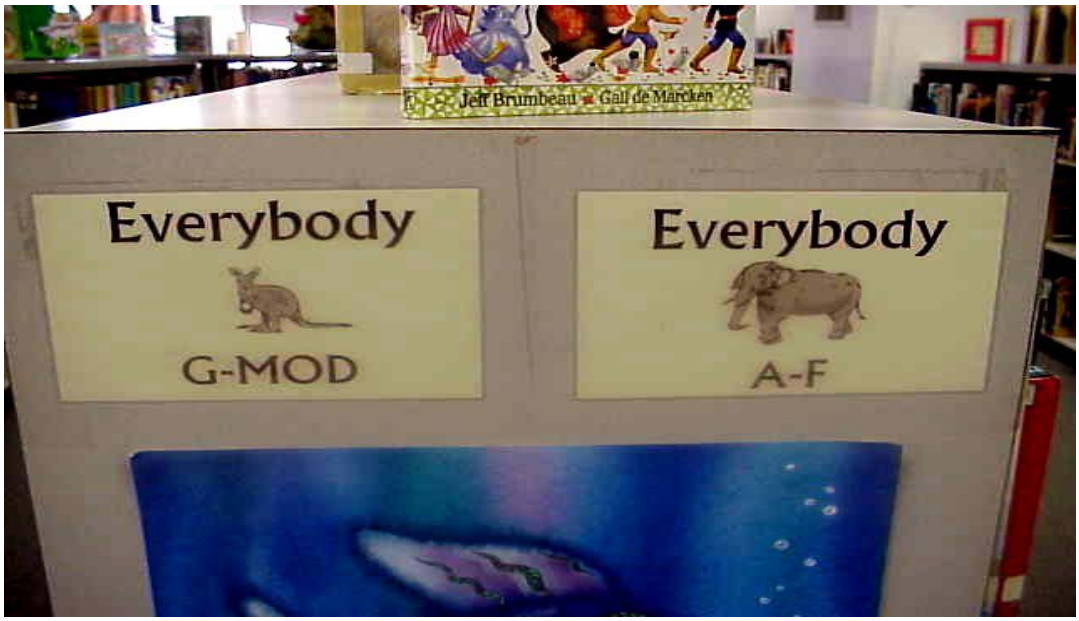


Figure 10. An alphabet letter at the beginning of a section and shelf contents labels is an example of how an elementary library media specialist approached the shelf labeling.

Figure 11. Section labels for nonfiction books in an elementary library media center.

Some secondary library media specialists improved shelving and section labels by using traditional types of labeling such as letter or number runs at the end of shelving units. Others modified the technique of combined word and number labels with visual cues frequently used in elementary media centers.

Figure 12. Section labeling in a high school media center using a visual image.

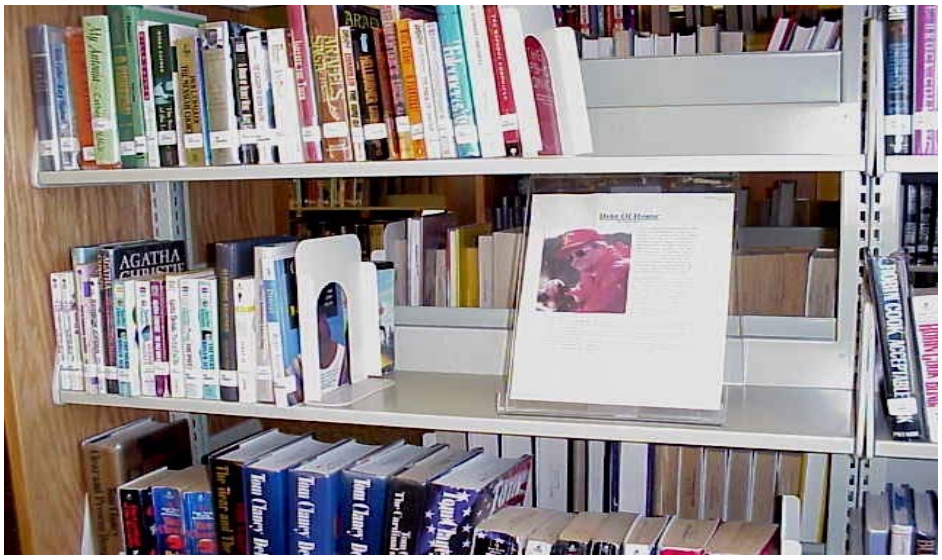


Figure 13. Nonfiction section labeling (Dewey Decimal number on wall) in a high library school media center.

Providing a variety of task aids and rubrics helps students work independently in

the media center. Taylor defined this by stating:

> When kids have rubrics so they know what steps they need to go through to accomplish the product that they need to put out. There is not a whole lot of question about what they need to do when they come in here. That keeps kids more focused. And also deadlines that are held to. And so they can have two days in here this is what you need to do here are the tools that you have to use, there are books, there are Internet sites on my web site all they have to do is click on them and go right in. I'd say most of the kids are good about doing that.

Other scaffolds, provided by library media specialists, are illustrated in Figures 14, 15, and 16. Frequently library media specialists and teachers jointly developed scaffolds to support curriculum assignments.

Figure 14. Student picking up a research guide in the library media center.

Figure 15. Information about citing sources for a research bibliography.

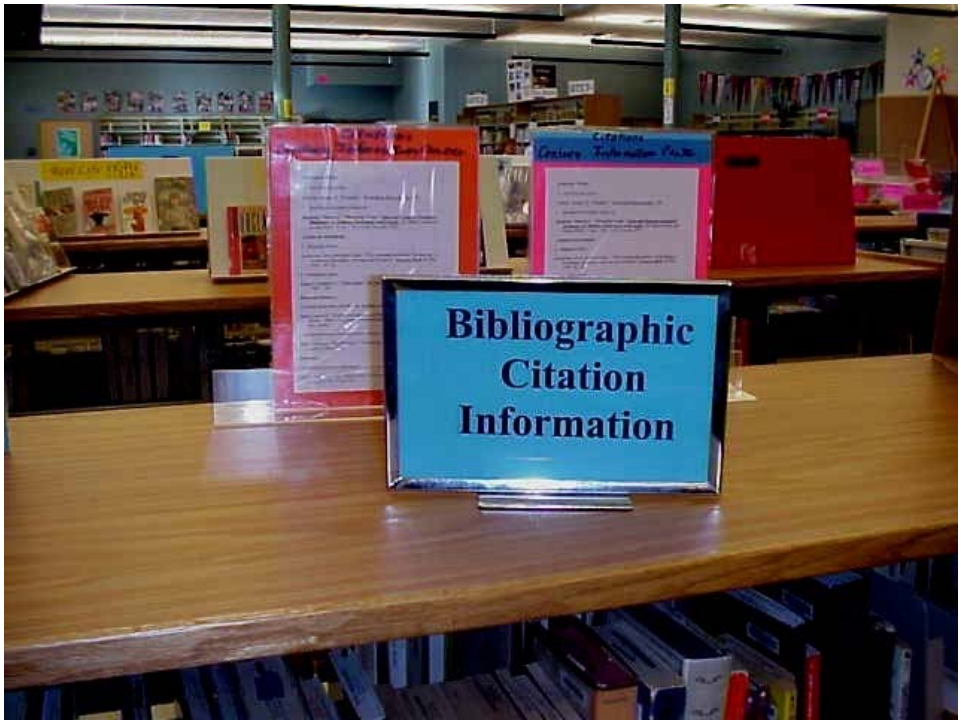


Figure 16. A wall of URLs provided for students in a media center computer lab.

Promoting student responsibility. A foundation concept in continuous improvement as applied to school environments is turning over to student as much responsibility for their learning as possible. The library media specialists actively searched for methods of moving responsibility from the media center staff to the students.

Jordan told of having moved from the paraprofessional conducting materials check out to having students do self-checkout. Jordan believes making students more responsible and allowing them to check for themselves what materials they have out and when they are due helps them develop social responsibility. The side benefit is this is the saving a great deal of staff time so we can do other things.

The self-check out process used in one elementary media center is illustrated in Figures 17 – 22. Student library cards containing barcode, name, and picture are prepared for each student. The cards are kept in the library media center, classroom, or given to the student.

Figure 17. Elementary student library cards color coded by grade level.

Figure 18. Library card wall chart provides a way to store elementary student library cards.

Students use their library card to find out what items are charged out to them, the due dates, and for checking out additional materials. The library card is placed under the laser scan gun to bring up the student's account.

Figure 19. Material is placed under the scan gun for check out.

Figure 20. Check out tag used to give the computer the command to check out material.

Figure 21. Completing the check-out transaction by using the “check-out” tag.

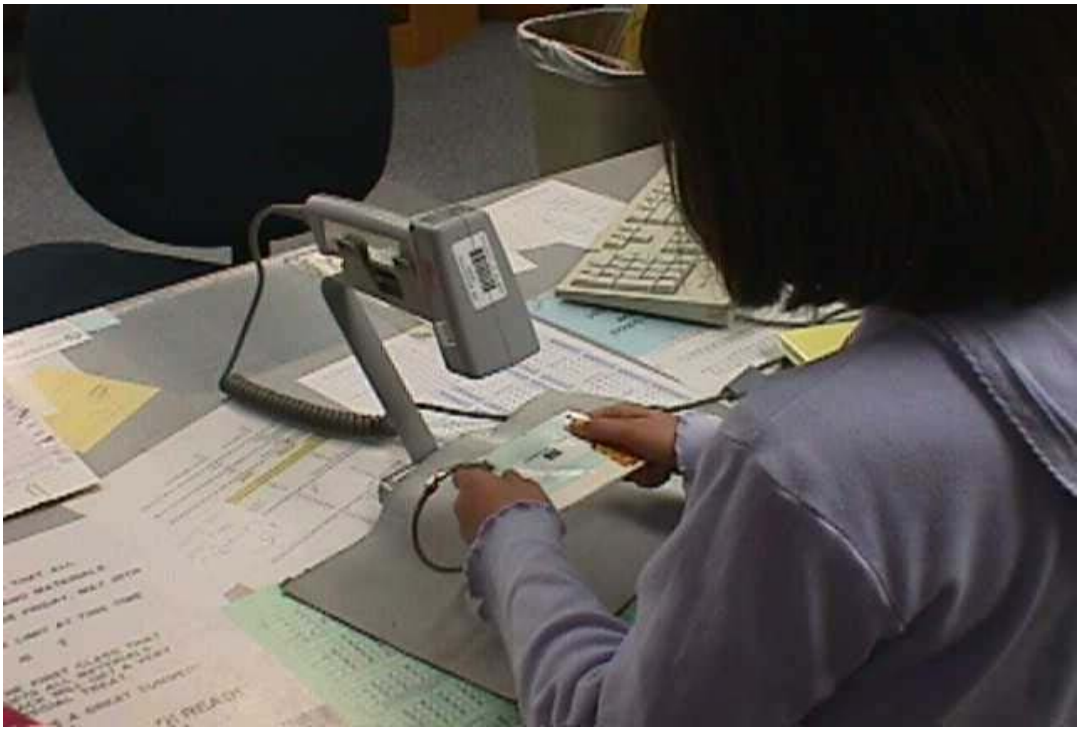
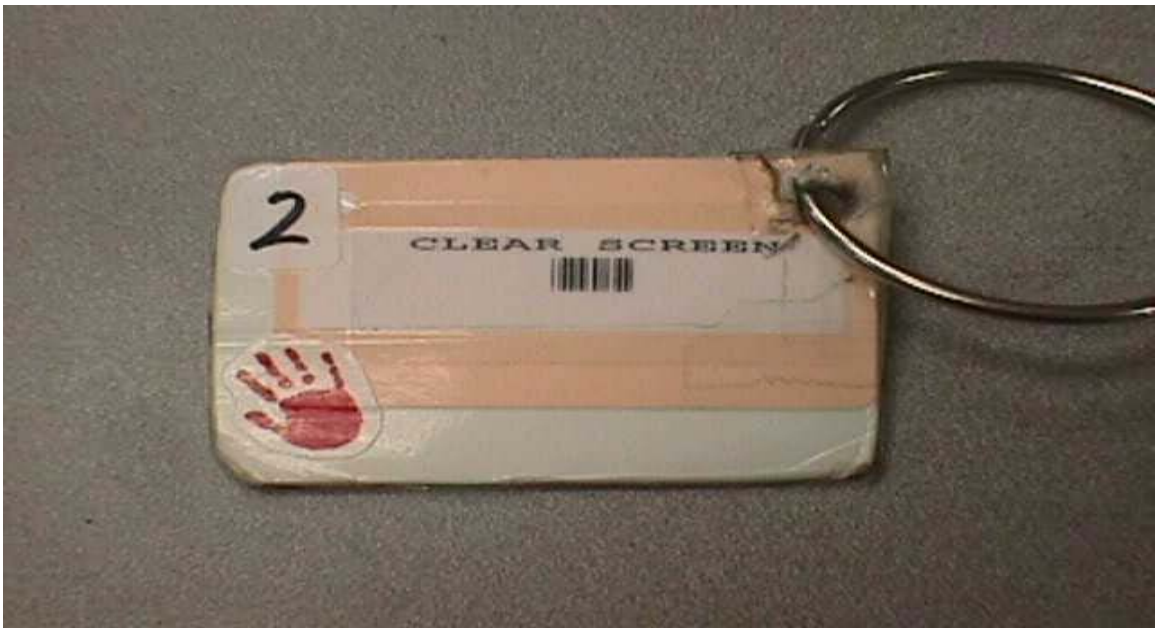


Figure 22. Clear screen tag sets up the check out computer for the next student and assures no one else checks out material under the current student's name.



Many of the elementary library media specialists adopted the use of student self-check out and reported student response as being overwhelmingly positive. The researcher observed students in elementary, middle, and high schools checking out their material. There were variations in the process between sites; however, the student response was consistently positive. Students were observed efficiently conducting their business at the checkout station and moving on to other activities. Jordan pointed out to the researcher, during one observation, a recent innovation in the process. Because elementary students had begun crowding the checkout station a colorful, seasonal floor mat had been placed on the floor. Only the student working at the station could stand on the mat. Other students are required to stay outside of the mat area. Jordan said the "mats are inexpensive and can be changed frequently to match curriculum, holiday, or seasonal themes."

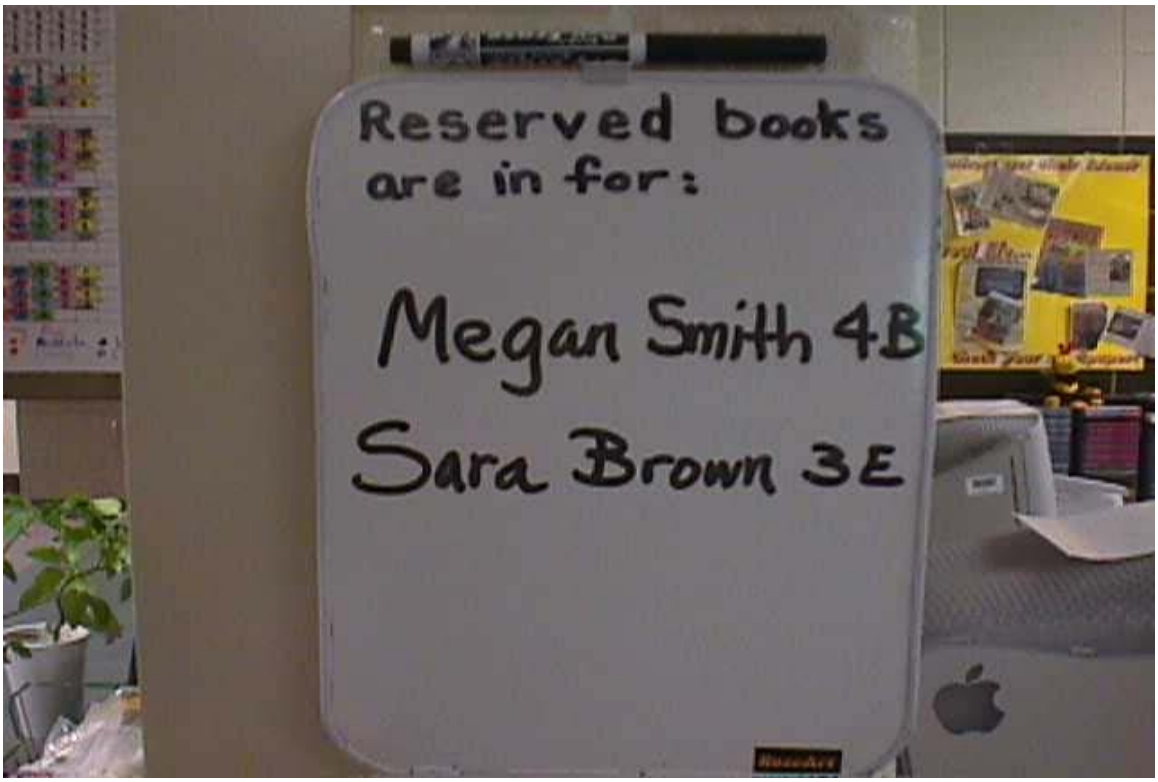
The library automation system used in the secondary media centers did not allow student self-checkout of materials. Secondary students were required to have their student I D cards, which are also their library card. The use the I D card helps speed materials checkout. Student media center aides work at the circulation desk, giving the media center staff time to work on other tasks.

Another innovation came from analysis of a problem with reserved materials. Jordan described the problem and solution.

> We have a small white board by the checkout computer that we use to list the names of students who have a book on reserve that is waiting for them to pick up. We found that several of our classroom teachers did not give the students our reserve note or gave it to them too late. We hold reserves for three days. This white board works better than notes! Kids can check it to see if their book they have on reserve is in for them. Other kids will tell student their names are on this list. We put the students name and the date their name is put in the board.

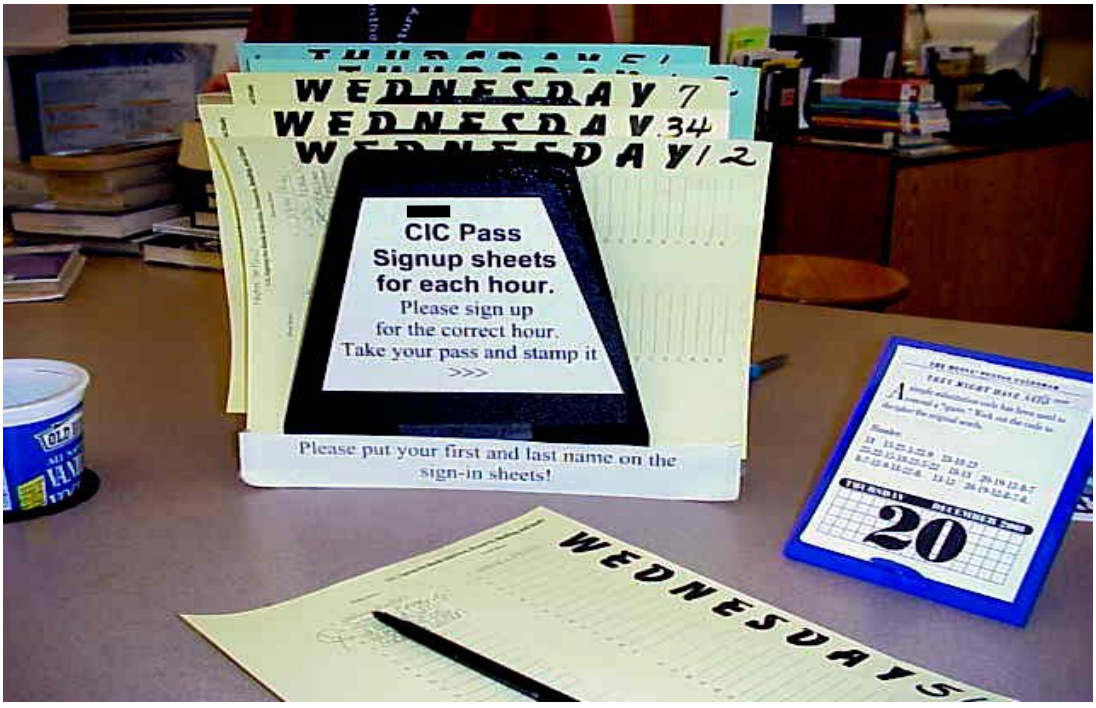
After sharing the white board technique in a department meeting several media specialists tried the process in their media centers and reported the solution worked well for them also. During observations by the researcher saw whiteboards in a number of media centers. Not only were they being used to alert students about the availability of requested materials but they also found use for posting other types of notices. The small white boards were inexpensive to purchase and easy to hang or display in strategic locations within the media centers.

Figure 23. Reserved book white board checked frequently by students who are waiting for material that is checked out by someone else.



Students frequently move from classroom or study hall to the library media center on a pass system. The number of students in the library media center can be controlled through the pass system. This is particularly important on days or during class periods when several classes are using the facility. The use of pass systems varies greatly between school buildings. One system that seemed to work very well involved students signing up for the day and class period they wanted to be in media center prior to that date and time. The students took a pass that validated their transition from classroom or study hall to the media center. These sign-up sheets can be used to limit passes by crossing off sign-up slots when space is reserved for class use. Putting the responsibility on the student to schedule a media center pass eliminates discussions about who can or cannot be in the media center at a given time. There also seems to be a decrease in the number of students using the media center as a location to “hang out.”

Figure 24. Advanced sign-up sheets for library media center passes.



The goal of controlling students coming and going to and from the media center is to provide the greatest possible access, control the number of people in the media center, help students use their time effectively, and reduce the number of students "wandering the halls." Each building must find its own answer to the pass system.

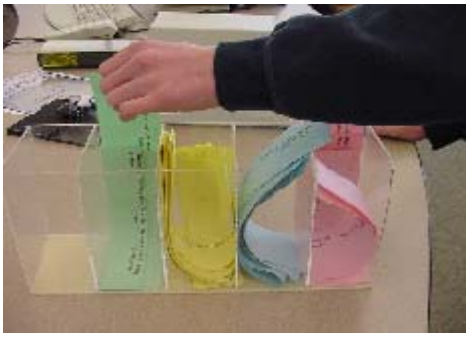
Casey worked with a student to develop a poster for each of the study halls to help students remember the process involved in obtaining a pass to the library media center. This poster is illustrated in Figure 25. These posters have reduced the number of students making extra trips from study hall to the library media center in order to get a pass. The posters have also helped remind study hall supervisors that students must preplan their library media center visits. This building seems to have found a workable answer to the media center pass problem.

Figure 25. Study Hall Pass Instructions

Pass Instructions

1. Write your name and study hall room number on the pass sheet before the hour you plan on coming in.

2. Take a pass slip from the counter (if there are no slips on the counter ask a media aide or the staff for one).



3. Write your name, the hour, and circle what you will be doing in the lMC on the slip.

4. Stamp the time and date onto the slip.

5. Take the slip to your teacher (they may or may not allow you to go to the LMC).

6. If you are in structured study hall you must have the slip or a pass signed by a teacher giving you library work.

Improving instruction. The library media specialists are constantly seeking new or better methods of instruction. Many of the library media specialists commented on keeping lesson plan files with notes about the both the things that went well and those that need to be changed the next time the lesson is used. Feedback from students and teachers forms the basis for these changes. The sharing with and suggestions from other library media specialists contribute to the constant search for instructional improvement. Alex talked about a primary strategy for improving instruction.

> At the end of the year, I always do a plus / delta, then I go back and talk to the other media specialists. For example, I haven't found the perfect way to teach the Dewey Decimal system that will attract tons of kids clapping and hurrahing over that concept, so that was one of the things that came out as a delta. I went back to the group, the media group, and asked 'what are you doing to teach the Dewey Decimal system so that kids will sit down and listen and really learn?' So there is always that sharing that I think is really important and then going back and saying 'that really worked, that idea really worked.

Other library media specialists mentioned getting useful ideas from professional journals, conferences, taking classes, and talking to library media specialists from outside the district. Building a repertoire of instructional strategies and evaluative techniques is necessary for meeting the instructional needs of the wide variety of students using a library media center.

Consultative Applications

In the consultative role, the library media specialists work closely with teachers to improve instruction and learning. This role is reliant on good communication skills. The

library media specialist is not just providing materials to support classroom curriculum but is also working with the teachers as part of the teaching team. As teacher and library media specialist work together instructional methodologies are exchanged, brainstorming is used to assists in developing instructional plans, and the library media specialist readily suggests ways in which they can assist the teacher teach (Turner, 1993).

The teachers frequently ask for consultative activities. Taylor is noted for having a very extensive knowledge of young adult literature; teachers take advantage of this knowledge:

> Sometimes I work with the teachers in developing the rubrics; it depends on what it is. A lot of times in language arts I do, especially if it is a book that they are doing that I have read. Also, I have teacher [Internet] sites that they can go to pull lesson plans from different places.

Due to budget reductions, the elementary library media program changed beginning the fall of 2001, from flexible scheduling to fixed scheduling. As a result, the consultative role became increasingly complex. Sidney commented on this problem in saying, "Keeping up the dialogue with teachers especially now that we are on fix schedule and keeping that open so that they aren't just using us a place to drop the kids off." Pat has tried to reduce this problem through careful planning:

> Every year I am very clear with the teachers about what I can do with their kids and what my curriculum goals are for the year. I ask them what they want me to do. I get a lot of response from the teachers. Part of the continuous improvement is just knowing what needs to be done and having it clearly stated. It was helpful to me to decide for each grade what needed to be done and have it in writing.

All of the elementary library media specialists commented on how drastically this change had altered not only their teaching but their ability to meet and plan with teachers. They expressed frustration with having students scheduled for classes while teachers had planning time. They indicated it is difficult to get teams to meet before or after school. Frequently, the time for teachers and the library media specialist to plan is "on the run" as they pass within the building.

The secondary library media specialists also commented on the lack of planning time with teachers since their paraprofessional work time has been reduced by fifty percent and department planning time has been virtually eliminated. Bailey commented on the effect the loss of flexible scheduling is having.

> I think we are going to see the problems and the negative results of our elementarys [library media specialists] being prep providers. The skills the kids come in with now are without the conductivity to an assignment that they were providing before. Now they're just providing it [skills instruction] because they have to have the kids in there [the library media center], where before it was a meaningful experience. They are trying their darnedest to make it meaningful. But you know what, it's a different egg. I think we are going to reap what we sow in that it's not going to be as nice for the students and the staff trying to educate them in the higher levels.

Administrative Applications

Several of the media specialists made specific attempts at applying continuous improvement processes to the management areas of their media center. Tory was concerned about her "follow through on concerns" expressed by customers. A solution

was keeping a log of concerns and notes about how they were handled. Tory felt less likely to forget or put off dealing with a concern if records were kept.

During this initial period of working with continuous improvement, two of the library media centers were being refurbished. Tory had new carpeting installed. This provided the chance to "relocate materials for most efficient access for student, teachers, and staff." Tory asked her customers what they would like to see changed, then developed a new floor plan. As Tory worked on the floor plan consideration was given to traffic flow, instructional space, and recreational reading areas. Tory also found places to add additional display shelving by using plastic rain gutters.

Figure 26. Plastic Rain Gutter Display Shelving

Austin's library media center ceiling, lighting, windows, and carpeting were replaced. Austin said, "Because the books and other library material will be boxed and moved, I have the opportunity to rearrange the location of materials to provide the most efficient access for students, teachers and library staff." Austin and her paraprofessional had design input on a new circulation desk that in Austin's words, "will streamline the

workflow as well." They analyzed what was not working in the media center and made changes to help that system function more efficiently.

At this same time, Tory's paraprofessional resigned leading to the hiring of a new paraprofessional. Tory said the "new paraprofessional gave me the opportunity to rethink tasks and decide who should perform each task." Tory told this researcher "the creation of a flow chart for the most efficient use of library staff time (including student media aides and volunteers) was very useful."

Taylor was concerned about meeting the expectations of a group of primary customers, teaching staff:

> I did the affinity chart (What are your expectations of the Media Center/Media Specialist?) in the mailroom with post-it notes and a pencil attached. The pluses were it was anonymous, so staff could be open and honest. I received good suggestions about atmosphere. They also gave me ideas to build into my web page. The delta is I didn't get the suggested book club up and running.

This researcher heard from Taylor's principal and teachers that Taylor more than met the expectations and might be working too hard.

Alex, like many of the library media specialists kept track of activity in the library media center.

> I keep charts in my files to see units that have done and I kind of graph it so I can know where my heaviest load is gong to be as far as asking for certain kinds of books. I am doing projections.

The tracking of classes taught, classes using the library media center, circulation, and other time use activities was mentioned by many media specialists. Many mentioned

using this data to keep their principal, staff, and parents informed about the activities in the library media center.

Tracking lessons and requests from teachers and students is an important part of the administrative role of the library media specialist. This tracking provides important data for improving service delivery and program development. Finding effective and efficient modes of operation provides an environment in which customer needs are met with less effort and better quality.

What Barriers Inhibit the Use of Continuous Improvement?

Barriers

The library media specialists frequently noted four barriers to using the CI processes and tools, time, terminology and processes, and training. Tory expressed these barriers in a discussion with this researcher:

> Time is always a huge barrier. Buy-in, staff buy-in. If we could see it, if we had a partnership with other school that is doing it successfully so we could mentor each other. If we could have a model for using it [continuous improvement] in the classroom, the gym, the media center, wherever the kids are, something to draw upon immediately rather than waiting for a class to come along or in-service. We need the mentorship to make this work.

Shannon saw efforts to use continuous improvement in teaching as an impossible task since moving from flexible scheduling to being a prep-time provider:

> In a classroom, you can just keep going but when you have someone back to back to back, it just doesn't work. So, for me in this situation, where I am a prep time provider, the barrier is just not having enough time to work on things. There are

> projects I would like to do with kids but you just can't hold it over, so unless the classroom teacher is willing to follow through or come back in here again. And I think with the continuous improvement the flex really fits in well because then what ever the classroom is doing you can complement it and you can add to it and hopefully when you have two people teaming together the students will have a chance to see different ways of teaching, different teaching styles. Some may come around a little easier if they have different teaching styles. I think for me time and sometimes you have to refresh yourself on things that it involves, just going back and looking at the book and going through it.

Bailey found the loss of team-planning time to have a great effect on her implementation of continuous improvement in instructional situations:

> Having time, because I would like to align my arrows with your arrows and make sure that you and I are, across the curriculum, doing what we need to in meeting the needs of the kids. But again, you have to have time to do that.

Jordan identified a different barrier than expressed by other media specialists:

> Some times the barrier is the fear of change. Fear of change by the customer, fear of change by the administration. Sometimes the best changes require people to do something beyond their normal job description; sometimes you need a little help to take on something that in the long run would benefit the total operation. You sometimes don't have the support to do that.

Implementing any new program or process is never free of problems. Time was a universal problem among the library media specialists. They also had difficulties because not all teachers were using continuous improvement in the classroom. Many of the library

media specialists felt follow up training sessions would help them be more successful.

Time. Many of the media specialists felt there was not enough time to work on process improvement. Shannon summed up the frustration by stating:

> Time is a precious commodity and we all need to learn to say "no" to those who ask us to give up our planning or lunchtime. We are here to serve, but the better we take care of ourselves, the better we will be able to serve without suffering burnout. We provide a service, we are not servants.

Terminology and processes. Many library media specialists found their efforts to implement continuous improvement were hampered because the terminology and processes were not consistently being used in the classrooms. Even after having successes implementing continuous improvement in the library media center, Sidney was particularly clear about the problems.

> It is hard when you are not a classroom teacher because you see the students for such a short period of time. You may not know what each class has talked about or is doing in their classroom or if they are even doing anything, if not then you have to stay at ground zero in explaining the process. Follow up may be more difficult.

Even after four years of district continuous improvement implementation, the library media specialists say many classrooms are not using the terminology and processes. A few extend that comment to include administrative use of continuous improvement in their buildings.

Training needs. Every participant included comments about the continuing need for training experiences in the use of continuous improvement. Shannon reflected on the

training experiences as a positive for the district as a whole:

> One thing that I think is a real plus is when they get all of the new incoming employees into the continuous improvement. It gives you a chance to meet other contacts in the district. It may not be in your field but that was something that was good because it just made you feel part of the district a little bit faster. Just a lot of the parts of the continuous improvement are very beneficial in evaluating everything that you do. I was able to go and take the second one [class] where you have classroom practices and so just even having knowledge in how to use the charting or graphing is really helpful. The training was very good. The team work that it promotes within the district. Whole schools may take the training together but the people were split up so they couldn't work completely with their group. This promoted sharing that I wouldn't have gotten in any other way. So I think the teaming in the training really helps. I think it's something they need to get everyone involved in.

Six of the library media specialists expressed very positive feelings about the training and use of continuous improvement in the district. Like Shannon, they found there were many positive results such as common goals and language, identification of new instructional techniques, and a growing emphasis on measuring and reporting successes.

Jordan presented a perspective on how the training had an effect on the way things were being done within the district:

> It [continuous improvement] has given us time to look at what we are doing and why we're doing it and how we're doing it; and trying to analyze if we need to do

it, are we doing it the best way that is efficient; and also to help us look at our customers to see if what we are doing is effective. I think the fact that most of the media specialists have been involved with continuous improvement in their buildings, so we not only look at our department but we look at our role within our buildings and how we support our building's continuous improvement goals. District wide it has opened up avenues of communications that have not really been real effective in the past. I know I am a provider of middle school and what I do will effect the success of students in the middle school all the way through high school. So, we now have some avenues of communication there. I know some things I've done in my media center that have been a result of CI has helped us streamline what we are doing and is making us more efficient. Department wise we have our own mission and goals which each of our media centers support and we cover these with students and staff.

Corey described a very active use of continuous improvement at the building level:

You can see it in the classrooms. They have issue bins and they seem to be using it and the other tools as well. As a staff we always, at the end of each staff meeting, have a plus delta. We have a plus delta in the lounge after the meeting also so you can freely express your opinions there. There is an issue bin in the office where if we've got questions or issues with any procedure in the office or in the school we can jot it on a sticky note and put it on there and it will be addressed at the next staff meeting.

Pat expressed positive feelings about the training but made a recommendation for

continued training:

> Definitely continue district wide workshops or some kind of education in using continuous improvement; not so much the initial meetings, although that was helpful, but real things you can really use in the process. The problem now is it is hard to access those experiences. Maybe to have whatever group you are in maybe have afternoon sessions with somebody who can say 'this is what you can use, this is what you can do.' So, have the session geared to what ever your specialty is.

The media specialists who expressed negative feelings about the training and the district continuous improvement initiative primarily saw a system flaw rather than a fault with the CI program itself. "I don't see continuous improvement being used," said Tory:

> I think it fizzled out because there were so many changes in the district and didn't fit. We had too many fingers in too many pies and it was you can either go with that and you could build quality or you can go with the graduation standard and build unanimity. I think the district has gone with unanimity.

Like Tory, Morgan expressed some disappointment with the application of continuous improvement:

> I've seen it happen in classrooms, I'm not using it right now and there is very little that I see happening in this building. Right now, pretty much, we are in survival mode. I like seeing goals laid out at the district level. I like knowing we're using the goals. It's nice and clear. Personally, I haven't seen it filter down real far.

Taylor described a perspective on continuous improvement training by saying,

"not many of the staff here [in building] are trained in it, maybe five out of seventy-five. The processes are not being used in the classroom so it makes it more difficult using it in the media center."

Robin also described a non-participation approach at the building level:

> New staff really doesn't know what's going on, they haven't had the training. Present staff is not getting continuous training. It's kind of like that old adage that it's there but if you don't use it, it gets old and forgotten. I kind of see that's what's happening here. It's just out there, it's in the minds, and if it's not being used there's no benefit to it.

Austin also expressed frustration with the way training was taking place:

> The training is very important. I think what they are doing is adequate but not everyone is involved in it, not everyone is being trained. So, some buildings are very involved in the training. The whole staff has been trained. In other buildings it's certain people. Certain people from certain departments who have decided to go ahead on their own or as a district group. I'm one of the very few people here who have gone through the training other than the administration in this building

Ashley had an explanation for the limited self-initiative by staff in taking training and applying it in their classrooms:

> So many people are so bitter about all the different things that schools do. How things come and go constantly and there are so many people that I've heard say this is just the latest thing and in a year or two it will be gone so why do we put all this time and energy into it. So, I think there are just a lot of people who have decided that it's not going to make it so why do we even try.

While the library media specialists identified a number of existing barriers, none of them were ready to abandon the implementation of continuous improvement. The library media specialists found value in the processes and tools they have used and indicate a desire to continue in the implementation process.

What is Needed in Order to Further the Implementation of Continuous Improvement?

The library media specialists were very clear about what they needed in order to move forward with the implementation of continuous improvement. All of the media specialists mentioned the need for additional training, but with a different focus than the previous training. Jordan commented:

> I think staff development classes that are targeted more to the special area teachers and not the classroom teachers. We just don't have the time to spend to come up with the ideas and we have a problem we don't think about using continuous improvement to solve it, we just want to solve it so we can get on with something else. Also it would be nice to have time within the department to share ideas and ways people use continuous improvement in their media centers and their lessons so you are not having to recreate the wheel over and over again

Sidney added to this training need with the suggestion, "We need continuous improvement coaches. Like the grad standards coachers."

Another consistent thread was the lack of time to plan with teachers. Taylor summarized the comments of most library media specialists by saying:

> The fact that the teachers no longer have team time which means I can't meet with them during team time. I have to catch them before or after school or when they come in here [the library media center], I can try to touch base with them to

> help them and collaborate with what they are doing and be a good support for them.

Recognizing it may be a number of years before planning time and flexible scheduling returns there is a resignation to doing the best job possible within the current limitations. The processes and strategies brought forward through CI implementation are helping improve the effectiveness of the library media specialists.

Several media specialists identified a third requirement. There was agreement about the need for a full time department head. The department head position was lost in the budget reductions. Alex strongly stated:

> We need a director, because all of us are in the trenches working and we can't be putting out fires and try to work in the schools at the same time. It is just impossible to do. This is a very large delta. In order to keep us running smoothly we need to have somebody fielding the calls … and working with the technology people. It's hard, we are all taking on extra work to help out but we shouldn't have to be doing it. There should be a director, the ESC needs to come up with enough people to catalog and make the ESC run smoothly. It's just a mess basically. It's just putting out fires and limping along and nothing improves in that area. We're just barely maintaining.

Bailey saw another need for a department head.

> We don't have the administrator for media and the support system that provides and someone to speak for us. I'm finding I collect this data [on library media center use], I have it, but my voice is not being heard necessarily, and if it were to be heard, I'm not sure what they are looking for because I am not on that inside

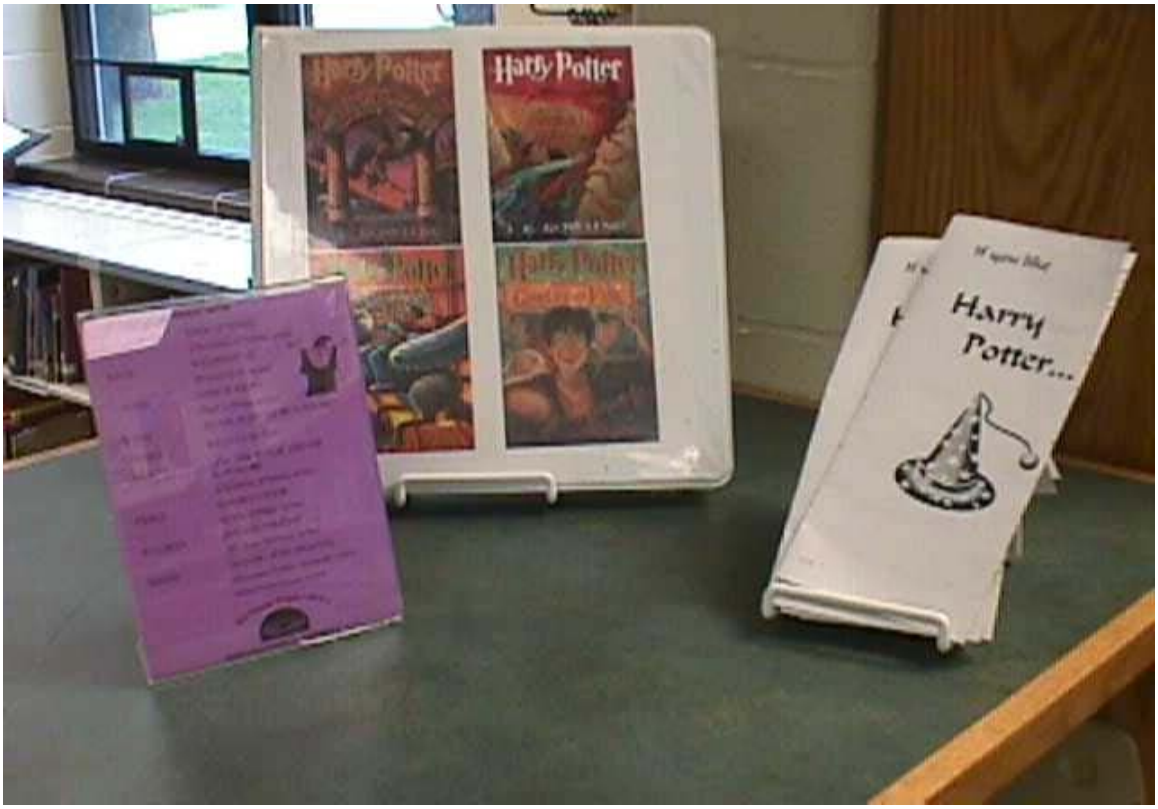
> circle. So, it's hard for me. I can tell my parents how many students I see per day and what my circulation is but that doesn't necessarily go to the administrative level and that voice is not being heard and that may not be the exact data they want in the format they want and so they don't process it. Continuous improvement for me is based on communication, and because we don't have that communication infrastructure set up …we've lost a lot.

The library media specialists indicated the use of continuous improvement had reached a plateau due to unmet needs. During interviews and observations in February 2003, it became obvious to this researcher that there were no new applications of continuous improvement within the library media centers. Previous applications were being maintained; however, the energy to be innovative was not seen.

How Has Continuous Improvement Affected Student Achievement?

Student achievement is a primary goal set forth by the American Association of School Librarians (1998) in the book *Information Power.* This goal provides a strong focus for the school library media professional. Library media specialists in this study focus most of their instructional, collaborative, and management efforts toward helping students reach high levels of achievement. Within the first year of using continuous improvement, the library media specialists observed definite increases in student interest in reading. The library media specialists felt increased efforts at promoting reading and being increasingly attentive to student's expressed reading choices accounts for the increase in reading interest. All library media centers have displays of popular books with reading lists and other reading promotions.

Figure 27. Harry Potter book display to encourage reading.



Sam talks about the goal of having students read at grade level:

> Every student knows what their reading score is so they know what books to choose. We have a Degrees of Reading Power program (DRP). If a student comes in and wants to check the reading level of a book, we can check the DRP to see if it is at their reading level. Students can use it any time. Our circulation has gone up because of this emphasis.

Since reading at grade level is a district goal, the media specialists have looked for ways to record what students are reading and stimulate increased reading. Pat describes student reaction to her charting efforts.

> The kids look at the reading charts and really talk about what they are reading and ask one another about the books they have read. I guess instructionally it would

> be that component of getting kids engaged with reading. Charting what they read and checking the diversity of reading by genres, award winners, etc.

Helping students identify interesting books at their reading level is an important part of increasing reading proficiency. Using a variety of techniques to chart reading interests, the media specialists have gathered information to develop the book collections specifically to encourage reading. At the same time, they have attempted to coordinate those purchases with curriculum needs. Bailey described a discussion she had with the building improvement committee.

> You are talking about boosting reading and math. I've started a collection specifically for those children. For math I've purchased those books that give kids the visual of what they are working on. They are working on fractions, here is a story the teacher can read to them. They will benefit two fold, they hear the language and see the pictures and they are also getting a better understanding of that math skill.

The efforts of the library media specialists in promoting reading were observed in all ISD 535 library media centers. Reading lists, book displays, reading charts, as well as reading promotion programs were on-going, observable elements of the library media program. Figure 28 is an example of the promotional effort being put forth to engage students in reading. This reading quilt filled a wall near the main entrance to the building. Students designed and contributed a quilt square based on the theme "Grow with Reading." This bright display announced to all who entered the building there was a building wide emphasis on reading.

Figure 28. Grow with reading bulletin board made by elementary students to encourage reading in their school.

Closely connected with the library media program is the development of research skills. Conducting and presenting research are complex skills that are difficult for students and teachers to manage. Jordan commented, “I think graphing can apply well to the research model. They can see how they are progressing in the research. Are they on time, are they doing all the steps?” Figures 29 and 30 illustrate a way of helping student graph their progress in the research process. A chart represents each step in the process. Students track their progress by moving a sticky note with their name from chart to chart. This allows students to see where they are, and helps the library media specialist and teacher be aware of how individual students and the class as a whole are progressing.

Figure 29. Charts for student self-tracking in the research process.

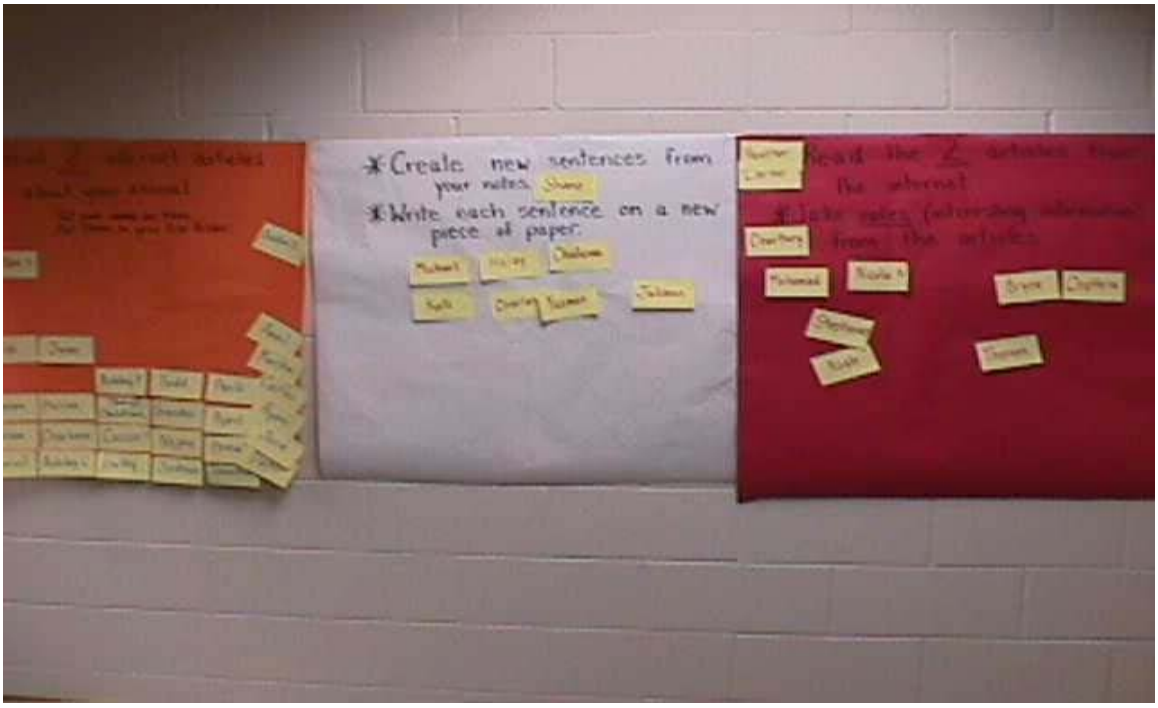
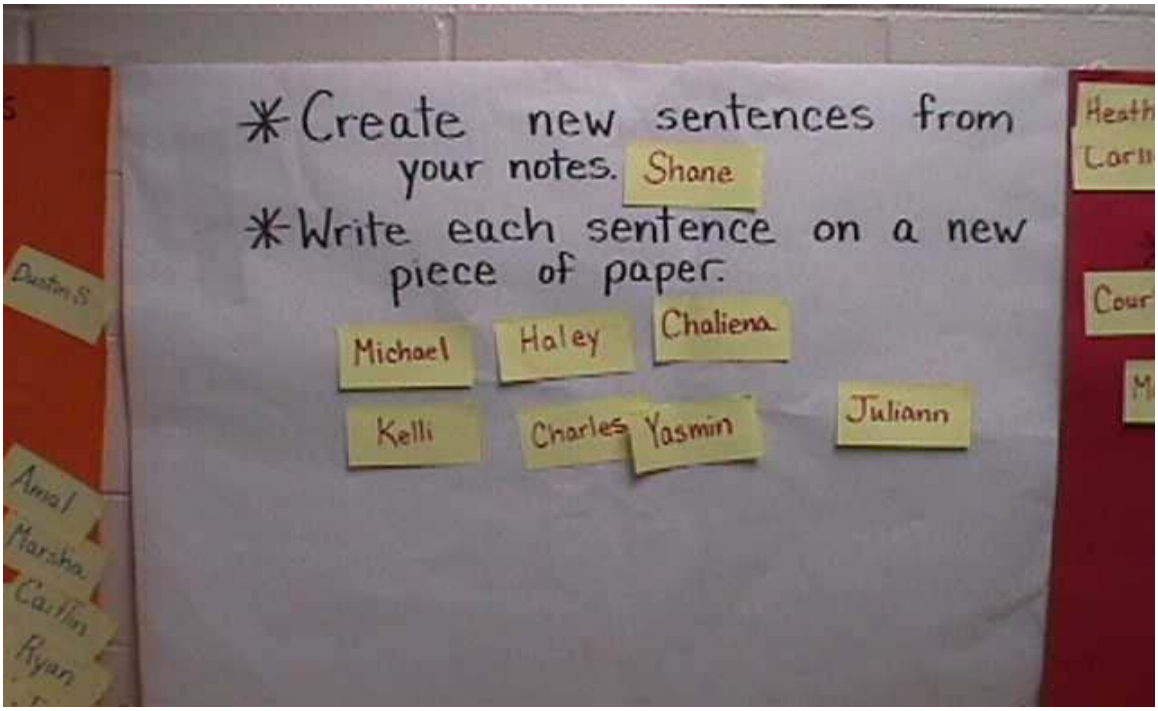


Figure 30. Student tracking sticky notes on a search process chart for elementary students.

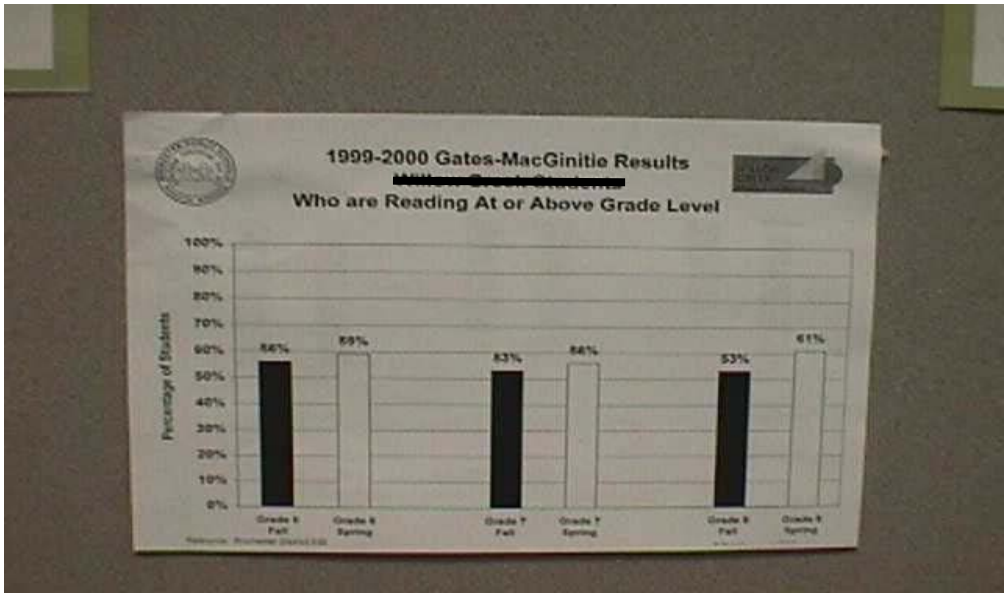


Corey responded when asked about the effect of continuous improvement on student achievement by saying:

> There is a positive effect on students because of the organization that is involved in it and the idea of always improving yourself. How can I make this better? How can I improve on this, not just in a lesson or unit but as a live long learning? I like the organization of it. Students become more conscience of the step-by-step things they do to solve a problem or to create a product or what ever they are doing. I see that as a positive learning.

The effort of the library media specialists to implement continuous improvement seems to have positively affected student achievement. While there is no statistical baseline from which to gauge this positive effect over the district, there is evidence at the building level from increases in book circulation, increased reading test scores, and the observations made by students and teachers about increased success.

Figure 31. Reading test scores graphed by grade level. Fall scores are shown in black and spring scores in white. Scale indicates the percent of students reading at grade level.



Summary

Based on the findings described in this chapter there is evidence that indicates the library media specialists of ISD 535 are finding ways in which to use continuous improvement in their library media centers. The lack of continuous improvement models specifically for the library media center has impeded the implementation process. Also, changes in district priorities have created a barrier to continued implementation. There are a few consistent applications of continuous improvement found in library media centers across the district. Library media specialists have indicated they will continue to use the tools that have worked well for them. The library media specialists are also interested in continuing to learn about new applications of continuous improvement for their respective library media programs.

Chapter 5 interprets the meaning of the results reported in this chapter. Each research question is discussed with recommendations based on the interviews, observations, and data collection. Implications for library media programs and recommendations for further study will be made.

Chapter 5

Conclusions, Discussion, and Suggestions for Future Research

Introduction

The purpose of this study was to document ways the library media specialists of ISD 535, Rochester, Minnesota, implemented continuous improvement (CI) tools and processes in their library media centers. The study recorded the ways these library media specialists found to use the concepts of continuous improvement in instructional, consultative, and administrative roles. The study explored how the library media specialists felt about this implementation, how they felt continuous improvement affected the district and their buildings, what barriers to implementation were identified, and what the library media specialists felt they needed in order to continue the implementation.

This was a phenomenological study of eighteen library media specialists as they lived the experience of implementing continuous improvement in their buildings and shared their experiences. The individual stories told by the library media specialists combined to describe the shared experience. Sixteen of the participants remained in the participant group at the end of the study.

Data collection consisted of interviewing the library media specialists three times between June 2000 and February 2003. An interview guide helped to maintain consistency between interviews. Observations and artifacts collections between August 1998 and February 2003 provided additional data for analysis. Using the process of triangulation for analysis allowed the three sets of data to corroborate and strengthen the picture developed of the continuous improvement implementation process.

Summary

The continuous improvement training provided by the school district provided the media specialists a common framework from which to begin implementation of continuous improvement. The eighteen library media specialists struggled with adapting the tools and processes. These tools and processes were designed for classroom application. Because library media centers function very differently than classrooms, many adaptations of the tools and processes had to be made. Many of the library media specialists wished for models designed specifically for the library media center. These models were not available. During the duration of this study, the library media specialists developed and shared their own models.

The library media specialists, using the continuous improvement processes, developed an improvement plan for the Media Services department. This improvement plan, with later revisions, provided a common direction for the department members. Applying continuous improvement tools and processes within department meetings and for department decision making assisted in reinforcing the use of tools and processes in the library media centers. Monthly department meetings included time to discuss implementation ideas and concerns about using continuous improvement.

Feelings About Continuous Improvement

Based on the interview statements and the continued use of CI in the operation of media centers, the library media specialists felt there was value in the implementation of continuous improvement. Repeatedly during interviews and informal discussions, the library media specialist indicated the value of having clearly stated goals across the district to keep a focus on common educational efforts. The library media specialists indicated the use of a common language for describing ideas and processes improved both written and oral communication, and

having a common set of decision-making tools increased efficiency in meetings.

While the library media specialists expressed frustrations during interviews about implementing continuous improvement within their programs, the implementation was successful enough to generate an optimistic attitude about continuous improvement.

Instructional, Consultative, and Administrative Roles

The roles of a library media specialist include instruction of students and staff, consultation with teachers, and administration of the library media center (American Association of School Librarians and Association for Educational Communications and Technology, 1998). In each of these roles, the library media specialists in my study attempted to apply continuous improvement tools and processes. The researcher documented these attempts during observations, during interviews and through the collection of artifacts.

Within the library media instructional process, the use of affinity charts, consensograms, and evaluative techniques were found useful in helping students develop information literacy skills. These tools helped students indicate skills they wanted to learn, preferences in self-selected reading, and feelings about activities. Flow-charting standard library media center processes for students increased the efficient use of the library media center. Issue bins provided an efficient way for students to make suggestions, ask questions, and make comments without disrupting instructional activities. Students were involved in setting expectations for and monitoring behavior. Graphing of overdue materials assisted students in monitoring the responsible use of materials. The development of scaffolds allowed students to work independently. Charts provided assisted students in tracking progress through complex tasks.

In their consultative role, the library media specialists reported enhanced communication was very important. Email communications increased as face to face planning time was reduced.

Clearly written goals for instruction as well as improved record keeping and evaluation of lessons assisted the communication process between classroom teachers and the library media specialist.

Applying continuous improvement to their management role required the library media specialists to look carefully at all operational tasks in the library media center. Analysis of these tasks for effectiveness and efficiency led to elimination, redesign, and reassignment of tasks. Obtaining information about and acting on the needs of customers allowed the library media specialists to focus their time and efforts more effectively.

Implementation Barriers

The library media specialists noted four barriers to using the continuous improvement processes and tools. These were time, money, knowing exactly how to implement the process, and overcoming fear.

The lack of time for planning with teachers and for developing materials to use in instruction was universally felt as an implementation barrier. There did not seem to be enough time to read about and plan the use of tools. Without time to plan with teachers, library media specialists did not know which tools and processes were being used in the classroom. Not knowing which tools and processes students had been using in the classroom made planning library media center lessons for students difficult.

Money was a barrier in that some buildings did not support the purchase of some supplies library media specialists needed for the continuous improvement implementation. Sticky, colored dots in a large variety of colors, chart paper, poster maker costs, and additional print resource materials for continuous improvement were not available equally across the district because of variations in supply budgets administration.

Not being sure how or which tools to apply inhibited some library media specialist from taking the risk to try new tools. The models provided during training did not apply to the library media center without adaptation. While planned sharing of implementation ideas took place during the first years of the continuous improvement implementation, this sharing did not seem to be adequate for all Media Services department members.

Fear of change and possible failure limited the risk taking for some library media specialists. In buildings where continuous improvement was not being implemented, there was a perceived risk in trying the new techniques.

Needs for Continuation of Implementation

Additional training, focused to the application of continuous improvement in the library media center, was a primary request from all of the library media specialists. As part of this training, the library media specialists wanted time to share ideas with each other and brainstorm implementation strategies.

There was also a perceived need to have the department head position reinstated. Tasks previously done by the Media Services coordinator were either not being done, or being picked up piece meal by whom ever might be able to do them. This was taking time away from the primary responsibilities of the library media specialists, that of working with students and teaming with teachers to improve student achievement. The library media specialists also believed the return of the department head would allow for two things currently missing: organized sharing of information and a voice in the district.

Effect on Student Achievement

When asked if the use of continuous improvement was having a positive effect on student achievement, the library media specialists cited increased reading by students as the most

observable effect. Many stated there was more order in lessons and students became more aware of their own responsibility for learning.

Conclusions

The findings of this study indicate continuous improvement applied to the library media centers in ISD 535, Rochester, Minnesota, produced a number of desired results. Continuous improvement application was uneven within the Media Services department. Library media specialists who embraced the concepts of continuous improvement and actively worked to find applications of the theory and provided models adopted and adapted by other library media specialists. However, some library media specialists were unable to maintain the implementation process even when using models developed by other library media specialists. The library media specialists who were initially very innovative decreased their innovation beginning in the fall of 2001 due to changes, discussed below, within the district.

Beginning in the fall of 2001, district budget issues resulted in the loss of Media Services department leadership, budgets, reduction of paraprofessional support, and for the elementary media specialists, the move from flexible to fixed scheduling. These functional changes resulted in a negative effect on the implementation of CI.

The library media specialists continue to express interest in applying continuous improvement processes and tools; however, a desire for additional training and assistance applying CI theory to the library media center was expressed as a high-level need. In addition, the library media specialists who worked in buildings where continuous improvement has not been institutionalized had more difficulty implementing continuous improvement processes in their library media centers than did those where continuous improvement had been institutionalized.

Reviewing just over four years of gathered artifacts, the researcher was able to identify repeating patterns of tool use both by a particular individual and by multiple individuals. The volume of artifacts surprised this researcher. Original documents, photocopies, video and digital photographs comprised the artifact collection. The richness of this data was invaluable to the researcher. Connections made between the artifacts, the observation notes, and interviews provided a holistic picture of the continuous improvement implementation process. This researcher feels the artifact collection contributed greatly to the understanding of the processes used by the library media specialists. This data also made it possible to convey clearer meaning to the research findings.

Discussion

The Problem

The growing use of continuous improvement (CI) tools and processes, a part of Total Quality Management, within ISD 535, Rochester, Minnesota, public schools challenged the district's library media specialists to attempt implementing the CI tools and processes in the operation of the media centers. A lack of available implementation models and literature pertaining to the use of CI in school media centers led to the question of how CI could be utilized. The analysis of data collected during the period of research, 1998 through 2003, supported the concept that CI could be applied to media centers.

The library media specialists in this study began working with CI classroom tools presented in training sessions. Adapting these tools to use in the media center and applying the conceptual use of the tools to the needs of a media center resulted in a number of creative and effective applications. The school library media specialists' continued use of CI tools and processes indicates the applications developed were of benefit to the operation of the media

centers.

Justification for the Study

The lack of implementation models and relevant literature created awareness for the researcher that the study of the use of CI in media centers was needed. There was literature evidence that school districts were continuing to adopt forms of Total Quality Management as a method of improving education quality. Therefore, it could be expected that school media centers would be expected to participate in these adoptions. The identification of ways to apply the concepts, tools, and processes in school media centers would improve the chances for effective implementation.

This study identified many ways that library media specialists could apply CI to the operation of the school media center. These applications have been illustrated in Chapter 4. The study also provided insight to the needs of library media specialists attempting to apply CI for training, resources, and a support group.

Significance of the Study

The results of this study provide a body of knowledge about the application of CI to school media centers that has, to date, not been available. The repeated interviews of the participating library media specialists provided insights to the implementation process. The most significant insights were about the frustrations they felt and their uncertainty about doing "it" right. Frequently during the interviews comments such as, "I don't know if this is continuous improvement but…." were made. This researcher's assessment, of the activities described following this type of statement, was that the activities were continuous improvement in nature. While the researcher was in the role of participant observer, it was possible to provide affirmation of the activities.

Observations and artifact collection provided a wealth of information that was not always supported in the interviews. In a number of instances, it was the information obtained through observation and artifacts that stimulated responses to interview questions. The researcher was able to prompt the participants through statements like "remember when I saw you doing …" or "I have the chart or picture of … how did that influence what you did?"

The library media specialists participating in this study now have access to documentation of how CI is being implemented within the media centers of ISD 535. This documentation could provide the seeds for the development and application of new ways to use CI in the media centers. Publication and sharing of this documentation outside of ISD 535 could provide insight and models for library media specialists in other school districts.

Findings Effect and Support the Review of Literature

The literature from special, academic, and public libraries provides an abundance of evidence that Total Quality Management processes work well in libraries (Brophy & Coulling, 1996; Jurow & Barnard, 1993; Mackey & Mackey, 1992; O'Neil, 1994; St. Clair, 1997b). Ideas gleaned from the literature and from the Pinellas Quality Academy training materials provided a base for the creativity of the library media specialists in beginning implementation of continuous improvement in the ISD 535 media centers. This study validates the positive tone provided in the literature. There is a place for CI in the media center.

The participant library media specialists frequently spoke of frustration with having to develop CI applications themselves. They expected the professional literature to provide more than vague references and proclamations of success. The results of this study provide a beginning of the "how to" currently lacking in the literature.

Recommendations

This research study has provided a limited view of the use of continuous improvement in the library media centers of one Minnesota school district. Additional application practice and research could provide a more generalized view of the role of continuous improvement in the school library media center.

Practice

In order to maintain and expand the Media Services department continuous improvement initiative, this researcher recommends the library media specialists of ISD 535 clearly express their needs for assistance to their building administrators, the Instructional Services Director, and the Director of Continuous Improvement. The current continuous improvement implementation provides a strong base of knowledge and practice. Nurturing this base of practice has a potential for continued innovation.

Further Research

The lack of written material about the use of Total Quality Management, continuous improvement, or quality processes in library media centers continues to be a gap in the professional literature. Conducting additional research and publishing the results would help to fill this gap. This researcher recommends two initial research endeavors.

First, contacting schools awarded the Malcolm Baldrige National Quality Award. The criteria for this award are increasingly being used by educational organizations to improve education in the United States. A systematic inquiry about the use of CI processes in the library media centers of these schools could provide useful information. The research questions could include:

1. Specifically what CI processes have been implemented in the library media center?

2. How has the use of CI processes improved the functioning of the library media center?

3. What effect has the use of the CI processes had on student achievement?

Second, contact the library media specialists in the Pinellas County Schools, Florida, and other school districts that have participated in the Pinellas Quality Academy training to find out how they have implemented CI processes in their school library media centers.

It is not the application of continuous improvement to school library media centers that is important but the ways the application can assist the library media specialist, providing the best learning environment possible for students. In closing, this researcher would leave the reader with the following goal statement from the national library media program framework, *Information Power: Building Partnerships for Learning.* "The ability to find and use information is the keystone of lifelong learning. Creating a foundation for lifelong learning is at the heart of the school library media program." (American Association of School Librarians and Association for Educational Communications and Technology, 1998 p. 1). The application of continuous improvement tools and processes to school media centers can be important in reaching this goal.

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Appendixes

Appendix A

Customer Satisfaction Survey

Satisfaction Surveys

Brophy and Coulling (1996) state "customer satisfaction must be central to all attempts to implement and use quality management systems" (p. 95). They continue by asserting the collection of customer satisfaction data must be an active process. The measurement of customer satisfaction is the seventh main criterion in the Malcolm Baldrige National Quality Program in Education.

ISD 535 Staff Customer Satisfaction Survey

ISD 535 developed customer satisfaction surveys to measure the three major district goals: Safe and Welcoming Environment, Effective and Efficient Operations, and High Student Achievement. A survey was developed for each of the target customer groups: parents, students, and staff. Each year since the 1995-96-baseline year, surveys have been administered to the customer groups, data analyzed, and comparisons with previous results are made.

The ISD 535 staff customer satisfaction survey contains one question to measure the customer satisfaction for the Media Services department. The question reads, "Please rate the quality of service you receive from the following departments. Rate only those departments with which you have interaction." Following this statement, the 36 district departments are listed. ISD 535 analysis of the Staff Customer Service survey responses consistently ranked the Media Services department fifth highest of 36 departments. Table 6 reports the mean scores for the Media Services department in years 1997 through 2000. The mean is based on a five-point scale (5=Excellent, 4=Good, 3=Average, 2=Fair, 1=Poor). Improvement in Table 6 indicates the difference between the first year mean and last reported year mean. Effect size is the

improvement divided by the standard deviation. Effect size less than 0.275 is very small, between .27 and .50 is small, between .50 and .75 is medium, and greater than .75 is large. Using a t test at the 0.05 level, the media services effect size is statistically significant; therefore, these differences are not the result of chance.

Table 1

Year	1997	1998	1999	2000	Improvement	Effect Size	Significant
Mean	3.91	4.05	3.93	4.06	0.14	0.30	small increase
SD	0.46	0.44	0.46	0.44			

Rochester Public Schools Employee Satisfaction Survey, Media Services Question

Open-ended response questions on the survey allowed district staff the opportunity to provide additional comments. The comments identified by the analysis staff as directed to the Media Services department were consistently positive. The comments generally noted the quick response to requests for materials and friendly staff.

Media Services Department Customer Satisfaction Survey.

One goal of the Media Services department customer satisfaction survey was to validate the data collected by the school district's Staff Customer Satisfaction surveys. Additional goals included obtaining information about how students and staff used specific services of the media centers and how Media Services department customers felt these services met their needs.

Media Services Questionnaire Development

A series of work sessions were planned by the Media Services Department staff to begin the development of the survey document. In preparation for developing the Media Services Customer Satisfaction Survey, a number of library administration resources were consulted to gather a preliminary question bank. The question bank was divided into three categories: Safe and Welcoming Environment, Effective and Efficient Operations, and High Student Achievement, following the model established by the district.

At the first work session, library media specialists were asked to identify the critical service areas within the Media Services Program. These critical service areas were determined to be resources, instruction, and collaborative planning. The library media specialists also determined what specific information they wanted to know from their customers.

At this first meeting the department members participated in a short training based on the books *How to Design Surveys* (Fink, 1995b) and *How to Ask Survey Questions* (Fink, 1995a). Using the previously identified list of critical services (resources, instruction, and collaborative planning), work began on developing the survey question set. The media specialists divided into groups to work on subsets of the questions: one group for student questions, one for staff questions. Subsequent work sessions provided time to complete the preliminary questions and review questions for clarity of wording and common terminology.

Because of the wide range of grade levels being surveyed, particular attention was given to appropriate wording on the student survey. Many changes in language were made to accommodate the reading level of second grade students without talking down to secondary students. The staff survey questions were reviewed to ensure that teachers at different instructional levels would read them in the same way.

The questions agreed upon were then presented to the Library Media Center

paraprofessionals for review. The paraprofessionals were asked to make suggestions for making the questions clearer, reducing redundancy, and eliminating questions that did not directly relate to one or more of the critical service areas of resources, instruction, and collaborative planning. A meeting of both library media specialists and library media paraprofessionals led to further refinement of the questions and reduction of the total question set. There was agreement that the survey could not exceed two pages. The first question set totaled four pages. There was continuous questioning of whether the questions would lead to the desired information. Questions were reviewed for their ability to provide insight to customers who might be unfamiliar with some services. The head of the District's Research and Assessment office met with the department to review questions and make suggestions. By the end of January 1999, the final survey draft was and forwarded to the ISD 535 Administrative Council for review and approval.

Additional revisions of the draft survey were made by the library media specialists based on feedback from the ISD 535 Administrative Council and resubmitted several times before obtaining approval. The ISD 535 Administrative Council required all questions that might indicate a need for additional staffing, facilities renovation, or other financially encumbering questions be eliminated. Several meetings were held to make changes requested by the District Administrative Council. While there was considerable angst over the elimination of some questions and rewording of others, consensus was reached on the changes. In mid-March, the Administrative Council approved the survey. The survey was submitted for formatting and duplication to the Research and Assessment office. A copy of both the staff and student survey forms is available in Appendix IV.

In final form, the two surveys consisted of a series of thirty-six questions on the staff

form and twenty-eight questions on the student form. Responses were based on a five point Likert scale where five on the scale equals Strongly Agree, four equals Agree, three equals Undecided/NA, two equals Disagree and one equals Strongly Disagree. In addition, two open-ended questions at the end of the staff survey and three open-ended questions on the student survey provided additional opportunities for customer comment. Questions on both the student and staff surveys were aligned as much as possible in order to provide an opportunity for comparisons between survey forms. The Media Services department staff decided to set the acceptable level of satisfaction response at $\underline{M} = 3.5$.

Survey Results

The survey was administered during April 1999. Student survey returns were forty two percent or 9,396 surveys. Staff survey returns were fifty eight percent or 532 surveys. Student and staff responses on the survey indicated a high level of satisfaction with the Media Services Program. While the rate of return was lower than expected, the results provide adequate baseline data against which to compare future data collection. The results analysis compares similarly to the results of the ISD 535 staff satisfaction survey.

The questions that fell below the acceptable $\underline{M} = 3.5$, were the availability of newspapers, use of electronic databases, and need for computer and printer access and software. The Media Services department staff discussed possible plans of action however, it was decided that each library media specialist would developed their own action plans to address this issue.

Response to the question asking if there was a feeling of safety in the Library Media Center was identified as a concern. While the question scored well above the $\underline{M} = 3.5$, the fact that any student did not feel completely safe in a library media center was of concern. In discussing the response to this question, the Media Services department staff found one

explanation might be the closeness of the Columbine High School shooting and the administration of this survey. A number of the library media specialists chose to follow up on this question with their students.

Student data was disaggregated by race and grade level and analyzed. Most disaggregated categories showed mean scores at or above 4.0. The exceptions are Native Americans $\underline{M} = 3.88$ and "Others" $\underline{M} = 3.8$. While these scores are above the minimum set as acceptable, these ratings are significantly lower than the scores for all other groups. The library media specialists decided to visit individually with students identified as Native Americans in an attempt to determine what concerns this population had. The membership in the category "Others" is not identifiable and was dropped from consideration.

Media Specialist Reaction

In addition to the analysis report of the Media Services customer satisfaction survey, survey data were disaggregated by building and given to each library media specialist. Comments from the open-ended questions were disaggregated and provided to each library media specialist. Interpretation of these data was left to the individual media specialists. Help in interpretation of the data was available from the Media Services Coordinator and the Research and Assessment office.

Many of the library media specialists indicated they used their building data to formulate continuous improvement plans at their building. Two of the middle schools were comparing their individual data with data generated by their building's surveys. The use of the individual building data allowed the library media specialists to identify which critical service areas (resources, instruction, and collaborative planning) needed improvement in their building.

Re-administration of Survey

The Media Services department staff decided to administer the survey once every two years. In the spring of 2001, when the survey was due for re-administration, the Media Services department staff moved into a crisis state due to a large district budget deficit. At that time, the department staff was focused on reorganization and preservation of basic library media services. The Media Services department staff decided not to re-administer the survey. The library media specialists felt they lacked the energy or time to administer the survey. In addition, the general mood within the district was negative because of the large budget cuts being made. Library media specialists felt this negative mood had a potential negative impact on the survey.

Rochester Public Schools Media Services Instructional Student Survey

Rochester Public Schools Media Services Instructional Student Survey Results

Rochester Public Schools Media Services Instructional Staff Survey

Rochester Public Schools Media Services Instructional Staff Survey Results

Appendix B

Continuous Improvement Training

Training

The school district had established a training schedule as part of the district's staff development academy. It is through this academy all district in-service training is provided. Two training sessions were available to all ISD 535 staff. Both sessions consisted of two consecutive, eight-hour days. The first training, or "boot camp," introduced the historical and philosophical foundations of Total Quality Management and the Total Quality Schools system, terminology, and basic quality tools. The second two-day session focused on classroom applications and the improvement planning process. ISD 535 contracted with the Pinellas County Schools, Florida Quality Academy to provide initial continuous improvement training to district administration and staff and to provide on-going consultation. Eight library media specialists participated in the continuous improvement training during the 1998 – 1999 school year bringing the total trained cadre of library media specialists to twelve. Three of the four media specialists trained during the previous summer attended the second two-day training. The remaining four media specialists participated in training during the 1999 – 2000 school year.

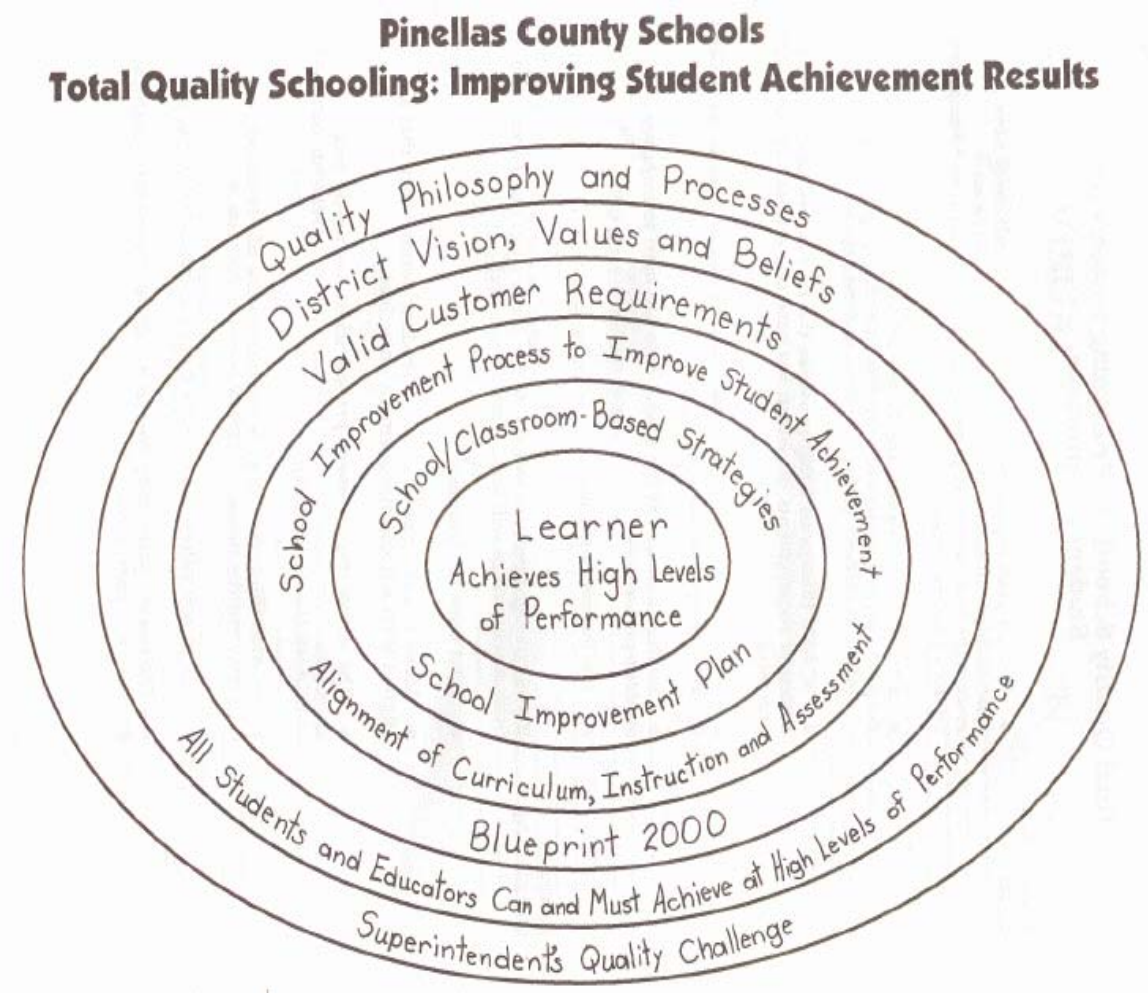
Boot Camp Training Components

Participants in the two-day training session, January 7-8, 1999, used three handbooks, *Transformation*, *Linkages*, and *Process Improvement Tools* developed by the Pinellas County Schools. These handbooks formed the structure for the introduction to quality schools concepts as well as the continuous improvement training.

The handbook *Transformation,* (Pinellas County Schools, 1997), overviews the experience of Pinellas County Schools in transforming to a Total Quality Schools organization.

The trainer used discussion and short video presentations to help workshop participates in developing a mental model of quality schools. The *Transformation* handbook defines "Quality" as a "pragmatic system of continuous improvement" (p. 9). The visual model for Quality Schools, Figure 1, consists of six concentric rings with the learner at the center.

Figure 1. Model for Quality Schools[1]



[1] From *Transformation* (p. 16) by Pinellas County Schools, 1997. Largo, FL: Quality Academy. Copyright 1997 by Quality Academy. Reproduced with permission.

Each ring represents a major concept in the Quality model. Moving outward the next ring represents "strategies to improve student performance that are aligned to school improvement objectives' (p. 15). The third ring is "school improvement processes to improve student

achievement" (p. 8). The fourth ring identifies valid customer requirements. The fifth ring represents district vision, values and beliefs that provide for a constancy of purpose. The sixth, and outer most ring, represents quality philosophy and processes creating a culture that causes alignment of systems to improve student performance (p. 15). The Quality Schools model (Figure 1) was used to introduce basic terminology and concepts of leadership, customer focus, process improvement, and the Plan, Do, Study, Act (PDSA) Cycle. Within this context, the trainer discussed the training program, Quality implementation, and restructuring plans of ISD 535.

The *Transformation* portion of the training continued with a discussion of the Deming Management Method. The trainers emphasized Deming's Fourteen Points from *Out of the Crisis* by W. Edwards Deming, 1982. The Deming Management lesson formed the background for a discussion by the workshop participants and trainer of the eleven organizational core values adapted from Deming and translated into educational terminology and examples. The eleven organizational core values are:

1. Customer-driven quality - the foundation for a quality system. This includes both internal and external customers.
2. Leadership - demands personal commitment, active involvement, and role modeling.
3. Continual improvement - part of the daily work of schools, teams, and students.
4. Participation and development - opportunities for training, continued growth, involvement, and well-being.
5. Fast response - the timely and flexible response to simplifying and shortening the work processes and paths to achievement.
6. Design quality and prevention - building quality into processes and prevention of

waste and problem solution.

7. Long-range outlook - having a future orientation with long-term commitments to students, staff, parents, and the community.
8. Management by fact - the collection of reliable information, its analysis and use for process management.
9. Partnership development - both internal and external customers working toward accomplishment of overall goals.
10. Organization responsibility and citizenship - business ethics, public health and safety, and environmental protection.
11. Results orientation - the use of a balanced composite of performance measures that communicate requirements, monitor performance, and marshal support for improvement. (Pinellas County Schools, 1997 p. 37- 40)

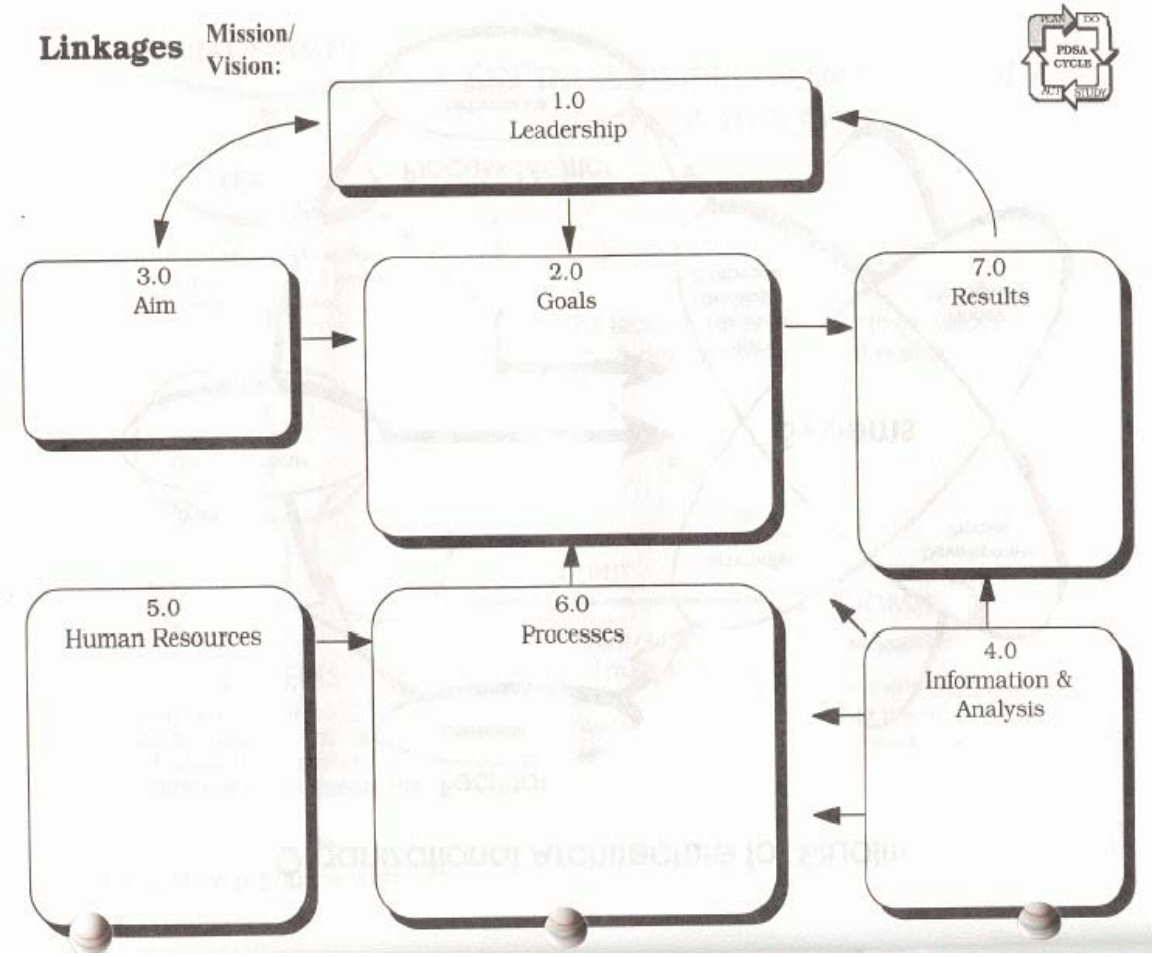
Following the foundation material in *Transformation*, the training moved into the *Linkages* handbook. *Linkages* presents an explanation of the integrated management system shown in Figure 2.

Trainers began with a discussion of alignment acts of improvement rather than random acts of improvement. Based on measurable goals that are part of school improvement plans, alignment of processes within the education environment should lead to improvement. A random act is any activity, regardless of how enjoyable or traditional, that does not align with stated goals. Random acts are candidates for alignment or elimination. Random acts take resources away from obtaining quality performance. The library media specialists accepted this concept easily since their instruction already closely aligned to curriculum.

With the concept of random acts established, the trainer proceeded to examine of each of

the seven parts of the integrated management system shown in Figure 2.

Figure 2. Seven Parts of the Integrated Management System[2]



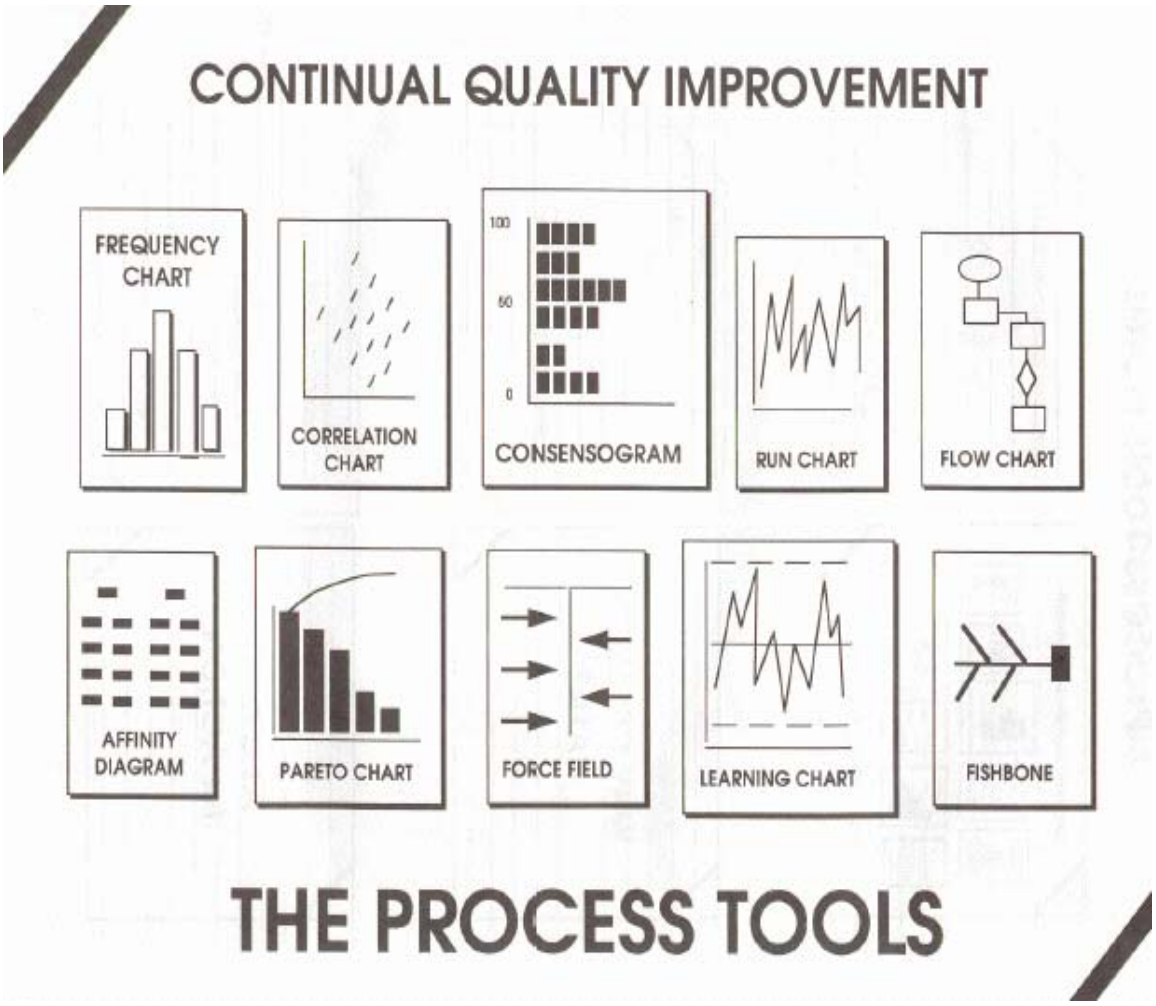
[2] From *Linkages* (p. 38) by Pinellas County Schools, 1998. Largo, FL: Quality Academy. Copyright 1998 by Quality Academy. Reproduced with permission.

Working with the integrated management system became a required activity for all buildings and departments in ISD 535. The integrated management system clearly identifies what is desired, how it is going to be accomplished, the needed resources, who is responsible, and how the results will be measured.

The "boot camp" training ended with the introduction of ten continuous improvement

process tools detailed in Figure 3. The *Process Improvement Tools* handbook presented the ten tools. Following a presentation of each tool and their basic

Figure 3. Ten Process Improvement Tools[3]



[3]From *Process Improvement Tools* (p. 36) by Pinellas County Schools, 1998. Largo, FL: Quality Academy. Copyright 1998 by Quality Academy. Reproduced with permission.

use, the workshop trainer showed examples of tools use by teachers, students, and administrators in training districts. The participants were encouraged to examine and discuss samples of the tools and resource materials. A bibliography of process tool resources is available in Appendix D. The handbook also contained rubrics and flow charts to help participants begin applying the workshop concepts at their school sites. The rubrics and flow charts are available in Appendix E.

In the weeks following the training, media specialists began sharing reactions about the training and the application of continuous improvement processes within Media Services meetings. None of the media specialists expressed disappointment with the training and many began experimenting with the tools immediately. Ashley, an elementary media specialist, said "hearing real ways to use continuous improvement helped see how it works." Jordan, another elementary media specialist indicated, "I am looking from a more global (complete) view than in the past." Drew, a high school media specialist, echoed this when by saying, "the training provided a more well-rounded global picture of the school setting. Perhaps most importantly it has helped me ask the question, 'how can I help the district solve problems?'" Pat said, "the most helpful part of the continuous improvement experience for me was actually hearing 'real' ways to use it." Dylan said the training "made you think of ways to improve your effectiveness and focus on goals which need to be done."

Classroom Tools Training

The second two-day training focused on classroom application, development of classroom and school improvement plans, and using system checklists based on the Baldrige Educational Criteria for Performance Excellence. These checklists are provided in Appendix C. Three library media specialists participated with their building staff in this second training during 1998 - 1999. Their reactions were consistent; Sam, Bailey, and Tory agreed, "Training with building staff gets us all talking the same language." Sam was actively involved in the school building improvement process teams and said, "I am excited about the focus we are developing. We have always been a strong school team, we are just getting better." The library media specialists felt the training in continuous improvement was valuable and expressed excitement about trying to apply what they had learned. The materials provided in this training gave the

library media specialists additional continuous improvement resources.

The training workshops generated enthusiasm within the Media Services department to begin implementation of the concepts and processes of continuous improvement. While the library media specialists worked as group to develop plans for the department, individual library media specialists worked independently at beginning continuous improvement implementation in their library media centers.

Appendix C

Checklists Based on the Baldrige Educational Criteria for Performance Excellence

The researcher wishes to acknowledge and thank the Pinellas County Quality Academy for allowing me to include the following information in this appendix. The checklists reproduced in this appendix as well as other checklists are currently available from Jim Shipley & Associates, Integrated Systems Solutions, 8058 Bay Haven Drive, Seminole, Florida.

When using these checklists to monitor progress in implementing continuous improvement think about only the unit being evaluated as a system. Respond honestly to the questions as to the actual current state, not the ideal. The total point score for all seven areas is 100 points. Use the insights from your scoring to complete the action plan on the last page of evaluation document.

Systems Check for the Classroom

Systems Check for Grade Level/Department Teams

Appendix D

Recommended Resources for CI Tools and Processes

Bonstingl, J. J. (1996). *Schools of quality: An introduction to total quality management in education* (2nd ed.). Alexandria, VA: Association for Supervision and Curriculum Development.

Bonstingl provides practical tools and examples for applying the philosophy of quality to every level of the school. The strategies in this book are designed to help educators establish processes that foster continuous improvement for everyone involved in schooling. The book explains how educators have used philosophy to guide strategic planning, communicate more effectively with parents, improve students' learning strategies, and build a community of learners based on mutual respect and clearly defined aims. *Schools of Quality* is now available in a third edition.

Bradburn, F. B. (1999). *Output measures for school library media program*. New York: Neal-Schuman.

A user-friendly "how-to" book shows how to take data already collected by library media specialists, use that data to talk about existing programs, and how to document the need for program change. Information, illustrated by examples and charts, explains which data will best support a given need, how to collect data so they are reliable and useful, and how to interpret and use data effectively. Readers are also warned problems in the use of these statistics. Case studies show the use of output measures

Carson, B. B., & Smith, J. B., (Eds.). (1993). *Renewal at the schoolhouse*. Englewood, CO: Libraries Unlimited.

Twelve authors offer strategies, based on their area of expertise, for effective management in the areas of personnel, time, finances, technology, change, and communication. Based on the concept that library media specialists are in a partnership with administrators and teachers focused on student achievement and the revitalization of schools. Charts, vignettes, cartoons, and memorable quotations emphasize key points.

Cleary, B. A., & Duncan, S. J. (1997). *Tools and techniques to inspire classroom learning*. Milwaukee: ASQ Quality Press.

Each chapter introduces a quality tool and provides several examples for classroom application at different grade levels. Each chapter includes focuses on the benefits to be gained by a classroom when the tool is used. Includes glossary.

Cleary, B. A., & Duncan, S. J. (1999). *Thinking tools for kids: An activity book for classroom learning*. Milwaukee: ASQ Quality Press.

Using scenarios from the classroom, Cleary presents and introduction to quality tools with clear guidance for selecting the right tool for the problem. Includes exercises, illustrations to help clarify concepts, a glossary, and suggest how to apply concepts to home situations.

McClanaham, E., & Wicks, C. (1993). *Future force: Kids that want to, can, and do!* Chino Hills, California: PACT Publishing.

The tools and techniques of TQM translated for use by teachers to assist them in showing students to work with the concepts of continuous improvement. Presented as an interactive learning process, this book enables students to apply analytical and technical tools and social skills in the classroom.

Tague, N. R. (1995). *The quality toolbox*. Milwaukee: ASQ Quality Press.

This easy to use resource provides instructions for using more than 50 tools. Included are matrices and flowcharts, data collection and analysis techniques, and other tools for analyzing processes, discovering causes, and generating ideas. Many diagrams, charts, and checklist examples, and a Tool Matrix chart to help users find the right tool for a particular situation.

Appendix E

Continuous Improvement Tool Rubrics

Flow Chart Rubric[1]

[1]From *Process Improvement Tools* (p. 21) by Pinellas County Schools, 1998. Largo, FL:

Force Field Analysis Rubric[2]

[2]From *Process Improvement Tools* (p. 23) by Pinellas County Schools, 1998. Largo, FL: Quality Academy. Copyright 1998 by Quality Academy. Reproduced with permission.

Affinity Diagram Rubric[3]

[3]From *Process Improvement Tools* (p. 22) by Pinellas County Schools, 1998. Largo, FL: Quality Academy. Copyright 1998 by Quality Academy. Reproduced with permission.

Cause & Effect Diagram Rubric[4]

[4]From *Process Improvement Tools* (p. 24) by Pinellas County Schools, 1998. Largo, FL: Quality Academy. Copyright 1998 by Quality Academy. Reproduced with permission.

Pareto Analysis Rubric[5]

[5]From *Process Improvement Tools* (p. 25) by Pinellas County Schools, 1998. Largo, FL: Quality Academy. Copyright 1998 by Quality Academy. Reproduced with permission.

Histogram Rubric[6]

[6]From *Process Improvement Tools* (p. 27) by Pinellas County Schools, 1998. Largo, FL: Quality Academy. Copyright 1998 by Quality Academy. Reproduced with permission.

Control Chart Rubric[7]

[7]From *Process Improvement Tools* (p. 29) by Pinellas County Schools, 1998. Largo, FL: Quality Academy. Copyright 1998 by Quality Academy. Reproduced with permission.

Student Achievement Model Flow Chart[8]

[8]From *Process Improvement Tools* (p. 35) by Pinellas County Schools, 1998. Largo, FL: Quality Academy. Copyright 1998 by Quality Academy. Reproduced with permission.

Integrated Learning System (Results) Flow Chart [9]

[9]From *Process Improvement Tools* (p. 40) by Pinellas County Schools, 1998. Largo, FL: Quality Academy. Copyright 1998 by Quality Academy. Reproduced with permission.

Integrated Learning System (Processes) Flow Chart [10]

[10]From *Process Improvement Tools* (p. 41) by Pinellas County Schools, 1998. Largo, FL: Quality Academy. Copyright 1998 by Quality Academy. Reproduced with permission.

Appendix F

Forms

SAINT MARY'S UNIVERSITY OF MINNESOTA

SCHOOL OF GRADUATE STUDIES

Research Methods Approval

Directions: Please complete this form in order to secure approval for collecting research data or information from sources external to the University, or from employees or students from the School of Graduate Studies. Included are experiments involving human subjects, surveys, structured interviews, and other methods for gathering research information from sources other than published materials. This approval process documents the human subject review function. Attach this form to (he research proposal, the data collection instruments, correspondence with the sources, and release forms. Please use the back of this form if additional space is required to complete the following items. Return the completed form to your program director(s).

Student Barbara Fiehn Program Ed.D Leadership

Address 965 Constance Lane, Unit D, Sycamore, IL 60178

Phone #s: (h) 815 895 7667 (w) 815 753 8339 Student # 469 52 0779

Title of Research Continuous Improvement in School Media Centers

Purpose of Research (research questions or objectives):

The purpose of this study is to document the experiences of the Media Specialists of the Rochester Public Schools with the implementation of Continuous Improvement processes and tools in their media centers. This study will gather data to illustrate how Continuous Improvement is being used. The perceptions of the media specialists about the usefulness and successes they have had with Continuous Improvement processes and tools will be examined. The study will provide a record of both successful and unsuccessful experiences in order to provide the basis for continuing application of Continuous Improvement in school media centers. Artifacts will be gathered to illustrate how Continuous Improvement tools have been adapted for use in the media center. The use of these artifacts will be described. Media specialists will be asked about problems encountered while using these tools.

The question to be asked are how are media specialists in Rochester, MN, public schools using Continuous Improvement and what are their successes? How do media specialists feel about the use of Continuous Improvement? How do they decide what tool or process to use? How are the tools that are being used chosen? How is Continuous Improvement being used in the instructional, consultative, and management processes of the Media Center program? In order further implementation of Continuous Improvement, what is needed? What was used and discarded? What are the barriers to using Continuous Improvement?

Population and Sample:

The participant group consists of eighteen school library media specialists working in one public school district. Seventeen of the media specialists are licensed. The other media specialist is an experienced classroom teacher with a strong background in children's literature and has learned to be a media specialist "on the job." All the participants had experience as classroom teachers before becoming media specialists.

Three of the participants work in high school buildings, four work in middle schools, ten are in elementary buildings, and one works in a k-8 building. Of the eighteen participants, the one male is a high school media specialist. Years of experience as media specialists range from thee to twenty-eight years. Four of the media specialists have three to five years' experience. Five media specialists have twenty or more years of experience.

How are the sources or subjects chosen?

The participants in this study are a purposive sample, chosen by the researcher because they had attended at least the first of the two school district training sessions on the use of Continuous Improvement in the classroom

What consent and confidential information is to be given to the sources or subjects? (attach copies)

How will the results be used? (circle one) Dissertation/summary other ? (please describe)

_____ _____

Researcher's signature Date

_____ _____

Advisor/instructor's signature Date

_____ _____

Program Director's signature(s)* Date

Decision: Approved Not Approved

Remarks:

_____ _____

Director of Institutional Research Date

Consent Form

Barbara Fiehn is conducting qualitative research for a dissertation as partial requirement for the Ed. D. degree in the Educational Leadership at Saint Mary's University of Minnesota. She is using interviews, which will be audio taped and transcribed, to determine how school media specialists are using continuous improvement philosophy and tools in their work. She will collect artifacts and take digital photographs as additional documentation. During the course of interviews and artifact collection, continuous improvement practice will be observed. Participants will consent to be interviewed/observed. The information gathered will be used in the dissertation and may be presented in articles and/or conferences. Identifications will be disguised to assure confidentiality. Audio or visual material used in reporting this research will be altered to protect participant anonymity. Participation is strictly voluntary.

I have been informed of the purpose of the interviewing, observation, and artifact collection that is being done by Barbara Fiehn in her research on the use of continuous improvement in school media centers. I agree to participate. I understand my participation is voluntary and that I may drop out at any time without any kind of retribution. Further, I understand all information collected and reported will be handled with confidentially, so neither my school nor I can be identified in the dissertation, articles, or presentations of the results. Portions of the audio tapped interviews may be used verbatim in text or as audio clips within the final report. Photographs taken during observations may also be used as part of the report. Photo images and audio clips used in the reporting will be altered to maintain the anonymity of the participants as needed.

Print Name_____Signature_____

Date_____ School _____

Phone Number (W)_____(H)_____