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Using Formative Student Feedback: A Continuous Quality Improvement Approach for Online Course Development

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USING FORMATIVE STUDENT FEEDBACK: A CONTINUOUS QUALITY

IMPROVEMENT APPROACH FOR ONLINE COURSE DEVELOPMENT

by

Kristy Taylor Bloxham

A dissertation submitted in partial fulfillment
of the requirements for the degree

of

DOCTOR OF PHILOSOPHY

in

Instructional Technology and Learning Sciences

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UTAH STATE UNIVERSITY
Logan, Utah

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ABSTRACT

Using Formative Student Feedback: A Continuous Quality Improvement Approach for

Online Course Development

by

Kristy Taylor Bloxham, Doctor of Philosophy

Utah State University, 2010

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Department: Instructional Technology and Learning Sciences

The objective of this study was to examine the use of frequent, anonymous

student course surveys as a tool in supporting continuous quality improvement (CQI)

principles in online instruction. The study used a qualitative, multiple-case design

involving four separate online courses. Analysis methods included pattern

matching/explanation building, time series analysis, and thematic analysis. Findings

suggested that instructors used student feedback to make course changes that alleviated

technical difficulties, added and clarified content, and contributed to future course

changes. Students and instructors responded positively to the opportunity to give and

receive anonymous feedback and felt that it helped improve the course. It is uncertain,

however, whether using CQI principles had an impact on end-of-semester teacher course

quality ratings.

An important finding from the research is that students like to be asked to help improve their learning experience, as long as the instructor listens and responds to their feedback. Evaluation is a valuable component of instructional design theories, which are based on the philosophy that the best designs result from an iterative process. Using a synergistic CQI approach, this study indicates that it is possible for changes to be made more quickly to a course when students are involved in the process. The combination of frequent student feedback with a willing and experienced instructor who can make expert course revision decisions allows the process of course improvement to be enhanced.

(125 pages)

DEDICATION

I dedicate this dissertation to my amazing husband, Dean. The first time I watched him cross the finish line at Lotoja inspired me to shoot for *my* dream. I saw what it took for him to succeed and knew at that moment that the sacrifices would be worth it. He has been my greatest support and best listener. I love him dearly and will never forget what he has given me, courage.

ACKNOWLEDGMENTS

I would like to thank all of those people who helped make this dissertation possible. First I wish to thank my major professor, Mimi Recker, for all her guidance, encouragement, support, and patience. To say she is the best advisor anywhere is an understatement. She may have set the bar high but she was always there to help me make it over. Also, I would like to thank my committee members, Sheri Haderlie, Anne Diekema, Nick Eastmond, and Jim Dorward. Their support, input, and friendship were invaluable in making this a wonderful experience.

It is important that I thank my incredible family. Each of them has been instrumental in encouraging me to succeed, no matter the obstacles.

- Dean, my husband, for so many things I could fill another one hundred pages.

- Megan, my daughter, for allowing me to join her college experience and always being proud of me.

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- Tyson, my youngest son, for always being there with a hug and a smile and being my angel child.

- My mother, Sheral Taylor, for calling me every morning to make sure I was ok and to tell me I could do this. Never once did she ask me if it would be worth it, she knew it would be.

- My father, Ted Taylor, for beaming at my final defense and being proud of me. He always encouraged me to get a good education and set me on my initial path so many years ago.

- My in-laws, Terrell and Emma Bloxham, who supported and encouraged me right to the end, not letting me quit or let up. I might still be working on this without them.

Finally, a special acknowledgment to a loving Father in Heaven who never once let me down. I have no doubt He called me on this journey. My faith in His plan and my love for Him has grown immeasurably. I hope to continue doing what He needs me to do and that in the end He will say, "Well done."

Kristy Taylor Bloxham

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CHAPTER 1

INTRODUCTION

Total quality management (TQM) and *continuous quality improvement* (CQI)

have become synonymous in academia and business as process principles that are

established to guide the quality of outputs (Barnard, 1999; Bhuiyan & Baghel, 2005;

Powell, 1995). TQM is a management approach that supports the continuous

improvement of the efficiency and effectiveness of all aspects of an organization's

programs and services in order to maximize benefits (Lawler, 1994). CQI is the process

of creating an environment in which quality improvement is a key part of an

organization's culture (Sonpal-Valias, 2009). In lay terms, continuous improvement

principles encourage participation and input from everyone in an organization in order to

advance the organization's goals. Because of the close association in the literature of

TQM and CQI, hereafter the terms will be used interchangeably, with a preference for

CQI.

Businesses are increasing their use of online formative feedback methods, such as

online surveys and e-mail, to quickly and efficiently gather data to improve products and

services using continuous improvement strategies (Jie & Robin, 2007; Minqing & Bing,

2004; Resnick & Varian, 1997). By asking customers to provide online feedback during

all phases of development, businesses can gain new insight that allows for more rapid

improvement. This feedback, when used in conjunction with product development, can

create an improvement cycle that is better informed than if customer input had not been

requested.

Although the concept and principles of quality improvement have been implemented in higher education for over 30 years (Lawrence & McCollough, 2004; Powell, 1995; Vazzana, Winter, & Waner, 1997), the majority of implementation has been in the administrative segment, such as accounting and maintenance (Hogg & Hogg, 1995; Koch & Fisher, 1998; Lawrence & McCollough, 2004). In particular, there is a lack of empirical studies on the use of CQI in instructional settings (Lawrence & McCollough, 2004). More knowledge is needed about CQI's effects on the instructional process itself and about the opportunity costs of time devoted to its practices (Barnard, 1999).

This research examines the application of CQI principles in student feedback processes as an additional way of gaining timely and effective feedback from students. The online course setting is chosen because it is difficult to obtain feedback in such courses when the instructor cannot rely on face-to-face contact and body language (Tallent-Runnels et al., 2006). This dissertation examines the ability of CQI principles to facilitate instructional improvements and enhance both the learning experience and learning outcomes in online courses (Chen & Hoshower, 2003; Grudin, 1991).

Objective and Purpose

The objective of this study was to examine the use of frequent, anonymous student course surveys as a tool in implementing CQI principles in online instruction. These principles are based on the establishment of cooperation and collaboration aimed at improvement. Frequent, anonymous student course surveys were used to help create a communication avenue to promote CQI. Instructors were able to continue the

communication cycle by responding to feedback received from students. The purpose of the research was to study how the establishment of frequent CQI opportunities affects overall course improvement, and how students and instructors perceive the opportunity to participate in a CQI cycle. Course improvement was measured by comparing the final course evaluation quality scores with those of previous semesters, and by documenting actual course changes by the instructor.

Problem Statement

Continuous quality improvement principles have been used in business, as well as in higher education, to promote efficient and effective enhancements to products and services. Despite the popularity of CQI in higher education, little research has been done regarding the use of CQI methods in a learning environment. The use of formative student feedback is one technique for continuous improvement in instruction. The examination of CQI methods such as formative student feedback, within the context of online higher education courses, could lead to a better understanding of how CQI principles can facilitate improved instruction. This study contributes to building up the body of information concerning the use of CQI in higher education.

Research Questions

The following research questions were asked in order to better understand the effectiveness of using CQI methods in an online educational setting:

1. How do instructors use frequent, anonymous student feedback to enable continuous improvement within an online higher education course?

2. How do instructors perceive the opportunity to participate in continuous improvement activities within a course?

3. How do students perceive the opportunity to participate in continuous improvement activities within a course?

4. Do instructors who implement CQI methods also show a rise in their end-of-course, student evaluation quality ratings?

Method

This study used a qualitative, multiple-case design involving four separate cases. This approach was chosen for this exploratory research because the intent was not to make causal claims, but rather to add to the body of knowledge on the use of CQI in higher education. Data for the study were analyzed using pattern matching, explanation building, time-series analysis, and thematic analysis.

Outline of Chapters

I have followed the usual five-chapter dissertation format with separate chapters for the introduction, literature review, methodology, analysis, and conclusion. Full details of each chapter are provided below.

Chapter 1: Introduction. In this chapter, I explain the concept of continuous quality improvement and its relationship to total quality management. I also discuss my research purpose, research questions, and the methods used in the study.

Chapter 2: Literature review. In this chapter, I review the literature on the primary components of the study: CQI, online learning, the use of anonymous course surveys, and formative feedback. I use the information gleaned from the literature base to

derive an approach that combines anonymous course surveys with teacher responses to create a CQI cycle. The theoretical framework is presented and its association with the study explained.

Chapter 3: Method. I begin this chapter with a short explanation of my research design. The purpose of the study and the research questions are then presented. The research design is discussed at length, including the types of data analysis used, the case definitions, and data sources. I end with an overview of the data collected and a discussion of the data analysis methods employed in answering the research questions.

Chapter 4: Analysis of the research results. In this chapter, I begin my analysis with a discussion of the case characteristics. Each case will be discussed in depth, followed by each research question with data presented in both its raw and post analysis forms.

Chapter 5: Conclusion. In this chapter, I draw from the findings of Chapter 4 to help discuss the phenomena observed. Further research study options as well as limitations of the study are discussed. I conclude with an overall summary of the findings.

CHAPTER 2

LITERATURE REVIEW

The literature review for this study draws from online databases and search engines such as ERIC, EBSCO, Web of Science, and Google Scholar. The following search terms were used, with a parenthetical indication of how many resources were found within the major topic areas: student course ratings, student course evaluations, instructor evaluations, instructor ratings, course feedback, formative student course evaluations (34); online communication, online learning (16); and continuous improvement theory, TQM, continuous quality improvement, CQI (45). Studies chosen for inclusion were directly related to these topic areas; excluded studies involved the use of the stated search terms to evaluate the students themselves instead of the overall course or instructor, or used TQM for business purposes only.

Definitions

Several terms are used interchangeably in the literature to denote *student course feedback*, and many have the same general meaning. To clarify, student course feedback is the larger umbrella under which the following are used: student course ratings, instructor ratings, course ratings, course feedback, course evaluation, student course evaluation, and instructor evaluations. Additionally, some confusion may arise because student course feedback might not seem to be an evaluative process. For simplification, because feedback and evaluation are not necessarily homogeneous terms, any evaluation given by a student to an instructor will be considered a form of feedback. In some

situations, student course ratings are a more detailed explanation or type of student

feedback in which the instructor is given a numeric rating. For the purposes of this study,

student course ratings and evaluations will in essence be considered as feedback. Student

course surveys given at the end of a course are usually referred to as a summative

evaluation tool; surveys given during the course are considered a formative evaluation

tool. The terms *total quality management* and *continuous quality improvement* have been

widely used in both business and education to connote a specific philosophy of

improvement. As previously stated, the terms can be used interchangeably.

Continuous Quality Improvement (CQI)

Background. The origins of CQI can be traced to 1949, when Japan requested

help from Dr. W. Edwards Deming, a well-known American quality improvement expert,

to increase productivity and enhance the postwar quality of life for its people. This led to

the widespread acceptance of Deming's philosophy of continuous improvement (Walton,

1988). Deming's cycle for improvement was used to help describe his rationale to plan,

do, study, and act. He believed in the importance of an iterative cycle of improvement for

any process and felt that management had a strong role to play in creating an informative

atmosphere to inspire change. Deming's cycle employed many of the following

principles (Vora, 2002):

- Be a leader in developing vision, mission, and values.

- Listen to customers and take action.

- Review and use customer feedback.

- Listen to employees and take action.

- Recognize employees.

- Work with key suppliers.

- Review strategic and operational performance.

- Be a champion for improvement.

- Provide necessary resources for process improvement.

- Remove any obstacles to improvement efforts.

When the economic downturn of 1980 began to affect U.S. companies, they also turned to Deming's principles to help increase efficiency and profits. By 1996, it was estimated that up to 70% of Fortune 500 companies had implemented some form of CQI program (Ehigie & McAndrew, 2005; Powell, 1995).

Powell (1995) stated that many different factors may be involved within an organization to help create a cycle of CQI. Some of these factors are: committed leadership, adoption and communication of CQI, closer customer relationships, closer supplier relationships, benchmarking, increased training, employee empowerment, process improvement, and measurement. Committed leadership is essential in the CQI process because changes must occur based on employee feedback. These changes cannot occur without the support of those in charge. Management and employees must address the adoption and communication of CQI if changes in behavior are expected. All those involved must be trained in the proper use of CQI tools that enhance the communication and improvement cycles. Using benchmarking to show actual progress has value to both employees and management and encourages the continued use of CQI processes and tools. Employees involved in the improvement process become empowered in their own success and in that of others, thus completing and perpetuating the cycle. Although each

of these factors is valuable, they need not all be present for CQI to be implemented.

Ehigie and McAndrews (2005) stated:

> Every organization will have a diversity of problems, and there is not one solution. Thus, the philosophy of TQM is not using the fad characteristic of saying a certain type of system will improve a certain type of problem. It is therefore in the hands of managers to interpret and implement the tenets of TQM according to how they think the values and philosophies can be accomplished. (p. 934-935)

Although business and education are different, CQI principles may still be adopted to improve certain educational processes such as course improvement. Though terminology may seem different, when comparing the processes we can adjust our language to help in understanding how the process can be adapted. Terms that can clearly be associated with education include: committed leadership, adoption and communication of CQI, benchmarking, employee (student) empowerment, process improvement, and measurement. Whether we consider students as employees or customers in our CQI conversations does not affect the actual process because the cycle tries to consider every person involved in the process as a part of the improvement cycle (Babbar, 1995). Each instance of CQI implementation should rely on the goals of the organization and consider what stakeholders want to accomplish (Babbar, 1995; Vora, 2002). Because educational goals involve accomplishing objectives, CQI efforts must coincide with the overall improvement of the educational process in order to be considered viable in process improvement (Steyn, 2000).

Use in higher education. Because of the success of CQI methods in business, academia in the U.S. received significant encouragement from the chairmen of American Express, Ford, IBM, Motorola, Procter & Gamble, and Xerox, in their collective letter

published in the *Harvard Business Review* urging academic institutions to embrace

CQI and offering millions of dollars in support of implementation efforts (Robinson III et

al., 1992). More importantly, this plea served as a catalyst in generating enthusiasm for

CQI initiatives in institutions of learning (Babbar, 1995). Education quickly jumped on

the bandwagon and in 1996 at the height of CQI adoption, it was reported that 160

universities in the United States were actively involved in CQI and 50% of universities

had established the equivalent of quality councils (Koch & Fisher, 1998; Lawrence &

McCollough, 2004). Although many institutions of higher education have committed

themselves to CQI principles, the results are somewhat uninspiring for the learning

process and include the overhaul of campus copy centers, better bill collection and check

writing, more efficient handling of admissions and financial aid applications, and more

productive scheduling of physical plant jobs (Koch & Fisher, 1998). For the most part,

the principal application of CQI in higher education lies in support and administrative

functions rather than in core teaching and learning processes in the classroom (Koch &

Fisher, 1998; Lawrence & McCollough, 2004). Application of CQI principles is

recognized to be a much greater challenge in teaching than it is in support and

administrative units. As a result, CQI principles are not finding their way into the

majority of college classrooms because of a lack of generalizable approaches and tools

for faculty to draw upon (Lawrence & McCollough, 2004).

Educational definitions and empirical studies of CQI. Although the principles

of CQI were first established for the business community, educators have made some

attempts to transfer those principles into the classroom. The following definitions by

Babbar (1995) help to guide the CQI-oriented teaching effort in a class setting:

- TQM in a class setting is a philosophy and a set of guiding principles and practices the instructor applies to teaching that represent the foundation for continuous learning and improvement on the part of both the students and the instructor. It is the application of instructional procedures that improve the quality of education and the degree to which the needs of the students and their employers are met, now and in the future.

- TQM in a class setting is a process that involves the instructor's adopting a total quality approach to teaching (i.e., attempting to improve the quality of instruction and, in the process, the students' meaningful learning in every possible way) so that the needs of the students and those of their employers are best served. It is the never-ending pursuit of continuous improvement in the quality of education.

These definitions suggest that a flexible attitude is warranted, as the CQI philosophy is more about values and principles than about set standards and systems.

Research on CQI in higher education. Considering the length of time since higher education adopted CQI, limited research has been done regarding CQI within a teaching setting. Case studies by Babbar (1995), Hubbard (1994), Barnard (1999), Mehrez, Weinroth, and Israeli (1997), Vazzana et al. (1997), Durlabhji and Fusilier (1999), Sutton (1995), Lawrence and McCollough (2004), Bernold (2008), and Steyn (2000) each provide a classroom-tested framework for applying CQI. Initial analysis of early case studies was begun by Lawrence and McCollough (2004); however, more recent studies have been added (see Table 1). Although application of CQI varies widely for each study, five key elements represent the core of each model: (1) continuously improving the learning process, (2) empowering students and increasing their

responsibility for the learning process, (3) building trust and mutual respect, (4) setting high performance expectations, and (5) achieving zero defects/100% satisfaction (or minimization of defects/no rework). The conceptual frameworks used in each of these nine studies are compared and summarized in Table 1.

Barnard (1999) and Lawrence and McCollough (2004) reported positive changes in student perceptions of instructor effectiveness when TQM principles were used, a finding that did not differ between undergraduate and graduate students. Different feedback mechanisms were used for each study listed in Table 1, but none used the frequent, anonymous student course surveys that this study does. All case studies reported improvement in the instructional process and gains in overall student and instructor satisfaction, as measured by surveys given at the end of the course.

The Value of Student Course Feedback

The use of student ratings, or course evaluations, has been researched heavily for over 60 years (Aleamoni, 1999; Algozzine et al., 2004; Marsh & Roche, 1997). Controversy surrounds the use of student course evaluations since the time their use became a factor in instructor tenure and promotion decisions. Because student course feedback is an important component of developing a productive improvement cycle, the advantages and disadvantages of the feedback tool informed the procedures of this study. Many different aspects of feedback use have been studied that have yielded some interesting findings.

Table 1

Common CQI Factors Among Nine Educational Case Studies

Research	Specific changes made	Continuously improving the learning process	Empowering students	Building trust and mutual respect	Setting high expectations	Zero defects/100% satisfaction
Hubbard (1994)	Allowed instructional design control by students	Continuously improving the learning process	Empowering students to assume more control	A culture of quality built on respect, fairness, honesty	Focusing assessment on raising expectations	Using assessment as a tool to prevent errors
Babbar (1995)	Used CQI principles of collaboration in classroom	Continuously improving education quality	Clearly communicating role of student as active participant	Influence by setting the example, being passionate about learning	Shaping climate for excellence and getting students to stretch goals	

Research	Specific changes made	Continuously improving the learning process	Empowering students	Building trust and mutual respect	Setting high expectations	Zero defects/100% satisfaction
Barnard (1999)	Instructor development sessions on CQI end-of- course student survey	Continuously improving the process	Giving students some responsibility for making the class function better	Building trust and willingness to take risks, encouraging support and consideration	Expectation for performance	N/A
Mehrez et al. (1997)	Allowed instructional design by students	Continuously & measurably improving the learning process	Empowering students to be responsible for what they learn	Improving morale and increasing mutual respect	Minimizing defects	N/A

Research	Specific changes made	Continuously improving the learning process	Empowering students	Building trust and mutual respect	Setting high expectations	Zero defects/100% satisfaction
Vazzana et al. (1997)	Faculty training & self improvement, work with employers of students	Continuously improving the process via improved assessment	Empowering students to take control of their success, involving students	N/A	N/A	Eliminating rework & preventing gaps in the learning process
Burlabhji & Fusilier (1999)	Self-managing teams	Continuously evaluating & improving the process	Empowering students to structure the environment	N/A	N/A	100% satisfaction/zero defects

Research	Specific changes made	Continuously improving the learning process	Empowering students	Building trust and mutual respect	Setting high expectations	Zero defects/100% satisfaction
Sutton (1995)	Teams, peer evaluation, self report	Continuously evaluating & improving the process	Empowering students to take control of their own success	Building trust and mutual respect	High expectations for performance	N/A
Lawrence & McCollough (2004)	Instructor training in CQI, expectations for implementation	Continuously improving	Clearly communicating role of student as active participant	Building trust and mutual respect	High expectations for performance	100% satisfaction guarantee
Steyn (2000)	Student self assessment	Continuously measuring improvement	Empowering students for their own learning	Encouraging respect	High expectations	N/A

Research	Specific changes made	Continuously improving the learning process	Empowering students	Building trust and mutual respect	Setting high expectations	Zero defects/100% satisfaction
Bernold (2008)	Instructor support and training	Continuously evaluating & improving the process	Empowering students through peer review	Building trust and mutual respect	High expectations for performance	Eliminating rework & preventing gaps in the learning process

Correlation of student learning and course evaluations. The strongest

evidence for the validity of student ratings is found in the correlation between better

student learning and higher instructor ratings on course evaluations. Researchers

conducting separate meta-analyses (Abrami, 1990; Arubayi, 1987; Cohen, 1981;

d'Apollonia & Abrami, 1997) provide strong support for the validity of student ratings as

measures of teaching effectiveness, reporting correlation coefficients between 0.50 and

0.90. Wachtel (1998) concluded, "Student evaluations are the only indicator of teaching

effectiveness whose validity has been thoroughly and rigorously established" (p. 2). He

brought to the reader's attention research that answers common questions about student

evaluations, such as the effects of instructor age, gender, physical appearance, reputation,

and research interests; class time of day; and course workload. His findings indicate that

students are generally unbiased, apt to take seriously their responsibility in completing an

evaluation, and hopeful that instructors will read what they have written. Much of the

research cited involves the use of final student course evaluations; this type of feedback is

limited to a long-improvement-cycle tool, rather than a short-improvement-cycle tool.

Although the research shows that instructors used the feedback to improve future courses,

students were less invested in participating because there was not any immediate benefit

for them.

Instructor attitudes regarding course evaluations. Nasser and Fresko (2002)

discussed the attitudes and biases reported by a group of college professors regarding

their course evaluations. The authors stated that many instructors feel course evaluations

are associated with how easy a course is and that they are, in reality, nothing more than

popularity contests. The heavy use of student ratings in instructor advancement can also

be associated with low instructor morale and the lowering of academic rigor (Schmelkin, Spencer, & Gellman, 1997). Although student ratings have shown worth, several researchers have cautioned against their use and state that they should not be the only form of instructor evaluation, especially if the instructor's professional advancement is on the line (Seldin, 1993; Theall & Franklin, 2001). Additionally, Schmelkin et al. found that when instructors felt that their tenure or promotion status depended on their students' ratings, they expressed the opinion that the students didn't have the ability to rate them fairly. On the other hand, they felt completely differently if the ratings were used to help them improve the learning process itself. In this case, as in several other research studies, faculty found it difficult to know how to use student ratings and comments without help from another professional such as a mentor teacher (Nuhfer, 1996; Schmelkin et al., 1997).

Negative aspects of end-of-course evaluations. Research shows that anonymity affects student responses in course evaluations, especially if those answers may be viewed as less than positive (Kulik, 2001; Marsh & Roche, 1997). When asked, students indicate the feedback they give on a course evaluation is different if they believe the instructor will know their identity (Chen & Hoshower, 2003).

If a student's prior classes used course evaluations, but the instructor did not communicate to the students that the findings were used, or discounted the findings as unimportant, that student might not have faith that a different instructor would handle feedback in a different way. Therefore, the student might not take the time to honestly answer the questions, not knowing if the instructor would use the results (Wachtel, 1998).

Additionally, students may feel stress if they are worried that their feedback could hurt the instructor's professional progression in some way (Seldin, 1993). Rather than giving accurate feedback, the student may choose not to give any constructive criticism that may hurt an instructor's feelings or chance for tenure and promotion, thus rendering the evaluation less valuable for course improvement (Sorenson & Reiner, 2003; Theall & Franklin, 2000; Wachtel, 1998).

Increased value of timely course feedback. When course evaluations are paper-based, additional time is needed to scan, record, copy, and distribute the findings. The delayed receipt of feedback to instructors limits their ability to use the information for course improvement (Franklin & Theall, 1989; Hobson & Talbot, 2001). One of the valuable improvements that technology has made to course evaluations is the timely manner in which they can be received by the instructor (Avery, Bryant, Mathios, Kang, & Bell, 2006). In order to be effective, technology needs to be part of "a coordinated approach to improving curriculum, pedagogy, assessment, instructor development, and other aspects of school structure" (Roschelle, Pea, Hoadley, Gordin, & Means, 2000, p. 78). Through better use of technology, student feedback mechanisms can be created that may be easier to use, while still allowing for the response benefits (Judson, 2006).

Unique Nature of Online Learning

Advances in technology have opened up greater educational opportunities for students of all ages because greater numbers of courses are now being offered online (Tallent-Runnels et al., 2006). Many universities are expanding their online offerings for not only individual classes, but also full degrees. The characteristics of online courses

change the instructors' ability to communicate effectively with their students (Benigno & Trentin, 2000). A lack of face-to-face meeting time can hinder an instructor's ability to gauge such things as student comprehension of the subject matter, speed of delivery, and pace of the course. Without encouraging student input regarding course improvement, educational goals and objectives may be more difficult to attain. Although online courses have the drawback of limited face-to-face communication, this can be offset by the effective use of emerging communication technology.

The Use of Technology to Gain Student Feedback

A large number of colleges and universities in the United States and abroad have either established an online course evaluation system, or they are looking into the possibility of doing so (Avery et al., 2006). Although these course evaluation systems are using only end-of-course data, the lessons learned and information received may be important in understanding how student feedback is used for course improvement. Sorenson and Reiner (2003) list some of the advantages of online course evaluations in their research:

- Evaluations no longer take up class time.
- Students can spend more time outside of class filling out the evaluation.
- Students tend to write more when the evaluation is online.
- Administration time is greatly reduced.
- The quality of online student responses tends to be more in-depth and thoughtful.
- The implementation cost is usually less than for the written form.

Low response rates. The biggest drawback to online course evaluations is the possibility of a poor response rate (Anderson, Cain, & Bird, 2005; Benigno & Trentin, 2000). Many institutions report response rates as low as 3% for their online evaluations (Thorpe, 2002). When students are not held accountable for their input on course ratings, they seldom feel inclined to fill them out because there is no benefit for them (Sorenson & Reiner, 2003). To change this outcome, some form of accountability or incentive must be included in the student's course (Hoffman, 2003). Different methods to encourage student participation have been used such as extra credit, early registration and viewing of grades, and random prize drawings. Although each method has a different success rate, overall response percentages rise dramatically when an incentive is present.

More-in-depth responses. A significant finding regarding the use of an online format to collect student feedback is the increased quality of the responses. When students are asked to complete a course evaluation online at their own convenience, they tend to give longer and more-in-depth responses (Johnson, 2003). The evaluations therefore have the potential to be of much greater value to instructors. Students state that having time outside of class to complete feedback forms gives them the opportunity to put more thought into their responses without being rushed and to give more constructive responses.

Formative Student Feedback

While not used as extensively as summative course evaluation, formative methods of course evaluation can also contribute to course improvement. Minute papers are one method used to elicit student feedback, and they have been found effective in evaluating

the accomplishment of course objectives (Chizmar & Ostrosky, 1998; Stead, 2005).

This technique allows students one minute at the end of class to let the instructor know

what they learned and any problems they may have had with the lesson. Used as a means

to get formative feedback from students, the minute papers have been an effective way of

eliciting constructive feedback during the course of a class. Additionally, midcourse

evaluations have become common because research has indicated a correlation between

their use and the improvement of final course evaluations (Wachtel, 1998). Little research

was found regarding frequent, anonymous student course evaluations.

Rapid course improvement using formative student feedback. Each instructor

has the responsibility to continue to improve and implement course changes that will

benefit the students and encourage the improved accomplishment of course objectives. If

end-of-course evaluations are the only input received from students regarding course

quality, instructors may miss an important learning opportunity (Watt, Simpson,

McKillop, & Nunn, 2002). Additionally, because of limited communication, frequent

occasions to elicit information concerning learning goals from students may be even

more important for online courses (Jordan & Henderson, 1995). By encouraging

anonymous and frequent evaluative dialogue between instructor and student, a

continuous improvement cycle can be established. If used properly, such dialogue may

allow instructors to improve courses more effectively (Ballantyne, 1999).

Pilot Study

Information from a previous pilot study helped to shape the current study. The

pilot study involved an online graduate-level class taught at Utah State University during

the summer semester of 2009. The instructor was trained in continuous improvement

(CI) theory by the researcher, and students were also given instructions on how to give

feedback so as to facilitate a cycle of cooperation. Student feedback was not required by

the instructor, but the students were asked by the researcher to give course feedback

seven times during the semester through the anonymous survey tool in Blackboard. Initial

findings were as follows:

- The majority of students responding to the final survey liked having the
  opportunity to give course feedback and wished they could do it in other classes.

- The majority of changes made to the course were initiated after the first student
  survey.

- All responding students stated that they could see changes that were made by the
  instructor after the student feedback was requested.

- Less than 20% of students participated in the anonymous student surveys. This
  may be because the instructor did not give any incentive for participation.

- The instructor stated in an interview that he was motivated to use the CI concepts
  in future classes because his student rating scores increased for this specific
  course.

- The instructor felt that it was important to tailor the student feedback questions
  around actual course content.

Although response rates were fairly low, using this data in addition to other research

literature allowed important changes to be made to the current study. These included

creating an incentive for student participation and determining when the surveys needed

to be given. Results from the pilot study indicated that the process was seen as valuable

for both the instructor and the students who participated because they all requested the

feedback opportunity for future courses.

Theoretical Framework

Based on a literature review, a theoretical framework involving current principles

of CQI was used to guide the design of this study. CQI principles are based on the

concepts of planned, organized, systematic, ongoing, and incremental change of existing

practices aimed at improving overall performance (Boer, Berger, Chapman, & Gertsen,

2000). In order to operationalize CQI, Sonpal-Valias (2009) identified a CQI cycle as the

following:

<p align="center">Plan > Do > Check > Reflect > Act</p>

- *Plan* programs and services.

- *Deliver* them.

- *Measure* our performance.

- *Interpret* our performance and identify ways to improve it.

- *Choose and implement* strategies to improve our systems and processes.

- Start a new cycle again.

This cycle reflects the lens we used to evaluate the data. By doing so we were able to

see if a CQI cycle was established and how using the principles affected the outcomes of

the study.

CQI principles also follow the framework of outcome evaluation very closely.

Outcome evaluation is a systematic examination of the outcomes (i.e., changes, usually benefits), resulting from a set of activities implemented to achieve a stated goal, and a systematic examination of the extent to which those activities actually

caused those outcomes to occur. (Sonpal-Valias, 2009, p. 1)

In essence, outcome evaluations are used to assess the effectiveness of a process or activity, oftentimes giving direction for improvement. The largest difference between CQI and evaluation is the desire to create a cycle of feedback and improvement within the process itself.

CQI principles are based on the establishment of cooperation and collaboration aimed at improvement. A CQI cycle applied to an instructional situation involving the use of frequent student course surveys would be as follows:

- Plan—Instructor prepares specific instructional content and delivery.

- Deliver—Instructor delivers the instruction.

- Measure—Instructor administers student course surveys to provide a measurement of instructional effectiveness.

- Interpret—Instructor gauges his or her performance based on student feedback and evaluates for improvement.

- Choose and implement—Instructor chooses what changes need to be made for improvement, verbalizes the changes to the students and implements those changes into the course.

- The cycle is repeated.

Frequent, anonymous student course surveys were used to create an independent measure of instructional quality. Instructors were able to continue the development cycle by responding to feedback received by the students.

The principles of CQI build upon the concept that an iterative process of change for improvement depends upon the involvement of the student for detecting which

changes should be made (Boer et al., 2000). If students are not asked for feedback until the end-of-course student evaluations, feedback needed to improve the course might not be timely enough for course improvement (Arubayi, 1987; Vits & Gelders, 2002). The current standard practice of using end-of-course instructor evaluations as the only CQI method creates a long product-improvement cycle that only minimally involves students. By increasing the frequency of student feedback, instructors may alter the iterative cycle of change and facilitate continuous as well as expeditious course improvement (Middel, Boer, & Fisscher, 2006; Zangwill & Kantor, 1998). The theory applied in this research is to use anonymous course feedback as a method of involving the learner in the process of course improvement in a way that will allow for constructive and informed responses to instructor questions.

CQI principles have been used in business, as well as higher education, to promote efficient and effective enhancements to products and services. Despite the popularity of CQI in higher education, little research was found on the use of CQI methods in a learning environment.

CHAPTER 3

METHODS

Purpose of the Study

The objective of this study is to examine the use of frequent, anonymous student course surveys as a tool in implementing CQI cycles in online instruction. The purpose of the research is to study how the establishment of frequent CQI opportunities affects overall course improvement, measured by the changes the instructor makes to the course and the impact the method has on final course ratings as compared to ratings in previous versions of the course.

Research Questions

Based on CQI principles as well as on the research literature, the following research questions were asked in an attempt to better understand the effectiveness of using CQI methods in an online educational setting:

1. How do instructors use frequent, anonymous student feedback to enable continuous improvement within an online higher education course?

2. How do instructors perceive the opportunity to participate in continuous improvement activities within a course?

3. How do students perceive the opportunity to participate in continuous improvement activities within a course?

4. Do instructors who implement CQI methods also show a rise in their end-of-course student evaluation quality ratings?

Design

This study used a qualitative, multiple-case design. Case study research is used as an in-depth investigation of an individual or group within its real-life context. Choosing a multiple-case format allows for additional insight regarding, in this case, disparate groups. This approach was chosen for this exploratory research study because the intent was not to make causal claims, but rather to add to the body of knowledge on the use of CQI in higher education. Qualitative research lends itself to questions that look for the human meaning and seek to know not just what happens, but why (Merriam, 1998). Case studies are often used when questions of *how* and *why* are being posed (Yin, 1994); therefore, based on the research questions, case studies represent a plausible method for this study.

Data for the study were analyzed using several different methods to encourage the opportunity for triangulation. Table 2 specifies the components of the design.

Propositions of the Study

The case study examined how using frequent, anonymous student feedback can facilitate communication to generate CQI. It also assessed the value found by instructors and students in using CQI methods (see Logic Model in Appendix H). By using the acquired data sources, an attempt was made to link the course activities with the CQI principles of collaborative improvement. A collaborative cycle can be established when students can give feedback that can then be used by instructors to inform changes for course improvement.

Table 2

Components of Research Design

Research questions	Data sources and planned analyses
1. How do instructors use frequent, anonymous student feedback to enable continuous improvement within an online higher education course?	- Anonymous course surveys - Pattern matching/explanation building - Time-series analysis - Thematic analysis - Student-instructor interactions (e-mails) - Pattern matching/explanation building - Time-series analysis - Thematic analysis - Instructor logs - Pattern matching/explanation building - Time-series analysis - Thematic analysis - Student final survey - Pattern matching/explanation building - Thematic analysis

Research questions	Data sources and planned analyses
	• Instructor interviews
	o Pattern matching/explanation building
	o Thematic analysis
2. How do instructors perceive the opportunity to participate in continuous improvement activities within a course?	• Instructor interviews
	o Pattern matching/explanation building
	o Thematic analysis
3. How do students perceive the opportunity to participate in continuous improvement activities within a course?	• Student survey
	o Pattern matching/explanation building
	o Thematic analysis
4. Do instructors who implement CQI methods also show a rise in their end-of-course student evaluation quality ratings?	• Past and current instructor ratings
	o Comparative analysis

Case Definition/Participants

       The case study involved four online courses taught at Utah State University during the spring semester of 2010. Four courses (cases) were chosen to explore different possible outcomes. All distance education instructors were e-mailed asking for

participation in the study and only those that replied and fit the requirements were

considered. Cases were chosen from the responding instructors based on how diverse

they were rather than how similar. To gain as much contrast as possible, the courses were

chosen based on their differences from each other, such as class size, course content, and

type of student (graduate or undergraduate). The major criteria for selection, other than

overall contrast, were based on the following specifications:

- An online course that has been taught at least once before.

    o Considering that most changes for course improvement are made the first

       time it is taught, this study can focus on incorporating additional changes

       that might not be as obvious. Also, as a matter of comparison, all courses

       will have this in common.

- An instructor who is willing to learn and incorporate CQI principles into the

   course, specifically the use of frequent, anonymous student surveys to aid in

   improvement of the course.

- An instructor who is willing to give an incentive to students for completion of

   anonymous course surveys.

- An instructor who has previous course ratings for the course, is willing to share

   the ratings, and has not implemented too many changes from previous versions of

   the course.

Data Sources/Instruments

In conjunction with the instructor, I created anonymous student course surveys for

each individual course (Appendix G). Although many of the questions regarding

instructional delivery were the same for each instructor, some questions were unique

and focused more on individual course content. These surveys were designed to elicit

feedback that would help instructors evaluate their instructional methods, as well as the

delivery and receipt of that instruction by the student. The surveys were given through

the anonymous survey function in Blackboard. At the end of the course, the students

were asked to complete a survey (Appendix A) asking about their experience in

participating in the feedback exercise. I also interviewed the instructors at the conclusion

of the course using a standard set of questions (Appendix B). E-mails regarding the

course that were exchanged between the students and the instructor were also used to

analyze changes made by the instructor. Additionally, each instructor was requested to

keep a log (Appendix C) of course changes made.

Validity and Reliability

Internal validity for this study relied upon triangulation, described by Merriam

(1998) as using "multiple investigators, multiple sources of data, or multiple methods to

confirm the emerging findings" (p. 204). Through triangulation of several data sources,

the findings were viewed collectively to crosscheck for validity. In this study,

triangulation was achieved through the corroboration of data from two sources—the

instructor as well as the students. As an additional means of creating internal validity,

pattern matching, was applied (Yin, 1994) by comparing the empirical based pattern of

CQI with a predicted pattern.

External validity for this study relied upon the strategies of rich, thick description

as presented by Merriam (1998). The researcher must be committed to "providing enough

description so that readers will be able to determine how closely their situations match the research situation, and hence, whether findings can be transferred" (p. 211). Additionally, Merriam stated, "using several sites, cases, situations, especially those that maximize diversity in the phenomena of interest will allow the results to be applied to a greater range of situations" (p. 212). This study included four courses with varying characteristics.

Analysis

Several different data analyses were used to examine the effectiveness of CQI within each course. Each analysis method is discussed below along with how the data is relevant to the research study.

- Pattern matching/explanation building
  - Pattern matching and explanation building have been used by Trochim (1989) and Yin (1994) to establish perceived repeated examples of phenomena. All data collected were evaluated using this method to look for continuous improvement patterns, specifically how student feedback leads to course changes as well as how course changes lead to additional student feedback. This cycle is an important dimension within the continuous improvement model. By considering the cause-and-effect nature of the events, researchers can better understand how continuous improvement principles can be used to help improve a course. Using the data collected in the student surveys and the teacher feedback emails we were able to see what changes were being made and if they related to the

student survey feedback. By using a pattern matching/explanation

building method we were also able to see if the data was following a CQI

cycle based on feedback and responses.

- Time-series analysis

  - o Kidder (1981) used the concept of time-series analysis to keep track of

    how events happened on a continuum. The sequential ordering of events

    can be helpful in establishing possible relationships. In the current study,

    viewing all data as it relates to a time scale was important in

    understanding possible influences on those events. By using the timeline

    in conjunction with pattern matching/explanation building techniques we

    were able to see if feedback from a survey could have triggered a change

    in the course. If a change was made before feedback was received we

    could discount the effect the survey had on the change.

- Thematic analysis

  - o All data were coded to search for consistent themes and how those themes

    relate to CI principles of behavior. By analyzing the themes, we were able

    to find and categorize types of course changes as well as use those themes

    to establish the frequency of each change type. By using this method we

    were able to establish how feedback was being used for course

    improvements.

  - o Analyses were made regarding the demonstration of CQI behaviors in

    Table 1. If CQI behaviors can be established by using a frequent course

feedback method, future studies may benefit from the technique as a

means of facilitating course development and student satisfaction.

Procedures

Procedures for instructors and students are addressed separately, as each played

different roles in the study.

Instructor procedures. Before the student course surveys began, each instructor

was given training in CQI methods (Appendix K), particularly in using student feedback

as a tool for CQI. Each instructor was required to work with me to design and implement

anonymous student course surveys multiple times (3–7 was suggested) during the course.

I recommended that the instructor administer a survey two weeks after the beginning of

the course, then again after each new concept had been covered. Recognizing that some

courses required more constant feedback than others, and keeping in mind the CQI

principles of flexibility, I worked with the instructor to design a timetable that was

conducive to the learning schedule.

I administered the surveys through the anonymous survey tool within Blackboard,

a learning management system at USU. Each survey contained questions related to the

specific course and contained both closed and open-ended questions. Within one week of

each survey, I gave instructors the student responses and asked them to make any

changes they deemed necessary for course improvement. I also asked instructors to e-

mail a response to the students thanking them for their feedback and explaining any

changes or the reason for a lack of change. Additionally, I asked the instructors to keep a

log listing the date of any change, the nature of the change, and why it was initiated

(Appendix C). This process continued throughout the course.

To encourage student participation, extra credit points were awarded for each

survey completed. Extra credit was based on 2% of the total class points and was

awarded based on the student's participation. If students participated in only some of the

surveys, they received a prorated number of points. Although research shows that other

methods of encouragement work equally well, extra credit was used in order to lessen the

likelihood of poor response rates and to standardize the incentive. Even though the survey

results were anonymous, Blackboard kept track of those students who returned the survey

so the points could be awarded. At the end of the course, I interviewed each instructor

face-to-face (Appendix B).

Student procedures. After students reviewed the Internal Review Board (IRB)

information forms (Appendix I) and instructions on how to participate in the study

(Appendix J), they were asked to complete the anonymous course surveys prepared by

the instructors and me several times during the course. Students were sent an e-mail

explaining the CQI concepts and how student course surveys would be used to facilitate

CQI for the course. During the course, several anonymous surveys were administered

through Blackboard and, although students were not required to participate by the

instructor, those who did were rewarded with extra credit. Survey questions addressed

understanding of course content, delivery methods, student-instructor communications,

pacing, and course objectives. I sent out reminder e-mails before the survey was available

to the students. The students were then given seven days to complete each survey online.

I then compiled the student responses and gave them to the instructor in an anonymous

report format. Blackboard kept track of those who completed the survey but did not assign names to their submissions. This enabled the instructor to give points for participation. Upon completion of the course, the students were asked to complete a survey about their experience (Appendix A).

CHAPTER 4

RESULTS

Introduction

This chapter reports the findings of the study following the methods outlined in

Chapter 3. Pattern matching/explanation building, time-series analysis, and thematic

analysis were all used to address the four research questions. The case study involved

four online courses taught at Utah State University during the spring semester of 2010.

Four courses (cases) were chosen to explore different possible outcomes. To gain as

much contrast as possible, the courses were chosen based on their differences from each

other, such as class size, course content, and type of student (graduate or undergraduate).

Specifically, 81 students and four instructors were involved in the research.

Some of the characteristics of each case are listed in Table 3. Each case was

selected for its uniqueness because different characteristics were desired in order to

observe impacts in different contexts. Three undergraduate classes and one graduate-level

class were selected. Each case was in a different department and had differing numbers of

students.

Table 3

Case Characteristics

Case	Department	Level	Required or elective	Previously taught
1	Mathematics	Undergraduate	Required	3
2	English	Undergraduate	Elective	>5
3	Chemistry	Undergraduate	Elective	1
4	Education	Graduate	Required	2

Additional differences among cases also existed in the numbers and percentages of students participating in each case. Note in Table 4 that the percentage of students participating was quite high for an anonymous survey (the pilot study's participation rate was less than 20% when no extra credit or other incentive was given to encourage student participation). Additionally, each instructor was given the opportunity to choose how many anonymous surveys were given during the semester. Three of the instructors each gave three surveys and one instructor gave two. These surveys were not scheduled in advance but were given when each instructor felt there was a need or a natural break in the course, such as after a test.

Each case is a unique online course taught at Utah State University through the Regional Campuses and Distance Education Program, which has delivered programs statewide for more than 90 years. Students can earn the same degrees they could if they attended class on campus.

Table 4

Student Characteristics and Survey Response

Case	Total students	Max. students participating	Max % of students participating	Surveys given
1	44	37	84.00%	3
2	30	24	80.00%	3
3	13	10	76.92%	3
4	14	10	71.40%	2

Each instructor was given the opportunity to decide how many course surveys were given based on his or her specific needs. Because Blackboard did not report which students participated in each survey, the number of students participating was based on the highest number reported for any given survey by each professor. Additional information is included in each case description.

Instructor changes were tracked by their e-mailed feedback to students, change logs (if changes were made that were not reported to the students), and final interviews. By matching a given change to a particular bit of student feedback I was able to assess whether changes were made because of feedback received from the anonymous student surveys.

The study examined whether using frequent, anonymous student feedback can facilitate communication and generate CQI, evidenced by course changes. The case study also assessed the value found by instructors and students in using CQI methods.. The

study examined if students can give feedback that instructors would use to inform

changes for course improvement, thereby establishing a collaborative cycle.

Description of Cases

   Case 1. *Overview.* Case 1 was an online course taught by a non-tenured assistant

professor. The course was an introductory-level required mathematics course and had the

largest enrollment (44) of the four cases. The instructor had taught the course three times

previously and was looking for ways to improve the course as well as her final student

evaluation scores. The instructor gave three formative surveys and followed up after the

first two with an e-mail to the students, as shown in Table 5.

Table 5

Case 1 Time Series Analysis

Case 1 data	Survey 1	Survey 2	Survey 3
Date	02/02/2010	02/25/2010	04/07/2010
No. of questions	7	6	7
Feedback given to students?	Yes	Yes	No
Students participating	27 (61%)	33 (75%)	37 (84%)
Changes made after?	Yes	Yes	Yes

   The number of students participating in the surveys grew from 27 on Survey 1 to

37 on Survey 3. Although it is not known why there was a large increase in participation

during the semester in this case, possibilities include the additional need for extra credit

later in the semester or frequent reminders to the students to participate. Table 6 shows the instructor's case log; this instructor was the only one of the four that kept track of all changes.

CQI Process. These changes, as well as any changes mentioned in e-mails or online discussions, were then analyzed using thematic coding. Table 7 shows the different themes discovered based on the types of instructor course changes. Whether because this instructor kept the change log, or because she was just more conscientious about following up with requested changes, more changes were reported in this course than in the other courses. Table 7 also lists the source of the feedback that inspired the instructor to make course changes. Pattern matching enabled an association to be made between the actual course changes and the student surveys to discover whether the student surveys were a good source of instructor feedback for course improvement.

Thematic coding was used to categorize the types of changes made by the Case 1 instructor. These changes included correcting technical difficulties, changing content, clarifying content, adding to content, and planning for changes to future courses. As shown in Table 7, most of these changes were incorporated because of feedback received from the student surveys. Evidence of a CQI cycle is apparent because the changes noted were prompted by student feedback.

Instructor. The Case 1 instructor was very conscientious about responding to every comment the students gave and she was willing to act on anything she felt would be an improvement to the course. E-mails were sent after the first two surveys to follow up with the students' concerns.

Table 6

Case 1 Change Log as Reported by the Instructor

Date of change	Change made	Reason for change	Improvement?
1/28/2010	Added new lectures for Chapter 5	Change from using tables to using calculators for normal curve calculations	Yes
1/25/2010	Fixed typos in Activity 2C	Negative signs were missing	Yes
1/22/2010	Fixed typos in Histogram SCORM module	Correct answer was not one of the choices	Yes
1/18/2010	Separated new lectures and old lectures onto separate webpages	Hope to clarify instructions while retaining access to older resources	?
2/3/2010	Added new link to Activity 4A instructions	.wmv file link wasn't working for a student	Yes
Sometime in March	Changed links in left navigation for SCORM modules to	There seemed to be some confusion as to whether the SCORM	Yes

Date of change	Change made	Reason for change	Improvement?
	indicate that they are activities	modules were actual assignments	
After the second survey	Decided to keep the time surveys for future sections	Student reactions were MUCH more positive than I had expected	? We'll see.
After the Flash disaster and third survey	Decided to include links to both Flash and QuickTime versions of the lectures for next semester	A Flash update caused some problems for some students, and the iTunesU linkup was problematic. Also, people want to listen on their iPhones and iPods so they'll now be able to do that.	Should help.
After the final survey	Decided to keep the anonymous surveys as a regular part of the course.	Student responses were overwhelmingly positive.	Yes

Table 7

Case 1 Thematic Coding and Pattern Matching Analysis

Change made	Type of change (theme)	Feedback source
Explanation of office hours link	Technical difficulties	Student survey
Responded to calculator issue	Technical difficulties	Student survey
Blackboard instructions	Technical difficulties	Discussion board
Pointing to additional material—clarification	Content clarification	Student survey
Changes for next semester	Future change	Student survey
Explained why an assignment is used	Content clarification	Student survey
New lecture added	Content addition	Student survey
Fixed typos	Content change	Discussion board
Separated new and old lectures	Technical difficulties	Student survey
Added new working link	Technical difficulties	Discussion board
Changed links	Technical difficulties	Student survey
Decided to keep activity	Future change	Student survey
Include both QuickTime and Flash links to avoid student difficulties	Technical difficulties	Student survey
Future surveys to be given	Future change	Student survey
Change module to make it easier	Content change	Student survey
Explained textbook	Content clarification	Student survey

Because of the large number of students, the Case 1 instructor was required to respond to a greater number of comments than the other instructors, which may have been a factor when the instructor commented:

> It was kind of a pain to come up with questions during the semester when I was already way too busy. I think it would have been better to have the surveys already ready to go before the semester started.

Although the instructor may have struggled with the increased workload the anonymous surveys created, she also expressed the value that it brought into her teaching experience when she stated during the final interview:

> I thought it was very interesting to see their responses and actually be able to find out what they thought about the assignments and how they felt about the class. With an online class you don't usually get this opportunity. The students seemed to feel more engaged and I was able to help them sooner when they were having problems.

Being able to get additional feedback in the online environment was one of the key advantages to using the anonymous course surveys. The assumption in a CQI cycle is that the feedback provided could be used by the instructor for course improvement and is found to be valuable. Except for the additional time required, the Case 1 instructor was very positive about the opportunity and stated that she would like to incorporate the method in future courses.

Students. Students in Case 1 also found the opportunity to participate in anonymous course surveys to be a positive experience, with 29 of 32 responding that they enjoyed the opportunity and wished other instructors would provide it in their classes (two were neutral and one felt that the instructor would not use the results). These same students felt that the surveys were a good way to communicate about course changes with

their instructor. The students had several positive comments; the general theme was reflected in one student's comment:

> I would love to have the ability to do this with all of my courses because it has been so effective. For the first time ever I have felt like I have a voice in bettering my education and that my opinion will help me and not the class two semesters from now.

Students commented in the final survey that they would not be able to recommend any other changes to the course because the instructor had worked so hard to make the changes during the course.

This case offered some interesting insights into what it is like to use this CQI method in a larger class. Additional workload is a definite problem, although the increased communication could aid in solving students' problems and technical issues sooner and more effectively, thus cutting down on other time-consuming problems.

Case 2. *Overview.* Case 2 was an online course taught by a semiretired adjunct professor. The class was a non-required, midlevel English course in literature. The instructor reported that the students were generally interested in the subject matter. The instructor had taught the course online for more than five years and was not as interested in raising his final course evaluation scores as in finding new ways to help improve his course and increase communication. He gave three formative surveys, but only responded to the students after the first survey, as shown in Table 8.

CQI Process. As in all the other cases, a large percentage (80%) of students participated in the surveys, although the instructor responded to the students only after the first survey was given. Table 9 shows the changes made to the course by the instructor along with the type of change and source of the feedback.

Table 8

Case 2 Time Series Analysis

Case 2 data	Survey 1	Survey 2	Survey 3
Date	02/08/2010	03/22/2010	04/12/2010
No. of questions	4	4	5
Feedback given to students?	Yes	No	No
Students participating (%)	24 (80%)	24 (80%)	23 (77%)
Changes made after?	Yes	Yes	Yes

Table 9

Case 2 Thematic Coding and Pattern Matching Analysis

Change made	Type of change(theme)	Feedback source
Created discussion board	Content addition	Student survey
Explained how to access comments on assign.	Technical difficulties	Student survey
Explained reasons for formatting	Content clarification	Student survey
Changed response topics	Content change	Student survey
Chose not to reorder topics	Future change	Student survey
Changed stories for next semester	Future change	Student survey

Instructor. The instructor's main use of the student feedback was to help decide

what changes should be made to future courses by asking the students their opinions on

specific assignments. A lack of technical knowledge had hindered the instructor in the

past and had made it more difficult for him to establish communication with his

students. His feedback during the interview explained some of the changes he was able to

see:

> I think it helped a lot. There was one question where I really thought I wanted to reorder some things in the class and the students overwhelmingly wanted it to stay the way it was. So then I knew how they felt and how it would benefit them most. One student suggested I use more technology. They wanted to use a discussion board, which I instituted. I had two students comment on some of the icons and other things I had put into Blackboard. They said they really liked them and it helped for them to know where stuff was. That was good information for me to know. This gave my students who are online a chance to give feedback that they couldn't give otherwise.

The instructor's comment demonstrates the use of a CQI cycle and how it affected course

improvements. The students gave very descriptive feedback that the instructor found to

be valuable as he was in the process of redoing the course for the next semester. The

types of changes the Case 2 instructor made involved clearing up a technical difficulty,

clarifying content, changing content, and noting changes that would be made to future

courses.

Students. The lack of feedback after Surveys 2 and 3 did not hinder the students'

continued responses to the surveys. Feelings toward the surveys were mirrored in

comments such as, "It helped me communicate my feelings without feeling like I am

going to get in trouble or be judged." The overall student attitudes toward the exercise

were extremely positive, with 20 of 21 reporting that they liked the opportunity to

participate. Several commented that it made them feel the instructor cared about them.

This case brought out one difference that did not appear in any other case—one

disgruntled student with negative comments. This student felt that the instructor was not

listening to him/her and used the surveys as a sounding board to express his/her

dissatisfaction with the instructor. The student did not give any constructive feedback and only commented that the instructor was not willing to listen or change the course. It was interesting that in the entire study only one student participated in this negative way. The ability for students to comment negatively in an anonymous survey was one concern that each instructor expressed when receiving training for the study. The indication from this study is that for the most part, students usually give positive and constructive feedback.

Case 3. *Overview.* Case 3 was an online course taught by a tenured faculty member. The class was a non-required, midlevel chemistry course. The students were generally interested in the subject matter and the course had a small number of participants (13). The course had been taught at Utah State only one other semester and had been taught only by this instructor. The instructor had not made very many changes from the previous semester because he did not receive much feedback from students and did not receive any student course evaluations. He chose to participate in the study to find ways to enhance course communication and thereby improve the course. He gave three midcourse surveys and was very diligent in following up with students after each survey, as represented in Table 10.

CQI Process. The instructor was very good at following the recommended CQI method and made sure that he gave feedback to the students after each survey. Table 11 shows the types of changes he made to the course, along with the thematic coding and pattern matching analysis. Because the instructor reported all changes to the students via e-mail, he did not complete a change log.

Table 10

Case 3 Time Series Analysis

Case 3 data	Survey 1	Survey 2	Survey 3
Date	01/22/2010	03/02/2010	04/06/2010
No. of questions	5	6	5
Feedback given to students?	Yes	Yes	Yes
Students participating (%)	9 (69%)	10 (77%)	9 (69%)
Changes made after?	Yes	Yes	Yes

Instructor. The instructor took the opportunity in the follow-up e-mails to clarify

content and also to teach additional information and direct the students to additional

resources. He also informed the students when he was making changes in the course that

would help them. One example of the instructor's survey response e-mails follows:

> Thanks again to those taking time to fill out the midterm course
> evaluations. I am very pleased that you find the course valuable and have come to
> like environmental chemistry as I certainly do. Here are some results of the last
> evaluation.
> First, some suggested that they would like to have more analysis of current
> events and information in environmental chemistry and global change in
> particular. I take this as a sign that you are interested in this topic. I suspect the
> material you have learned lays the foundation for your understanding and further
> study. This is really what I had hoped to accomplish. I want you to be
> knowledgeable and interested enough to read and understand the breaking news.
> The thing is, the number of scientific publications addressing global change is
> growing at an ever-increasing rate. So we all rely on panels and committees to
> filter through the papers and to consolidate the results into reports. These reports
> are public information and most all are on line. I have given you links to places
> where you can find these technical reports and I have read through many of them
> myself. They make for interesting reading for those who have the background to
> understand. But we are not the only ones who read these reports.

Table 11

Case 3 Thematic Coding and Pattern Matching Analysis

Change made	Type of change (theme)	Feedback source
Described examinations	Content clarification	Student survey
Clarified assignment	Content clarification	Student survey
Added additional outside information	Content addition	Student survey
Took opportunity to teach additional material	Content addition	Student survey
Prepared additional handout to clarify concept	Content addition	Student survey
Added ability to download videos and lectures	Technical difficulties	Student survey
Added additional topic because of interest	Content addition	Student survey
Added more current events to each topic	Content addition	Student survey

Knowledgeable persons working for the popular press are also reading them and putting out press releases on the new information. So the reason why I ask you to do a literature analysis as part of your exams is so you will understand that this information is available and hopefully, so that you will be able to learn the latest science from the popular press.

And, in my reading of both scientific and popular literature (not blog sites), I find that the presentation the author gives is good. The author presents the foundation for further understanding and really, this is where the science is today. We are still learning how things work.

I sincerely hope that you find environmental chemistry to be interesting enough to occasionally pick up and read articles presenting some aspect of our environment in the years to come. One of the subtle benefits of a university education is what we call "enrichment." What these [sic] means to me is that students learn enough to become interested in things and so have a more rewarding life because they understand how things work.

Second, there were some comments regarding specific difficult concepts. One in particular was Henry's Law. This is interesting because Henry's Law is really a physics principle though it is very important in environmental chemistry. I thought about how we present this to chemistry students and students of the sciences in general. In fact, we do not go into much detail on this in any of our major's courses. I suspect the reason why is that it is not really chemistry in that there is rarely chemical transformation when a gas dissolves in a liquid. In fact the underlying concepts in Henry's Law are the same as those in chemical equilibrium, such as Le Chartlier's [sic] Principle and changes of states, in particular the thermodynamics of mixing.

So how do I address this? I will have to give this more thought. But I think I will try to come up with a sheet explaining Henry's Law from several different perspectives. Perhaps the different perspectives will click for different students. Another thing that was suggested is that the videos should be able to be downloaded. I have talked to the technology folks in distance education and they suggest that perhaps something like a podcast would work. However, this requires students to have an iPod (OK, here's your excuse to get one). We can do this for my lectures, but we do not have rights to do this for the movies.

Finally, a couple students suggested that I talk more about environmental chemistry that is not pollution chemistry. I agree with this point. I think that chemistry is taking place in our environment whether or not the substances are man-made. It would love to tell you about how things work in nature, and then point out how anthropogenic substances have perturbed the natural state. There is a textbook that does this and I use this in our environmental chemistry major's course (5000-level). It's a wonderful book and it is written by the man who effectively invented the topic of environmental chemistry, Stan Manahan. Thanks again.

The tone in this instructor's e-mails was very concerned and caring. Several issues were discussed as well as how the instructor would handle them. He also used the opportunity to teach and add additional content within this feedback. This was a unique approach and enhanced the value for both the instructor and the student. The thematic coding in Table 11 shows that this instructor generally made changes via content additions. He used the survey to find out what his students were interested in and also what they were struggling with. In his responses, he took the opportunity to add additional resources and content that would enrich the students' learning experience.

Students. One student's comment exemplified the value of a frequent feedback

system:

> The surveys have given me a very high opinion of this instructor. He was able to fix our concerns throughout the semester, making it so I have no improvement suggestions for the final evaluation. (Case 3)

All students in Case 3 appreciated the opportunity to participate in the frequent feedback

surveys and felt that the surveys helped to improve the course.

Case 3 was unique in that this was only the second time the course had been

taught. The instructor wanted to improve the course but had not been able to get feedback

from his previous online students. He stated in the final interview that he thought this was

a great experience and that by using this simple technique he was able to make several

valuable course changes.

Case 4. ***Overview.*** Case 4 was an online course taught by a non-tenured assistant

professor. This instructor had taught the course two times previously and chose to

participate in the study to try to raise his final student course ratings. The students were

graduate level and were required to take the class for their degree. The instructor gave

only two midcourse surveys even though he had informed the students beforehand that he

would give at least three. Several times during the semester I received e-mails asking if a

survey was going to be given. As can be seen in Table 12, the instructor responded to the

students only after the first survey and did not make any changes to the course after the

second survey.

Table 12

Case 4 Time Series Analysis

Case 4 data	Survey 1	Survey 2
Date	02/02/2010	04/14/2010
No. of questions	5	3
Feedback given to students?	Yes	No
Students participating (%)	10 (71.43%)	9 (64.29%)
Changes made after?	Yes	No

The second survey was given very late in the semester, which did not allow the students to give feedback that would have been helpful for course improvement. Although when interviewed, the instructor felt that the process was valuable, he stated that he had been too busy to follow through. Based on the thematic analysis, Table 13 shows the few changes the instructor made to the course.

Table 13

Case 4 Thematic Coding and Pattern Matching Analysis

Change made	Type of change(theme)	Feedback source
Explained assignment	Content clarification	Student survey
Explained process	Content clarification	Student survey
Participate in discussion boards	Content change	Student survey
Did reading summaries	Content addition	Student e-mail

Instructor. The major course change the instructor communicated to the students was that he would try to participate more in the discussion boards, which he ultimately did not do. In the final student surveys, several students commented on the lack of follow-through from the instructor, although they still liked having the opportunity to respond anonymously during the semester. One comment stated:

> A large percentage of communication is non-verbal. Therefore, the instructors are not receiving the non-verbal feedback that they would during a regular face-to-face course. Our instructor picked up on frustrations about his lack of participation in the discussion boards at the mid-term evaluation and promised to do better. I honestly didn't see much improvement, but I was glad that he was at least aware that the students were concerned; something he would have had no way to know without the evaluation.

Of all four cases, this case showed one possible disadvantage of instituting CQI principles but not following through with improvements. The instructor reported in the interview that there was a chance that participating in the study may have actually hurt his final course evaluation scores. One student echoed this concern in the final survey when he/she reported:

> Well, these surveys really go a long way to help the instructor if he responds positively to the constructive feedback. These surveys may negatively effect his final evaluations if students felt that he sat on suggestion and did nothing. The ball is in his court, will he/she give the students (who pay tuition) what they want, or not. That is how I see these surveys influencing my evaluation that I will fill out.

Students. All participating Case 4 students liked the opportunity to give the instructor feedback. They felt that they were given an outlet to express their opinions and constructive criticism without fear of retribution and said they would like the opportunity in more of their classes.

Research Question Analysis

      The next section addresses each research question using the data sources and methods described in Chapter 3.

      Research Question 1. How do instructors use frequent, anonymous student feedback to enable continuous improvement within an online higher education course?

      This question is addressed by analyzing information received from the anonymous student course surveys, student-instructor e-mails, instructor logs, final student surveys, and instructor interviews. Each of these was analyzed as outlined below (Appendix E):

- Anonymous course surveys
  - o Pattern matching/explanation building
  - o Time-series analysis
  - o Thematic analysis
- Student-instructor interactions (e-mails)
  - o Pattern matching/explanation building
  - o Time-series analysis
  - o Thematic analysis
- Instructor logs
  - o Pattern matching/explanation building
  - o Time-series analysis
  - o Thematic analysis
- Student final surveys
  - o Pattern matching/explanation building

o Thematic analysis

- Instructor interviews

    o Pattern matching/explanation building

    o Thematic analysis

This analysis helped develop a more nuanced answer to the research question. Of the 34 reported course changes made during the semester, Case 1 reported 16, Case 2 reported 6, Case 3 reported 8, and Case 4 reported 4. Of those changes, 30 (88.24%), were prompted exclusively by the anonymous surveys; discussion boards or student e-mail prompted 4 (11.76%). Although the actual course changes varied, Table 14 shows the general thematic categories along with the number of times each occurred and the percentage of the total each type of change represented.

Table 14

Summary of Types and Quantity of Reported Changes

Type of change	Total reported	Percentage of total
Changes resulting from technical difficulties	9	26.47%
Content additions	8	23.53%
Content clarification	8	23.53%
Future changes	6	17.65%
Content change	3	8.82%

Note. Appendix E contains thematic coding data.

Due to the online nature of all four courses, it is not surprising that the largest number of changes involved solving technical issues. Because student feedback

motivated all of these changes, it is unknown if any of these issues would have been solved if the feedback had not been solicited. Content additions mainly consisted of additional resources to help the students in areas they may have been struggling with or to help them learn more about a specific subject of interest. Content clarification was the main focus of instructor feedback to the students after they completed the surveys. Instructors used this opportunity to explain why they gave specific assignments as well as how to do them. Future changes were noted by the instructors as they gained information that could be used to improve the course the next time it was taught. Instructors in Cases 1 and 2 reported that they were reconsidering changes they had intended to make, because positive student feedback indicated changes were not warranted. Actual content changes were the least common; instructors indicated they did not like to make changes to their syllabi. In summary, 43% of the changes made by instructors involved resolving technical difficulties and making content clarifications—two issues that usually plague online learners. Improvements made to the present course or those planned for future courses represented 57% of the overall changes.

Research Question 2. How do instructors perceive the opportunity to participate in continuous improvement activities within a course?

This question was analyzed using information gathered from the instructor's final interviews. Pattern matching and explanation building as well as thematic analysis were used to analyze the information received. All interviews are contained in Appendix D and their analyses in Appendix F.

The instructor interviews were critical in answering the research question as well as suggesting future research possibilities. This section presents those findings using instructor interviews as the primary data source.

When asked how they liked the opportunity to use anonymous student surveys in their classes, all instructors were positive and felt there was value in the practice. One participant stated:

> I found it much more enlightening than feedback that you get at the end of the semester. With the other course evaluation you get half of the questions on the technology itself but the feedback comes too late to be of any value for the current class. This is feedback that I have never received before during the course and was helpful to know since I don't get to see the students face to face. (Case 2)

One principle of CQI is the opportunity for an increased number of feedback opportunities. These experiences, when implemented during the course instead of at the end, are aimed at the improvement of the current course. In this way, students are involved in a process that can benefit them directly. Another instructor commented:

> I liked it very much. I felt that this was one of the best methods I have used for an online class to help me know what was going on. I thought it was really nice to actually ask my online students questions that they knew the answers were anonymous for. I felt they were more candid than they otherwise would have been. (Case 3)

The anonymous nature of the feedback allowed the students to comment without fear of retribution. Previous research (Hoffman, 2003; Johnson, 2003; Theall & Franklin, 2000) showed that this was an integral part of student course evaluations. An example follows:

> I thought it was very interesting to see their responses and actually be able to find out what they thought about the assignments and how they felt about the class. With an online class you don't usually get this opportunity. (Case 1)

Creating additional avenues of communication for an online course seemed to help engage the student and the instructor in ways that weren't possible before. The instructor

in Case 4 commented, "I do feel that a major benefit is to be able to make mid-course corrections if things are not going as well as they should." By instituting anonymous course surveys, course corrections could be made in a timelier manner.

Although instructors were encouraging about the opportunity to involve the students with anonymous surveys, several negative aspects were noted and should be considered when participating in this type of process. The drawbacks mentioned included the amount of time it took to create each individual survey as well as to respond to the feedback given. Additionally, one instructor reported that he did not have adequate time during the semester to respond satisfactorily to the students' feedback. One comment made by this instructor illustrated the particular danger in asking, but not listening:

> If you don't use that feedback and let the students know you are listening it could be very detrimental to the class. I am afraid that is what happened to me this semester. If you don't have time to follow up you probably shouldn't ask their opinion. (Case 4)

One of the fears instructors expressed before starting the research study was whether they would have to deal with a lot of negative feedback. In their final interviews, instructors felt the students were fair and most comments were constructive, although one instructor stated that the emotional toll can have an effect and should be a consideration. This instructor commented:

> It is also tough sometimes to listen to negative feedback, even if there is very little of it. It is all you can remember. Maybe this is just something you would learn to deal with better the more you did it. (Case 1)

Despite these drawbacks, all instructors reported that they would incorporate anonymous course surveys within subsequent classes. Reported benefits included better communication, more-engaged students, and timely feedback. One instructor detailed

additional benefits that may or may not be attributed to the surveys but would warrant

further study, as follows:

> This semester I had fewer students drop the course than ever before. Also, I gave
> fewer F's. I only gave one F this semester and I will usually give at least 5 or 6.
> Overall, the grades were much higher also. I really think the surveys could have
> had a hand in this. (Case 1)

This instructor felt that her ability to respond more quickly and effectively to the students

helped them stay more engaged, and could have contributed to the success of the course.

In summary, all instructors felt the processes used for continuous improvement

were effective and worth the time spent to implement. In their opinion, although the time

requirement and the emotional impact were drawbacks, the positives far outweighed the

negatives. All instructors stated they would use frequent student course surveys and

feedback in future classes.

Research Question 3. How do students perceive the opportunity to participate in

continuous improvement activities within a course?

Final student course surveys were requested of each participating student, and

were given after the instructor's last survey, one week before the end of the semester. All

the questions on the surveys were the same for each case. Each survey was analyzed

using pattern matching, explanation building and thematic analysis. This section

discusses these findings in detail as well as how they help to answer the research

question.

Table 15 shows the overall student responses to the question "What value, if any,

did you find in being able to voice your opinions and comments to your instructor?"

Table 15

Student Attitudes Regarding CQI Participation

Case	Positive (%)	Negative (%)	Neutral (%)
1	29 (90.63%)	1 (3.13%)	2 (6.25%)
2	16 (80.00%)	2 (10.00%)	2 (10.00%)
3	9 (90.00%)	0 (0.00%)	1 (10.00%)
4	6 (85.71%)	0 (0.00%)	1 (14.29%)

Students' comments justified the use of the anonymous feedback function and explained why they found the exercise valuable. Several comments expressed the same underlying positive experiences:

> I enjoyed that they were anonymous and did not affect our grade. I valued that what was suggested already went into effect for our current class and not just for future classes. (Case 2)

> I liked that they were anonymous. That made it so I felt I could give my honest opinion and not be somehow reprimanded for it. I probably wouldn't have given any suggestions throughout the semester had it not been for these surveys. (Case 3)

> It felt like the only way to voice my concerns effectively. I appreciate the anonymous surveys. I spoke with other students who shared some of the same concerns and frustrations with the course and/or instructor that I had. Surveys gave us the opportunity to provide the instructor with feedback without fear of repercussions. (Case 4)

The anonymous nature of the surveys was described several times as a motivator for students to express themselves as well as a way for them to be a part of helping to improve their class. Creating a good communication avenue to allow input for change is a

key component of CQI and facilitates a cycle that allows for participation of all parties

involved. Students commented:

> It helped a ton!! It means a lot that the instructor actually cares about the student's opinion and is committing to constant improvement with the class and teaching style. Student's [*sic*] way of learning changes over time so it is important to pay attention to that and adjust in order to be an effective instructor. (Case 2)

> I think this is GREAT. I wish more teachers did evaluations throughout the course of the semester. That way, I really feel like I have a say in how things are being taught. Usually, we give evaluations only at the end of the course, which doesn't benefit me at all. And who knows if any changes I suggested were ever made for future courses. (Case 3)

Many students commented that because the instructor gave them the survey and then

gave feedback regarding the results, it meant that the instructor cared about their

opinions. Example quotes include:

> I think it was great to do these during the semester because this teacher actually took what was said and tried to change things to make it better. If you only do one at the end of the semester it doesn't help while you are in the class. (Case 1)

> Sometimes it let out frustrations, or it was a way to show my appreciation. I also found that I was able to see what I was lacking myself to do better. (Case 1)

The students' desire to give honest feedback that was immediately actionable without

fear of retribution seemed the strongest reason for student's positive reaction to the

anonymous surveys.

Table 16 shows the overall student responses when they were asked if they

noticed any changes the instructor actually made to the course. Because each instructor

responded at least once during the semester informing the students about changes they

had made, each student should have been able to see these changes. However, some

students still responded that changes either hadn't been made or they weren't sure if any

changes had been made.

Table 16

Student Response to Whether Changes Were Made to Course

Case	Yes (%)	No (%)	Not Sure (%)
1	24 (80.00%)	5 (16.67%)	1 (3.33%)
2	16 (76.19%)	2 (9.52%)	3 (14.29%)
3	8 (80.00%)	1 (10.00%)	1 (10.00%)
4	3 (42.86%)	3 (42.86%)	1 (14.29%)

When students were asked what changes, if any, they noticed the instructor had made, their comments always included those the instructor discussed with them in the follow-up e-mails. In fact, student responses echoed the instructor follow-up e-mails, and no student reported any changes that the instructor had not pointed out and commented on. The importance of good communication in the CQI cycle has been discussed in the literature as a key to continued responses and quality feedback (Babbar, 1995; Barnard, 1999; Bernold, 2008; Durlabhji & Fusilier, 1999). When the instructor responded to the students' feedback the students were then able to identify what changes the instructor made, thus strengthening the CQI cycle.

Students gave mixed responses as to whether the opportunity to give feedback during the semester would influence their responses on the final course evaluation. Forty (57.14%) students stated that the experience would affect their responses (some positively and some negatively), while 27 (38.57%) said that it would not, and 3 (4.29%) were unsure. Three students in Case 4 stated that the lack of reliable response from their instructor negatively influenced their final course evaluations.

Positive student comments on the CQI process include:

> It makes a huge difference that a teacher was willing to better the course throughout the course, not just year to year. Many people don't take the course evaluations seriously because they are finished with the class and nothing will make a difference for them but it made me really respect the instructor for asking our opinions throughout the course and making the effort to help and get more out of the class. It helped me communicate my feelings without feeling like I am going to get in trouble or be judged. Rather than me wanting to complain and whatnot I was able to voice my opinions in an effective way. (Case 3)

> Definitely improved, I like knowing my professor cares about me as a student and about their ability to teach the subject. (Case 1)

Additional respect for the instructors and the efforts they made to ask for feedback was stated by several students. The students' ability to communicate better with their instructors helped to facilitate needed course changes.

An overwhelming 97% of students responded that they would like the opportunity to give frequent, anonymous course feedback in other classes. Only one student felt the activity was a waste of time, and one other believed instructors would never use the feedback to improve the course. Students often responded that they enjoyed the opportunity and that it helped them to feel more involved in the class and the overall improvement of their learning experience. One student summed up the general feeling by stating:

> I would love to have the ability to do this with all of my courses because it has been so effective. For the first time ever I have felt like I have a voice in bettering my education and that my opinion will help me and not the class two semesters from now. (Case 1)

As long as the instructor gave feedback and followed through, most students felt they had a voice in the development of the class, and several stated that they would now try harder to focus on what they could do to improve. This suggests that positive student experience

is a possible outcome when CQI principles are followed (Hubbard, 1994; Middel et al., 2006).

Research Question 4. Does the use of CQI methods improve instructors' end-of-course student evaluation quality ratings?

Final instructor course evaluation data gathered by the university via online surveys was used to help answer Question 4. As reported by the Regional Campuses and Distance Learning program at Utah State, the response rate for end-of-course evaluations has been as low as 3%. The response rate for each of our cases was far above 3%—it was 79.55% for Case 1, which rivals on-campus response rates as reported by the university. Unfortunately, in Case 3 no students completed their end-of-course evaluation the previous semester; thus this case does not have any data for comparison.

Tables 17–20 show the available course evaluations for each case. The Spring 2010 scores are for the semester the study was conducted. Scores reported for Cases 1 and 2 show a slight increase over the average weighted scores, although the Case 4 score went down by 0.17. This phenomenon was actually anticipated by the instructor when he commented in his final interview that his lack of follow-up in the class might lead to student dissatisfaction. The other two cases with data, cases 1 and 2 had average final student rating scores of above 5.0 (*very good*). Both of these cases still showed slight improvement, but because the scores started out very high, a ceiling effect may have hindered measurable improvement. The comparison of scores is very difficult for various reasons. For instance, each semester had different numbers and percentages of students of students participating in the end-of-course evaluations.

Table 17

Case 1 Course Evaluation Scores

Semester taught	Total students	Students completing evaluation	Percentage of students participating	Mean course quality rating (scale 1 to 6)
Spring 2009	26	17	65.38%	5.10
Summer 2009	32	25	78.13%	5.00
Fall 2009	34	10	29.41%	6.00
Weighted mean	30.67	17.33	56.52%	5.23
Spring 2010	44	35	79.55%	5.40

Table 18

Case 2 Course Evaluation Scores

Semester taught	Total students	Students completing evaluation	Percentage of students participating	Mean course quality rating (scale 1 to 6)
Fall 2008	38	22	57.89%	5.50
Sum 2008	30	17	56.67%	5.20
Fall 2009	22	9	40.90%	4.90
Weighted mean	30	16	53.33%	5.28
Spring 2010	30	12	40.00%	5.30

Table 19

Case 3 Course Evaluation Scores

Semester taught	Total students	Students completing evaluation	Percentage of students participating	Mean course quality rating (scale 1-6)
Fall 2009	5	0	0	N/A
Average	5	0	0	N/A
Spring 2010	13	4	30.77%	5.00

Table 20

Case 4 Course Evaluation Scores

Semester taught	Total students	Students completing evaluation	Percentage of students participating	Mean course quality rating (scale 1-6)
Fall 2007	32	11	34.38%	4.00
Fall 2008	13	5	38.46%	5.50
Weighted Mean	22.5	8	35.56%	4.47
Spring 2010	13	7	53.85%	4.30

In summary, it is inconclusive whether the use of CQI led to an improvement in instructors' end-of-course student evaluation quality ratings. To better

study this we could have used instructors who had a much lower overall quality rating for their courses, therefore giving more room for possible improvement.

Conclusion

The four research questions provide insight into the value of frequent, anonymous student course surveys for creating a CQI cycle. Surveys and interviews involving 88 students and 4 instructors within four diverse online courses give insight that can be used to document the use of frequent, anonymous course feedback as a tool for CQI in education.

Overall, instructors and students were positive about their experience. Students felt strongly that they would like the opportunity to give anonymous feedback to their instructors, and they could generally see that the feedback was used to improve their course. Instructors used the feedback most often to correct technical difficulties, followed by adding and clarifying course content. Additionally, instructors found ways to improve future versions of their courses and were able to change course content if there was a significant need. Although they acknowledged that the feedback process can be time consuming, all instructors indicated that they would like to continue to use it in the future to help improve their courses. Although 57% of students reported that having the opportunity to participate in the midcourse surveys would have an effect on their final course evaluation scores, it is inconclusive whether the scores were actually affected.

CHAPTER 5

DISCUSSION

Overview of Study Purpose and Methods

The purpose of this research was to study how the establishment of frequent CQI opportunities affects overall course improvement. These improvements were measured by the changes the instructor reportedly made to the course, instructor and student perception of the process, and the impact the method had on final course ratings. Four distinct cases (courses) were studied involving 81 participating students and 4 instructors. Each instructor gave two to three anonymous course surveys to the students, asking questions that could help improve the course. To increase their participation, students were given the incentive of receiving up to 2% extra credit. Instructors were then asked to respond to the students' feedback after each survey to let the students know they had read their survey responses and to inform them of any improvements being made to the course. I then surveyed the students at the end of the course and interviewed the instructors to learn how each felt about the opportunity to participate in the CQI activities.

Given the ever-changing nature and rapid growth of online education, better techniques need to be found to improve courses and at the same time give instructors effective and efficient feedback. Additionally, students are becoming more dependent on and comfortable with technology, which has opened new avenues of communication and learning. The basic principle behind continuous improvement in education is to give students the opportunity to provide ongoing feedback to the instructor to improve the

course (Barnard, 1999). Encouraging and empowering students to participate in their own education can be a valuable way to increase learning as well as student satisfaction (Durlabhji & Fusilier, 1999; Hubbard, 1994).

Summary and Discussion of Results

In all four cases studied, changes were made to the current course based on student feedback. It is unknown if any of the changes would have been possible without the student course surveys. However, because these were online courses, it would have been more difficult for the instructor to hear about the students' problems or concerns. Being able to get additional feedback from the students in an online course can be a valuable tool for course improvement. One of the difficulties in creating a CQI cycle in a course lies in establishing a situation in which students will participate in giving instructors feedback. This study had very high participation from the students, perhaps because an incentive was given or because the students attached an added emphasis to being part of the study. When instructors responded to the students' anonymous course surveys, the students were able to both hear from their instructor and see the changes being made to their course. These experiences may have been valuable enough to encourage the students to participate. It should be noted that a CQI cycle does not require the instructor to make a student-suggested change to the course. Instructors are still required to check and reflect before they act, as described in the theoretical framework. Possibly, a clarification of procedures alone may suffice, or the instructor may feel that a change would not be for the best. The instructor has the responsibility to consider student feedback and then use his/her knowledge and experience to interpret and decide how to

implement the feedback. It would, however, be good practice to inform the students if and why a change would not be made, because this would continue the communication cycle.

In contemplating changes to a course, instructors should consider whether changes requested by students would actually improve the course, or whether they would in fact decrease the quality of the course. The only data that sheds light on this concern is the instructor change log from Case 1. In this instance, the instructor reported that six of the eight changes made improved the course, but it was unknown whether the other two changes helped or not. We can also assume that changes that involve correcting technical issues (43% of changes in our study) would be reported as an improvement to the course. It is certainly possible that some specific changes could cause problems and would not be considered an improvement.

The considerable positive reaction students had to the course surveys was surprising to me because of my own dislike of student course evaluations. I found it interesting that students repeatedly commented that they liked the opportunity to give anonymous feedback to their instructors. The indication that students who think they can be identified may feel uncomfortable giving constructive feedback to instructors shows the need for protecting student anonymity if a CQI cycle is to be effective in a course. Many students commented that they would not have given the instructor feedback if it had not been anonymous.

Although the effect CQI had on final student course evaluations was inconclusive, CQI principles may still be valuable tools for communication between the student and the instructor. Increased communication may improve the possibility of needed changes

being identified. The overall small increase in course quality ratings in two of our

cases can possibly be attributed to a ceiling effect, because these cases already had fairly

high ratings to begin with. Other methods of measuring course quality may need to be

found in such instances.

Instructors made changes using feedback that they would not have known about

had they not been given the survey results; thus a CQI cycle was created. Although

technical issues were the majority of the changes made by instructors, additional content

was often added as well as content clarifications and future changes to the course.

Instructors, especially those teaching an online course in which it is more difficult to

receive feedback, may justify the added time required to administer and respond to the

surveys if they can see that feedback would not be received otherwise. Because

instructors can tailor the surveys to fit their specific needs, they are also able to probe the

students for information regarding how the course is going and what the students are

learning and understanding. There is an opportunity cost involved with implementing

CQI principles into an online course that must be balanced out for instructors to justify

the additional time. Although more time would be required up front to create the surveys

and then make any needed changes, by doing so the instructor may be able to avoid a

larger number of problems and inquiries from more students. For example, if students are

having difficulty downloading a video and the instructor learns about and fixes the

problem, fewer students would encounter the problem, saving the instructor time in

helping each individual student.

Students were very constructive in their feedback; only one student in all four

cases made disgruntled comments to the instructor. When I discussed the research with

the instructors before the study, several of them voiced the concern that student

feedback would mainly be negative. During the final interviews, these same instructors

were very pleased with their students' feedback and felt that it had been constructive and

respectful. This result is in keeping with other research findings (Abrami, 1990; Hobson

& Talbot, 2001; Kulik, 2001; Nasser & Fresko, 2002; Schmelkin et al., 1997).

Conclusions and Recommendations for Future Use

One of the most interesting findings from this study was the students' desire to be

able to give continuous feedback to their instructors in other courses. Nearly all

participating students liked the opportunity to furnish anonymous feedback. Instructors'

ability to use student feedback to make course improvements demonstrates that students

can be a valid source for course improvement ideas. The effort required to create a CQI

cycle within an online learning environment appears to benefit both the instructor and the

student; the instructor gains valuable insight and the student profits from an opportunity

for additional avenues of communication.

Although the use of frequent, anonymous surveys within a course is fairly simple,

instructors may have difficulty finding the time to institute the practice. Additionally, in

my experience and according to the research literature (Aleamoni, 1999; Marsh & Roche,

1997), instructors struggled with viewing the students' feedback objectively and

oftentimes focused on the less constructive comments. Using this type of CQI cycle

within a course might work better if a mentor could work with instructors to help them

create and deliver the surveys and then analyze the results for course improvement. This

type of process may increase the chance for positive results and aid the mentor in coaching the instructor.

Recommendations for Future Research

Areas for further research became evident as data from the study emerged. Although previous research indicates that incentives dramatically raise the participation rate in anonymous surveys (Johnson, 2003; Watt et al., 2002), further research should examine other factors that may motivate students to participate. Another next step could be an experimental study that compares courses using CQI with courses not using CQI in order to evaluate the effect the cycle has on course improvement.

Further investigation of the Case 1 instructor's comment that her students' grades were higher as a result of class participation in the research is also warranted. The instructor proposed that students felt more vested in her course because they could participate in this manner, and therefore they worked harder.

Investigating the impact of using mentors with the CQI process may also shed some light on how the process can be used in the education environment in a different way.

Limitations of the Study

The nature of case study design leads to generalization issues within research studies. Yin (1994) stated that generalization of results, from either single or multiple case designs, is made to theory and not to populations. Therefore, findings within the study should be generalized to the use of CQI principles in educational settings, instead of the population of students in online courses. Multiple cases reinforce the results by

replicating the pattern matching, thus increasing confidence in the strength of the CQI impact.

The fact that instructors in two of the cases already had a fairly high average quality rating was also a limitation to the study. It was more difficult for these cases to show an increase and the ratings may have suffered somewhat from a ceiling effect. This made it more difficult to see if there was actually a change in the course quality rating for these two cases. It also suggests these were dedicated instructors, and perhaps more willing to immediately act on student feedback.

How the cases were selected and the nature of the cases could also be considered limitations. All distance education instructors were e-mailed asking for participation in the study and only those that replied and fit the requirements were considered. Cases were chosen from the responding instructors based on how diverse they were rather than how similar. This selection criterion creates limitations on how generalizable the findings are.

Summary

One of the most important lessons that I learned from this process is that students like to be asked to help improve their learning experience, as long as the instructor listens and responds to their feedback. Evaluation is a valuable component of instructional design theories, which are based on the philosophy that the best designs result from an iterative process. Using a synergistic CQI approach, this study indicates that it is possible for changes to be made more quickly to a course when students are involved in the process. The combination of frequent student feedback with a willing and experienced

instructor who can make expert course decisions allows the process of course

improvement to be enhanced.

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APPENDICES

Appendix A. Student End of Course Survey

Please answer all questions to the best of your ability. All responses are kept confidential.

1. What value, if any, did you find in being able to voice your opinions and comments to your instructor via the anonymous surveys?

2. What changes, if any, could you see your instructor make based on the student feedback?

3. How did the opportunity to complete the course surveys influence your final instructor course evaluation?

4. In what ways did the student course surveys affect your ability to communicate needed changes or concerns within the course?

5. Explain why you would, or would not, like the opportunity to give frequent anonymous course feedback to your instructors during a course.

Appendix B. Instructor Interview Questions

Prompts: Please answer each questions based on the experience you had during this last semester with the online course that we used frequent student course evaluations for. Please include any information that you feel would be beneficial to the study.

1. What effect did the use of formative student surveys have in creating a CI cycle within the course?

2. What benefits or detriments do you see in using CI principles in your course?

3. What actual changes, if any, did you make to the course because of the feedback you received in the formative student course surveys?

4. What value or non-value do you see in the use of CI methods?

5. Did you have any concerns with the extra credit offered to the students?

6. Do you think the surveys should be anonymous?

7. Would you do this again?

8. What changes would you make if you were to implement CI methods in future courses?

Appendix C. Instructor Course Changes Log

Please keep track of any changes you made to your course during the semester.

Also indicated what prompted those changes and if you felt they were an

improvement to the overall instructional quality of the course.

Date of Student Survey	Date of Change	What Change Made	Reason for Change	Improvement to Course Yes/No

Appendix D. Instructor Interviews

<u>Case 1</u>

K-Researcher
C-Instructor

K-How did you feel about the opportunity to do the surveys in your class?
C-It was kind-of a pain to come up with questions during the semester when I was already way too busy. I think it would have been better to have had the surveys already ready to go before the semester started. I think it did make a huge difference in how students felt about the course though. They really liked being able to respond. I thought it was very interesting to see their responses and actually be able to find out what they thought about the assignments and how they felt about the class. With an online class you don't usually get this opportunity.
K-What benefits or detriments did you see in using the surveys for your class?
C-It was very interesting. This semester I had fewer students drop the course than ever before. Also, I gave fewer F's. I only gave one F this semester and I will usually give at least 5 or 6. Overall, the grades were much higher also. I really think the surveys could have had a hand in this. The students seemed to feel more engaged and I was able to help them sooner when they were having problems. I can't prove this is true but I would certainly like to test it in the future. The main problems with the experience where really just that it took some extra time. Even if they give you feedback that is good, sometimes you still don't have the time to make any changes this semester, but you would at least be able to change that for the next semester. It is also tough sometimes to listen to negative feedback, even if there is very little of it. It is all you can remember. Maybe this is just something you would learn to deal with better the more you did it.
K-Would you do this again then?
C-Absolutely! I will do this with every class I have in the future. I feel it was that effective.
K-What actual changes did you make to the course because of the feedback that you received?
C-I did fill out the log and I did make quite a few changes. I will send you that log.
K-What changes would you make to the process if you did this again?
C- I would put it in the syllabus and make it more a part of the class. Each survey would be an assignment instead of giving them extra credit.
K-Would you still make it anonymous?
C-Definitely, I think the students feel freer to express their concerns and say what they want. There is always a risk but I didn't have any student be hurtful so I would feel more comfortable the next time I did it now that I know how it usually goes.

Case 2

K-Researcher
T-Instructor

K-What did you think about using this feedback mechanism?
T-I found it much more enlightening than feedback that you get at the end of the semester. With the other course evaluation you get half of the questions on the technology itself but the feedback comes too late to be of any value for the current class.
K-You seemed to get pretty good response, your students were responding well.
T-Yes, I really did.
K-Do you think you would have gotten the same response if you hadn't done extra credit?
T-Yes, I think I would have. These were really good students and I think they still would have given the feedback even without the extra credit. Except for 2 students that have caused a few problems, the rest have been very good.
K-How do you think it benefited your class to use the surveys?
T-I think it helped a lot. There was one question where I really thought I wanted to reorder some things in the class and the students overwhelmingly wanted it to stay the way it was. So then I knew how they felt and how it would benefit them most. One student suggested I use more technology. They wanted to use a discussion board, which I instituted. I had 2 students comment on some of the icons and other things I had put into Blackboard. They said they really liked them and it helped for them to know where stuff was. That was good information for me to know. This gave my students who are online a chance to give feedback that they couldn't give otherwise.
K-You said you made a couple of changes, what were they.
T-I added the discussion forum and changed some of the topics. I think I will go back over the entire course for next year and evaluate all the topics based on the feedback I received during the course. This is feedback that I have never received before during the course and was helpful to know since I don't get to see the students face to face. One of the questions was to have the students rate the 3 categories they like best and 3 they like least and I am going to use that feedback to help me decide what changes I need to make.
K-What changes would you make to how we did the feedback? Would you do it more often or less often? What other changes?
T- I think I would do it about the same.
K-Would you change the fact that it was anonymous?
T-I think that would limit the students. They need to have the opportunity to say what they want without worrying.
K-In this course, during this semester, did you get any negative feedback?
T-No, no negative, they were all very constructive. It was all very helpful.
K-Would you do this again?
T-Absolutely. I would like to do it for all of my classes. By enlarge I found this to be an excellent experience and one that was very informative and helpful.

Case 3

K-Researcher
S-Instructor

K-Did you like using the formative feedback methods within your class?

S-I liked it very much. I felt that this was one of the best methods I have used for an online class to help me know what was going on.

K-Did you feel that you received feedback that helped you improve the course?

S-Definitely, feedback received after the first assignment helped me to understand what they were struggling with so I could add additional information that would help them. I also was able to find out how they felt about the first video I have them watch. I always wondered if they enjoyed it or if it was even helpful but I was able to find out that they were able to understand the information and how they were applying the principles. I also changed some of the format later in the class to reinforce those concepts. It was very helpful.

K-What other benefits did you find?

S-I thought it was really nice to actually ask my online students questions that they knew the answers were anonymous for. I felt they were more candid that they otherwise would have been. I am not sure they were completely honest but maybe more than they would have otherwise been. At least they had the opportunity to give the feedback, which is something they hadn't had before.

K-What actual changes did you make based on the feedback?

S-I added some reference materials for them to help them understand certain concepts and I also changed the format of the last few assignments based on some of the feedback that I received. I really think it influenced future changes to the class mostly because I didn't have a lot of time to make changes and I don't really like changing the syllabus once the students have it.

K-Was there a problem with offering extra credit.

S-No problem at all. I would do it again. I think they should be rewarded for doing it and I really felt that giving feedback helps you to critically look at what you can do to improve things yourself.

K-What value did you yourself find in using the feedback method?

S-I enjoyed reading the students comments and it helped me to get a better sense of the pulse of the class and whether there were any underlying problems that I needed to be aware of.

K-What changes would you make if you were going to do this again?

S-I would probably give the surveys further away from each test. I gave them the same day as the test and I think I got a lot of feedback about the test instead of the content of the class. I would also encourage more honesty, or critical feedback. It felt like a lot of times they were just telling me what they thought I wanted to hear, but I really want to improve the class so I wanted to hear how I could do that. I think I would coach my students on that a little bit more.

K-Would you do this again?

S-Absolutely, in fact I want to set it up for my Fall classes. This was such a simple process but I really felt that it helped me to improve the class not only for these students but for those future students also. I have really enjoyed it.

Case 4

K-Researcher
A-Instructor

K-How did you like being able to participate in this study with your class this semester?
A-I think the process is very good, my execution of the process this semester was very bad however. I just didn't follow up like I needed to.
K-What benefits or detriments do you see to the process?
A-I think you can get very good feedback from the students but if you don't use that feedback and let the students know you are listening it could be very detrimental to the class. I am afraid that is what happened to me this semester. If you don't have time to follow up you probably shouldn't ask their opinion.
I do feel that a major benefit is to be able to make mid-course corrections if things are not going as well as they should. Also I think it helps to understand what the students are thinking and if they are having any problems. I also like to use it to check their level of understanding of a concept. This is invaluable information to have to help test the value of each assignment and if the students are really learning the concepts you want to teach, especially in a class that doesn't have tests like mine. The one detriment to the process is that you have to act. You can't just ignore the comments, it causes bad feelings among the students.
K-What actual changes did you make to the course based on the feedback?
A-I didn't make many changes in the course other than communicating more information to them through email. I tried to clarify questions they were having. One mistake I made and I am sure it will come back to bite me is that a change I made early because of the feedback I didn't continue to do throughout the course. I saw a comment about that at the end.
K-Would you do this again?
A-I definitely would if I had time to follow up. I just didn't have that time this semester and I can see that it really hurt me. You shouldn't ask students for their opinion and then ignore it, which is probably worse than not asking at all. We may find that it hurts my final student evaluation scores, I am not sure.
K-What changes would you make if you did this again?
A-I would try to use the surveys to test more for understanding of the concepts by writing better questions. I would also only do 2 assessments like this semester but I would schedule them into the class so everyone knew when they were going to be. This semester we told them one thing but I ended up postponing and doing another thing. I know this caused problems with some of the students.
K-Did you have any problem with the extra credit?
A-No, not at all. I feel like the extra credit was a non-issue. I know the students wanted it and it was a motivator for them so I would probably do it that way again.
K-Do you feel the surveys should be anonymous?
A-I think it is good to do it that way and that it reflected in the students comments. They were much more willing to give constructive criticism which would be more valuable.

Appendix E. Analysis of Course Changes

Course Changes Made by Instructor	Thematic Analysis-Type of response	Pattern Matching-Explanation Building
		Why change was made
Case 1		
Explanation of office hours link location	Technical Difficulties	Student Survey
Responded to Calculator issue	Technical Difficulties	Student Survey
Blackboard instructions	Technical Difficulties	Discussion Board Comments
Pointing to additional material-clarification	Content Clarification	Student Survey
Deciding on changes for next semester	Future Change	Student Survey
Explained why she uses an assignment	Content Clarification	Student Survey
New lecture added	Content Addition	Student Survey
Fixed typos	Content Change	Discussion Board Comments
Separated new and old lectures	Technical Difficulties	Student Survey
Added new working link	Technical Difficulties	Discussion Board Comments
Changed links-Tech difficulties	Technical Difficulties	Student Survey
Decided to keep activity	Future Change	Student Survey
Include both Quicktime and Flash links to avoid student difficulties	Technical Difficulties	Student Survey
Decided to keep doing surveys for future courses	Future Change	Student Survey
Change module to make it easier	Content Change	Student Survey
Explained textbook	Content Clarification	Student Survey
Case 2		
Created discussion board	Content Addition	Student Survey
Explained how to access comments on assignments	Technical Difficulties	Student Survey
Explained why for formatting	Content Clarification	Student Survey

Course Changes Made by Instructor	Thematic Analysis-Type of response	Pattern Matching-Explanation Building
Changed response topics	Content Change	Student Survey
Chose not to reorder topics	Future Change	Student Survey
Will change more for next semester	Future Change	Student Survey
Case 3		
Described examinations	Content Clarification	Student Survey
Clarified assignment	Content Clarification	Student Survey
Added additional outside info	Content Addition	Student Survey
Took opportunity to teach	Content Addition	Student Survey
Prepared additional handout to clarify concept	Content Addition	Student Survey
Able to download videos-lectures	Technical Difficulties	Student Survey
Added additional topic because of interest	Content Addition	Student Survey
Added more current events to each topic	Content Addition	Student Survey
Case 4		
Explanation of assignment	Content Clarification	Student Survey
Explanation of process	Content Clarification	Student Survey
Agreed to participate in discussion boards	Content Change	Student Survey
Did reading summaries	Content Addition	Student Email

Appendix F. Instructor Interview Analysis

Analysis Question 2	Thematic Analysis	Pattern Matching-Explanation Building
1. How did instructors perceive the opportunity to participate in continuous improvement activities within a course?		
Case 1		
It was kind-of a pain to come up with questions during the semester when I was already way too busy. I think it would have been better to have had the surveys already ready to go before the semester started	Time	Negative
I think it did make a huge difference in how students felt about the course though. They really liked being able to respond.	Student Attitude	Positive
I thought it was very interesting to see their responses and actually be able to find out what they thought about the assignments and how they felt about the class. With an online class you don't usually get this opportunity.	Communication	Positive
This semester I had fewer students drop the course than ever before. Also, I gave fewer F's. I only gave one F this semester and I will usually give at least 5 or 6. Overall, the grades were much higher also. I really think the surveys could have had a hand in this	Positive Outcome	Positive
The students seemed to feel more engaged and I was able to help them sooner when they were having problems	Positive Outcome	Positive
Even if they give you feedback that is good, sometimes you still don't have the time to make any changes this semester, but you would at least be able to change that for the next semester	Time	Negative

Analysis Question 2	Thematic Analysis	Pattern Matching-Explanation Building
It is also tough sometimes to listen to negative feedback, even if there is very little of it. It is all you can remember. Maybe this is just something you would learn to deal with better the more you did it.	Negative Outcome	Negative
K-Would you do this again then?C-Absolutely! I will do this with every class I have in the future. I feel it was that effective.	Future Changes	Positive
I would put it in the syllabus and make it more a part of the class. Each survey would be an assignment instead of giving them extra credit.	Extra Credit	N/A
K-Would you still make it anonymous? C-Definitely, I think the students feel freer to express their concerns and say what they want. There is always a risk but I didn't have any student be hurtful so I would feel more comfortable the next time I did it now that I know how it usually goes.	Anonymous	Positive
Case 2		
I found it much more enlightening than feedback that you get at the end of the semester. With the other course evaluation you get half of the questions on the technology itself but the feedback comes too late to be of any value for the current class.	Timely Feedback	Positive
I think it helped a lot. There was one question where I really thought I wanted to reorder some things in the class and the students overwhelmingly wanted it to stay the way it was. So then I knew how they felt and how it would benefit them most. One student suggested I use more technology. They wanted to use a discussion board, which I instituted. I had 2 students comment on some of the icons and other things I had put into Blackboard. They said they really liked them and it helped for them to know where stuff was. That was good information for me to know. This gave my students who are online a chance to give feedback that they couldn't give otherwise.	Timely Feedback	Positive

Analysis Question 2	Thematic Analysis	Pattern Matching-Explanation Building
This is feedback that I have never received before during the course and was helpful to know since I don't get to see the students face to face.	Timely Feedback	Positive
K-Would you change the fact that it was anonymous? T-I think that would limit the students. They need to have the opportunity to say what they want without worrying.	Anonymous	Positive
No, no negative, they were all very constructive. It was all very helpful.	Positive Feedback	Positive
I would like to do it for all of my classes. By enlarge I found this to be an excellent experience and one that was very informative and helpful.	Future Use	Positive
Case 3		
I liked it very much. I felt that this was one of the best methods I have used for an online class to help me know what was going on.	Timely Feedback	Positive
Feedback received after the first assignment helped me to understand what they were struggling with so I could add additional information that would help them.	Timely Feedback	Positive
I also was able to find out how they felt about the first video I have them watch. I always wondered if they enjoyed it or if it was even helpful but I was able to find out that they were able to understand the information and how they were applying the principles. I also changed some of the format later in the class to reinforce those concepts. It was very helpful.	Communication	Positive
I thought it was really nice to actually ask my online students questions that they knew the answers were anonymous for. I felt they were more candid that they otherwise would have been	Communication	Positive
I really think it influenced future changes to the class mostly because I didn't have a lot of time to make changes and I don't really like changing the syllabus once the students have it.	Future Changes	Positive

Analysis Question 2	Thematic Analysis	Pattern Matching-Explanation Building
I would do it again. I think they should be rewarded for doing it and I really felt that giving feedback helps you to critically look at what you can do to improve things yourself.	Extra Credit	Positive
I enjoyed reading the students' comments and it helped me to get a better sense of the pulse of the class and whether there were any underlying problems that I needed to be aware of.	Timely Feedback	Positive
I would probably give the surveys further away from each test. I gave them the same day as the test and I think I got a lot of feedback about the test instead of the content of the class.	Future Changes	N/A
I would also encourage more honesty, or critical feedback. It felt like a lot of times they were just telling me what they thought I wanted to hear, but I really want to improve the class so I wanted to hear how I could do that. I think I would coach my students on that a little bit more.	Anonymous	N/A
Absolutely, in fact I want to set it up for my Fall classes. This was such a simple process but I really felt that it helped me to improve the class not only for these students but for those future students also. I have really enjoyed it.	Future Changes	Positive
Case 4		
I think the process is very good,	Positive Outcome	Positive
my execution of the process this semester was very bad however. I just didn't follow up like I needed to.	Negative Outcome	Negative
I think you can get very good feedback from the students	Communication	Positive
but if you don't use that feedback and let the students know you are listening it could be very detrimental to the class. I am afraid that is what happened to me this semester. If you don't have time to follow up you probably shouldn't ask their opinion.	Negative Outcome	Negative

Analysis Question 2	Thematic Analysis	Pattern Matching- Explanation Building
I do feel that a major benefit is to be able to make mid-course corrections if things are not going as well as they should	Timely Feedback	Positive
Also I think it helps to understand what the students are thinking and if they are having any problems.	Communication	Positive
. I also like to use it to check their level of understanding of a concept. This is invaluable information to have to help test the value of each assignment and if the students are really learning the concepts you want to teach, especially in a class that doesn't have tests like mine.	Timely Feedback	Positive
The one detriment to the process is that you have to act. You can't just ignore the comments; it causes bad feelings among the students.	Negative Outcome	Negative
One mistake I made and I am sure it will come back to bite me is that a change I made early because of the feedback I didn't continue to do throughout the course. I saw a comment about that at the end.	Negative Outcome	Negative
K-Would you do this again? A-I definitely would	Future Change	Positive
if I had time to follow up. I just didn't have that time this semester and I can see that it really hurt me. You shouldn't ask students for their opinion and then ignore it, which is probably worse than not asking at all. We may find that it hurts my final student evaluation scores. I am not sure.	Negative Outcome	Negative
I would try to use the surveys to test more for understanding of the concepts by writing better questions	Future Change	N/A
.I would also only do 2 assessments like this semester but I would schedule them into the class so everyone knew when they were going to be.	Future Change	N/A
This semester we told them one thing but I ended up postponing and doing another thing. I know this cause problems with some of the students	Negative Outcome	Negative
K-Did you have any problem with the extra credit? A-No, not at all. I feel like the extra credit was a non-issue. I know the students wanted it and it was a motivator for them so I would probably do it that way again.	Extra Credit	Positive

Analysis Question 2	Thematic Analysis	Pattern Matching- Explanation Building
K-Do you feel the surveys should be anonymous? A-I think it is good to do it that way and that it reflected in the students comments. They were much more willing to give constructive criticism which would be more valuable.	Anonymous	Positive

Appendix G. Anonymous Course Survey Questions

Case 1 Survey Questions

Case 1-Survey 1

1. Are you having any technical problems with the course such as accessing course content, using the discussion boards or using Wimba for office hours?
2. How comfortable have you felt with the first couple of assignments? Did you feel well prepared to complete them or did you struggle?
3. Specifically for Activity 2B (the Mouse Histogram Worksheet), did you have any problems scanning or creating a PDF so you could complete the assignment?
4. How do you feel the course is organized on Blackboard? Are the instructions clear and do you know what you are supposed to do in each module?
5. How comfortable are you about learning to do new things on the computer? Are things like taking screen shots and making PDF files helping or hindering your learning?
6. Currently there are a lot of issues with the SCORM modules, including technical glitches. Do you feel the content is valuable enough to put up with the technical problems?
7. So far, are there any improvements you would like to see made to the course?

Case 1-Survey 2

1. Do you find the time surveys helpful? Why or why not.
2. How careful are you with estimating the time you spend?
3. Did you have any problems being able to take the test, such as issues with the testing environment?
4. Did you feel that the exam was fair?
5. Did you feel well prepared for the exam?
6. Is there anything that could be improved within the course that would help you learn better?

Case 1-Survey 3

1. Did you feel prepared for your last (#2) exam? Did you have any trouble with the content of the exam?
2. How is the pacing of the class? Do you feel it is going too slow or too fast or somewhere in-between? Please explain why you feel this way.
3. Do you feel you have enough communication with your instructor? If not, what would you like to see change?
4. Is there something in the delivery of the course that is causing you problems (i.e.

technical difficulties, unable to understand audio, unavailability of content etc.)?

5. Are there concepts in the last 2 weeks that you need more clarification on?
6. Do you feel the assignments have been valuable to help you complete the course objectives?
7. Is there anything that could be improved within the course that would help you learn better?

Case 2 Survey Questions

Case 2-Survey 1

1. Did you find the lecture notes useful in responding to the required topics? What specific recommendations do you have for improving them? For example, were the background notes on the authors valuable and would combining them with the notes on the stories be helpful? If you have any recommendations on a specific assignment, please provide them.
2. Were the topics on each story clear enough to enable you to respond without undue time wondering what the instructor was looking for? Which specific topic would you change? Do you feel the grading was fair? Did the instructor's comments help you understand why you lost points on a response?
3. On the various links on the home page for reading and responding to the designated topics, were the instructor's suggestions helpful?
4. Did the syllabus make clear the requirements for the course?
5. Do you have any recommendations for improvements thus far to the course?

Case 2-Survey 2

1. Do the stories in the last four assignments fit the themes (Identity and Renewal, Culture and Identity, Conformity and Protest)? If some did not, under what theme would you place them?
2. The scores for the last four assignments have been unusually high. How would you change the topics to make them more challenging?
3. Did you find any stories unusually repelling, and if so were they bad enough to not assign them?
4. In your opinion, is there anything that can be done to improve the course?

Case 2-Survey 3

1. Would you advice replacing an assignment with a thematic assignment on "Faith and Doubt" (this would include Gustave Flaubert's "A Simple Heart," Stephen Crane's "The Open Boat" and one other. If so, which assignment would you replace this with?
2. For this question, you might want to review the "List of Reading Assignments" on

the Home page of the course. Make a list of three stories you disliked the most and three you liked the most, indescending order, then explain why for each story.

3. Describe your experience with the class (be honest—the answers are completely anonymous). Did you gain anything from the stories you read? Did you learn anything about the techniques of the short story?

4. Did you read any of the "Suggested Readings" (some by the authors, some by critics, etc.)? If so, did they provide any insights into the stories you read? Would you suggest some of these should be required reading and blended in with the response topics?

5. Are there any final suggestions for the instructor in regards to the course?

Case 3 Survey Questions

Case 3-Survey 1

1. How is the pacing of the class? Do you feel it is going too slow or too fast or somewhere in-between?
2. Please explain why you feel this way.
3. Do you feel you have enough communication with your instructor? If not, what would you like to see change?
4. Is there anything in the delivery of the course that is causing you problems (i.e. technical difficulties, unable to understand audio, unavailability of content etc.)?
5. Are there concepts in the last 3 weeks that you need more clarification on?
6. Do you feel the assignments have been valuable to help you complete the course objectives?
7. Is there anything within the course that could be improved to help you learn better?

Case 3-Survey 2

1. How is the pacing of the class? Do you feel it is going too slow or too fast or somewhere in-between?
2. Please explain why you feel this way.
3. Do you feel you have enough communication with your instructor? If not, what would you like to see change?
4. Is there anything in the delivery of the course that is causing you problems (i.e. technical difficulties, unable to understand audio, unavailability of content etc.)?
5. Are there concepts in the last 3 weeks that you need more clarification on?
6. Do you feel the assignments have been valuable to help you complete the course objectives?
7. Is there anything within the course that could be improved to help you learn better?

Case 3-Survey 3

1. What are your feelings in regards to the textbook? Do you like it? Does it add value to the course? Any other comments.
2. Do you like the way the instructor is presenting the material?
3. Other than the topics that are in the syllabus, is there anything you think should be covered before the end of the semester?
4. Please comment on the instructor's use of video materials. Are they too long or is there enough? Is the level too high or low?
5. Is there anything within the course that could be improved to help you learn better?

Case 4 Survey Questions

Case 4-Survey 1

1. What reaction do you have to the readings? (Are they in line with what you thought the class would cover? How well do you think they are preparing you for writing a technology plan?, etc . . .)
2. How are the class discussions going for you? (Are they a source of information? Do you find yourself revising your opinions about or reactions to the readings?)
3. What is working well in the class?
4. What could be improved in the class?
5. Are there any technology specific hurdles for you in the class (e.g. finding the syllabus, discussions, etc.)?

Case 4-Survey 2

1. Discuss the feedback you received from peers on the technology plan--what was helpful and what did you want to see more of?
2. Discuss the feedback you received from your instructor on the technology plan-- what was helpful and how could it be improved?
3. What could be improved in the class?

Appendix H. Logic Model

Logic Model Worksheet

Using Continuous Improvement principles for online course advancement.

Situation Statement: Continuous Improvement theory relies on a reciprocal feedback mechanism to allow for collaborative, positive change. Usually an end of course rating is the only request made to students to give course feedback, which is not timely in nature and allows for minimal course improvement. Using frequent anonymous course surveys from students, a cycle of continuous improvement can be created to facilitate enhanced course and instructor improvement.

Inputs		Outputs			Outcomes-Impact			
		Activities	Participation		Short Term	Medium Term	Long Term	Notes
Continuous Improvement Theory has been used in the past to facilitate positive change in organizations. (Usually business)		Use frequent anonymous student course surveys to help create a cycle of CI in an online University course	Researcher, Instructors, Students		Instructors and Students have the opportunity to participate in several feedback cycles during a course	Instructors make changes to a course based on the students feedback	Overall improvement of the course for future students	

End of course evaluations or ratings by students do not give timely feedback that would enable an instructor to improve the course	Implement the principles of CI to provide more timely feedback for instructors.	Researcher, Instructors and Students		Frequent and timely feedback are provided to the instructor	More frequent feedback gives the instructor the information needed for important course changes	Improved course quality for the current students	
Students are more likely to respond truthfully if their comments are kept anonymous	Create and administer frequent anonymous course surveys to students	Researcher, Instructors and Students		Students are given the opportunity to give frequent anonymous feedback	Instructors receive feedback that is less skewed	Better communication between instructor and student	
Gaining course feedback from online students is more difficult because of the lack of face-to-face time	Give the student course surveys via an online format	Instructors and Students		Feedback that would not otherwise have been given is now provided to the instructor	Additional feedback can now be used by the instructor for course improvement	Better communication between instructor and student can be established	
Models of performance improvement that allow for frequent feedback show quicker improvement	Give students many opportunities to participate in the anonymous course survey process	Researcher, Instructor and Students		Timely feedback provided to instructors	Just in time changes can be made to allow for increased learning	Improved course with shorter improvement cycles	

assumptions	what we do			what will result from what we do			
Continuous Improvement principles of collaborative change may facilitate course advancement	Instructor responds to feedback in a timely manner to facilitate a CI cycle	Instructor		Short range changes made to course	Students and instructors develop cycle of CI	Both students and instructors involved in the overall improvement of course	
Research shows students are more likely to participate in an anonymous course feedback activity when they have some incentive	Students are given an incentive to participate in the anonymous course surveys (i.e. extra credit)	Instructor and Students		More students participating in the course surveys	Additional participation by students can help to facilitate the CI cycle	Improved student participation could lead to more buy-in for course improvement by the students	
Using formative evaluation methods during a course can increase final course ratings	Analyze instructors final course evaluations for overall rating change	Researcher		Improvement of instructor final course ratings	The continued buy-in of the instructor for future courses	Increased adoption of the practice by other instructors	

assumptions   what we do   what will result from what we do

Adapted from: UW-Extension

Appendix I. IRB Letter of Information

LETTER OF INFORMATION
USING FORMATIVE STUDENT FEEDBACK: A CONTINUOUS QUALITY
IMPROVEMENT APPROACH FOR ONLINE COURSE DEVELOPMENT

<u>Introduction/ Purpose</u> Professor Mimi Recker along with Kristy Bloxham, a PhD. student in the Department of Instructional Technology & Learning Sciences at Utah State University is conducting a research study to find out more about the process of using continuous student feedback to help inform course improvements. You have been asked to take part because you are a member of an online course at USU. There will be approximately 400 people involved in this research.

<u>Procedures</u> If you agree to be in this research study you will be asked to participate by responding to 4-7 anonymous surveys during the semester. Your participation would involve answering 5-10 simple open-ended question about your experience during the course. All responses will be anonymous to everyone involved including the instructor, teaching assistant, other researchers, and other students. Your name will not be published in regards to any reports or findings, and the information gathered will in no way impact your grade.

<u>Risks</u> Although we anticipate that your participation in this research will involve minimal risk, this research study may involve some added risks or discomforts. These include:
1. A loss of time from your normal activities to participate in the online surveys.
2. A sense of discomfort using technology to complete the surveys online.

<u>Benefits</u>   There may or may not be any direct benefit to you from these procedures. The investigators, however, may learn more about how continuous student course feedback can aid in accomplishing the educational goals of the course. Continuous feedback from students may be of benefit to the student if it aids the instructor to improve the course delivery or content.

<u>Explanation and offer to answer questions</u> Kristy Bloxham has explained this research study to you and answered your questions. If you have other questions or research-related problems, you may reach Kristy Bloxham at 435-881-5138.

<u>Voluntary nature of participation and right to withdraw without consequence</u>
Participation in this research is entirely voluntary. You may refuse to participate or withdraw at any time without consequence or loss of benefits.

<u>Confidentiality</u> Research records will be kept confidential, consistent with federal and state regulations Only the investigators will have access to the data which will be kept in a locked file cabinet in a locked room. No personal or identifiable data will be gathered.

IRB Approval Statement The Institutional Review Board for the protection of human participants at USU has approved this research study.   If you have any pertinent questions or concerns about your rights or a research-related injury, you may contact the IRB Administrator at (435) 797-0567 or email irb@usu.edu. If you have a concern or complaint about the research and you would like to contact someone other than the research team, you may contact the IRB Administrator to obtain information or to offer input.

Investigator Statement "I certify that the research study has been explained to the individual, by me or my research staff, and that the individual understands the nature and purpose, the possible risks and benefits associated with taking part in this research study. Any questions that have been raised have been answered."

Mimi Recker   Kristy Bloxham
435-797-2692   *435-752-5782*

Appendix J. Student Instructions

Hello Class Members!

I am a PhD. student in the Instructional Technology and Learning Sciences program at USU. This semester I am doing a research study regarding student course feedback. Research shows that student course feedback is the most reliable indicator of student learning. So if students rate a teacher high, they usually learned more. Quite often the only time a student gets to give anonymous feedback to a teacher is after the course is over. This makes the end of course evaluation less valuable to you as a student since it will not affect the current class. Our research is an attempt to gather anonymous student course feedback during the semester. Our hope is that given the opportunity, students will let their teacher know how things are going in a positive and productive way. This type of feedback will only be seen by the teacher and will not affect the teacher's promotion and tenure process. The sole purpose is to help improve the course in a timely manner.

We are hoping you will all participate with us although your participation is not mandatory.

Here's how you do it:

Several times during the semester (4-7) you will be asked to fill out a short anonymous course survey through Blackboard. One thing you need to know is that this survey tool is anonymous even if it is in Blackboard. The results will be sent back without your name or any identifying information. Please answer the questions honestly but with respect to your teacher. If you have any questions about the survey or your participation please let me know.

As an incentive for your participation (Blackboard will keep track of who actually filled out the survey but not associate the name with the survey) you will receive 5 points of extra credit during the semester. If you choose not to participate in the anonymous surveys you can also receive this extra credit by writing a 3 page paper on a subject assigned by your instructor (I promise the surveys will be easier than this).

I really appreciate your help with this research and hope that it is a good experience for all.

Attached is the "Letter of Information" for IRB purposes, in case you would like to read it.

Appendix K. Instructor Training

CQI principles are based on the establishment of cooperation and collaboration aimed at improvement. A CQI cycle applied to an instructional situation involving the use of frequent student course surveys should be carried out as follows:

- Plan—Instructor prepares specific instructional content and delivery.

- Deliver—Instructor delivers the instruction.

- Measure—Instructor administers student course surveys to provide a measurement of instructional effectiveness.

- Interpret—Instructor gauges his or her performance based on student feedback and evaluates for improvement.

- Choose and implement—Instructor chooses what changes need to be made for improvement, communicates and changes or feedback to the students via email and implements any changes into the course.

- The cycle is repeated 2-7 times depending on the instructors needs.

The instructor and researcher will work to develop each of the individual course surveys. The surveys should ask questions that would elicit enough of a response to be valuable for informing improvement. The researcher will then send the surveys to the students via Blackboard and return the responses within one week. Once the instructor has evaluated the student feedback they are required to respond to the students. Changes requested by the students are not required to be made, however, the instructor should address as many concerns as possible.

RESUME

kristy.bloxham@gmail.com

Kristy Bloxham   435.752.5782   435.881.5138(cell)

PROFESSIONAL EXPERIENCE
    DevonWay, Inc.
        Senior Training and Evaluation Specialist   March 2010-Present
- Training Design and Delivery
- Evaluation of Training
- Change Management

    USU Instructional Technology & Learning Sciences, Logan, Utah
        Instructor   Jan. 2009-May 2010
- Distance Learning Tools course
- Mentor students and teach the Projects and Practicum courses for the Distance Learning Endorsement program.

    EndVision Research and Evaluation
        Contract Evaluator   Aug. 2008-Sept. 2009
- Conduct evaluative testing of K-6 students

    USU Regional Campuses and Distance Learning, Logan, Utah
        Contract Evaluator   Feb. 2009-Aug. 2009
- Process evaluation of current student course evaluation system
- Worked with Vice-Provost to recommend new system

    USU Instructional Technology & Learning Sciences, Logan, Utah
        Marketing Director   April 2008-Present
- Collaborate with department professors to create effective marketing strategy emphasizing unique department culture
- Consult with web developers to create online community within department website.

    Digital Libraries Connect Research Group-USU, Logan, Utah
        Research Assistant   Sept. 2007-April 2008
- Analyze, develop and disseminate Instructional Architect, a web-based educational tool used by educators throughout the country.
- Build relationships with educators to foster effective use of the Instructional Architect

    Proforma Image Products, Inc., Logan, Utah   Feb. 1987-Nov. 2009
        Co-Owner
- Designed and developed award winning educational software
- Manage business operations including product development, supervising and training of sales force, maintaining vendor and client relationships, and all financial aspects of the business.

HIGHER EDUCATION
    Utah State University   2010
        Ph.D. Instructional Technology
- Developed ability to systematically research solutions for training and performance needs

    Utah State University   1987
        M.ED. Instructional Technology
- Gained instructional design skills needed to create sound training and instruction products

    Utah State University   1985

B.A. Elementary Education
Math, Computer Science Minor
- Developed foundational understanding of effective educational practice

PROJECTS

• Program Evaluation for Letterpress Software	Fall 2007
• Reading First Program Evaluation for EndVision	Spring 2008
• Distance Learning Tools Course	Summer 2009
• Pacificorp Training and Design Competition	Fall 2009
• Shingo Prize/Jaris Conversion and Implementation	Spring 2010

SKILLS

- Instructional Design
- Public Speaking
- Verbal and Written Communication
- Project Management
- Project and Process Evaluation
- Performance Improvement
- Computer Literate
- Self Motivated
- Ability to help people work towards a unified goal

Proficient with:

Web 2.0	Word	Power Point	Excel	Camtasia
HTML	Flash	Photoshop	Illustrator	Mac & PC
Captivate	InDesign			