

Formative Evaluations in Online Classes

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Abstract

Online courses are continuing to become an important component of higher education course offerings. As the number of such courses increases, the need for quality course evaluations and course improvements is also increasing. However, there is not general agreement on the best ways to evaluate and use evaluation data to improve online courses. While summative student evaluations are commonly used, these may not be the most effective for online course evaluation and quality improvement. Formative evaluation is one method of providing course evaluation and feedback to the instructor during the course while course improvements can be made to benefit the students currently in the course as well as future students. This method of evaluation not only provides for an effective course evaluation but also continuous improvement in the course. This case study reviews formative evaluations done in two online courses in a Health Information Management program. These formative evaluations were found to be quite effective for the identification and development of needed course improvement throughout the semester as well as for use as input into overall course evaluations. These evaluations demonstrate the value of formative evaluations and provide a methodology for implementing such evaluations into an online course.

Keywords: Distance education, course evaluation, quality improvement, self-assessment, higher education, feedback, health information management

INTRODUCTION

As the number of online courses continues to grow, the demand for accountability and quality in such courses is increasing. One method of improving online courses and contributing to a higher level of student learning is through student assessments. There are a wide variety of activities that can be completed in online courses to assess quality and student learning and there is ample literature on the role of improving student assessments to evaluate student learning. However, another method of improving such courses involves the use of innovative course evaluation methods. Traditionally, most student course evaluations are summative, completed at the end of the semester, used for promotion and tenure, and not always the most useful for course improvements. It has been found, however, that formative evaluations, completed during or throughout a course may be a better methodology to assess quality and student learning. Therefore, there is increased focus on the use of formative evaluations in both face to face and online courses. Such assessments, regardless of the methodology used, can lead to immediate improvements in the course during the semester in which it is taught. Both students and teachers can benefit from such improvements and teaching and learning can become more effective.

Formative evaluations can be completed in a number of ways, but essentially involve some type of course evaluation or student assessment at the midpoint and/or other points throughout the course, with fairly immediate feedback. Such feedback can then be used to make course changes to provide continuous improvement of the course throughout the semester. This benefits the current students and provides the faculty member feedback on teaching methods as they are teaching the course. While this is helpful in face-to-face or in online settings, this can be especially important in the online setting when student-teacher interaction may be lower than in the face-to-face course setting. Often it is more difficult for a teacher in an online class to get the

type of feedback that a face-to-face teacher has during classes and in meetings with students. Formative evaluation can fit nicely into this gap in online classes as it is defined as evaluation “for the purposes of providing feedback to and informing teachers, students, and educational stakeholders about the teaching and learning process” (Dunn & Mulvenon, 2009, p. 3).

Formative evaluation can become a valuable tool for the online course instructor to insure continuous improvement in courses and in student learning. This case study was completed to evaluate the value and usefulness of formative evaluations in two online courses in the Health Information Management Program at a public university in the Midwestern United States. This study was used to assess the value of formative evaluations in quality improvement of the courses offered as well as to assess how they can serve as a course evaluation tool.

LITERATURE REVIEW

With the increased number and popularity of online courses, there is now an increase in the demand for accountability and quality of such courses. The number and offering of online courses has increased across the country in response to college and university course offering decisions, state and national government initiatives, as well as to student demand for this flexible learning option. In 2011, Allen and Seaman reported that “over 6.1 million students were taking at least one online course during the fall 2010 term; ... and thirty-one percent of all higher education students now take at least one course online” (p. 4). With statistics like these it is obvious that online courses are a significant part of higher education and need to be included in reviews of quality and student learning. However, faculty and administrators have had a difficult time discerning how to measure quality in online courses and how to evaluate courses and implement course improvements. “Faculty members who teach online cannot apply the same instructional techniques...as face-to-face classes” (Thiede, 2012, p. 137). By the same token, colleges and universities cannot apply the same evaluative techniques for online classes as they

do for face-to-face courses. Pina and Bohn (2014) state that not only do colleges and universities do a poor job evaluating online courses, “a contributing factor to this situation may be the inability of institutions to adequately measure quality online teaching” (para. 3). Traditionally used evaluation techniques may not truly assess course and teaching effectiveness and may not be the best tools for online course evaluation. In addition, faculty have found that without tools to adequately measure quality online teaching, they cannot determine needs for quality improvement of courses to improve student learning.

The quality of online courses continues to be debated extensively in the literature, with little consensus on how to measure it, as well as how to assess teaching effectiveness of faculty teaching these courses. One traditional instrument of assessment that has historically been utilized to assess students’ perceptions of teaching effectiveness and overall course value is the student course evaluation. (Jones, 2012, p. 49)

Student evaluations of teaching (SETs) are the most common method of assessing teachers and courses. These are usually completed at the end of a course or semester and provide feedback to the instructor on the course format as well as the teaching methods used. These evaluations, however, are commonly used for purposes of promotion and tenure, and, in many cases, may not be used directly for course or teaching improvement. “Student course evaluation data are not often used for overall quality improvement of teaching, and oftentimes are provided to faculty who perhaps do not utilize the information as possible predictors of how to improve their teaching effectiveness” (Jones, 2012, p. 51). If they are used by the instructor for improvements, those improvements do not benefit the current students, but only students in future courses. “Since those students (who) completed such SETs have finished the course..., they cannot experience the positive outcome of these evaluations” (Winchester and Winchester, 2012, p. 672). In some cases, inconsistent course evaluation formats or “course evaluation

surveys (that) do not use valid questions or do not have consistent rating approaches” (Bubb, et. al., 2013, p. 8), have caused additional problems in the value and use of SETs. Further “all too often, summative evaluation ... tells us little more than how popular we are as faculty” (Walker, 2005, p. 7). The use of summative evaluations may be particularly problematic in online courses that may be taught by adjunct instructors yet designed by other faculty. Many online courses are based on a master course template which can further complicate selection of evaluation methods. While it is clear that course design is an integral part of course quality, the “quality of the individual instructor is (also) crucial to the quality of the course” (Pina, Harris, & Ashbaugh, 2012, as cited in Pina and Bohn, 2014, para 2). While many accrediting bodies are starting to set standards for online course quality there is still debate as to how quality should be measured and evaluated. Current rubrics for online course evaluation may focus primarily on course design and not teaching which does not provide for a fair assessment of teachers teaching courses they didn’t design. With all these complicating issues, educators are searching for better ways to evaluate online courses that will allow for appropriate evaluation as well as quality improvement. One evaluation methodology that is being found to be effective is the use of formative evaluations.

Formative evaluation allows for relatively immediate feedback to the instructor regarding the students’ feelings and perceptions on course design as well as teaching. This timely feedback during the course enables, “online instructors (to be) able to adjust strategies and methods to better meet the needs of current students” (Berridge, Penney, & Wells, 2012, p. 120). This creates a “feedback loop for CI” (continuous improvement) and quality improvement (Aggarwal and Lynn, 2012, p. 27). The ongoing use of formative evaluations, and associated course improvements result in true CI, or continuous improvement. “As assessment progresses, the learning process is continually monitored and incrementally improved” (2012, p. 29). Formative

evaluation has also been seen to increase student participation, encourage student self-evaluation, and improve student learning. Bubb, et al, 2013, found that “results obtained by UNLV instructors clearly showed that both student learning and classroom performance improve when instructors listen to their students’ suggestions and consider implementing them to improve teaching effectiveness” (p. 12).

Formative evaluations can be used to complement the summative, end-of-semester evaluations. Such evaluations allow for reflection on the part of the teacher with the opportunity for course improvements based on this reflection. Some areas that can be included in the evaluations are students’ perceptions of “particular activities, the pace of the delivery and success of student engagement. Such information gleaned from a formative SET could allow the lecturer to reflect on how to modify the class material for the following week(s) to best meet the students’ needs” (Winchester and Winchester, 2012, p. 673). Formative evaluations should include questions that are pertinent to both students and teachers and will allow for feedback regarding students’ perceptions about the course and teaching methods. If the teacher uses the feedback for course improvement, “students will gain additional motivation to complete the questionnaires once they see their comments are taken seriously and incorporated in the lecturers’ future material” (Winchester and Winchester, 2012, p. 674). The result of such evaluations is “greater student appreciation for the opportunity to provide input and instructor appreciation for receiving feedback” (Bubb, et. al. 2013, p. 8). Teachers who have used formative evaluations have found “greater student performance in ... courses and higher summative course evaluation scores” (2013, p. 12). There is an important caveat. “Inherent to formative evaluation online is the need to act upon any responses you receive as a class instructor, otherwise, you can appear as if you do not care and the evaluation is simply another activity students must complete” (Walker, 2005, P. 10). The results of such actions, however, can

be used by faculty in their annual evaluations to show course improvements and used by students to motivate them to become more involved in the course and to participate more fully. Formative evaluations can serve as a method of quality review and evaluation as well as an opportunity for faculty to improve the quality of their courses, and thus, student involvement and learning.

There are a variety of methods that can be used for online course formative evaluations. These range from formal peer evaluations, to informal short student surveys. One formal method of evaluation is eFACT: Formative Assessment of Classroom Teaching for Online Classes. This system “is a process of gathering anonymous student feedback through a faculty consultant using e-mail” (Berridge, Penney, and Wells, 2012, p. 120). This anonymous feedback is then provided to the instructor for use in changes to the course to improve quality. Some instructors have used a modified version of the Face-to-Face Group Instructional Feedback Evaluation Techniques in distance education through the use of a facilitator who “can use any number of methods to contact students electronically to ask the questions” normally asked in such evaluations (Walker, 2005, p. 8). Other teachers have used surveys administered to students via SurveyMonkey or, most commonly, through online surveys administered through the course software. Most of these methods ask students to respond to between three and nine questions regarding what they liked or did not like about the course, what helped their learning in the course, what impeded their learning in the course, and how the course could be improved. Both closed and open ended questions are used in these various methods. Frequency of evaluations can vary from weekly to one mid-term evaluation followed by the final, summative evaluation. In order to maximize response rate, some instructors will tie participation to grades or to extra credit. Others find that students are self-motivated to participate based on the subsequent course improvements.

Regardless of the method used, teachers have found that formative evaluations provide an opportunity to get feedback from students during the course, when changes or improvements can

be made to benefit current students. The evaluations provide teachers with the opportunity to reflect on their courses and their teaching methods to provide continuous quality improvement of their courses. Students benefit from formative evaluations because they can provide feedback that can result in fairly immediate changes to the course that can improve their learning and increase their motivation to participate in the course. In addition, students are provided “with the opportunity for more ownership in the course” (Crews and Curtis, 2011, p. 868). Thus, formative evaluations have been found to provide a valuable method of course evaluation for online courses.

METHODS

For this case study, two online courses were chosen for formative evaluations. These courses were both offered in the Health Sciences Department. The first course, Medical Terminology, had been offered online for approximately 15 years. The second course, Pathophysiology, was being offered online for the first time. Both courses were evaluated using online formative evaluations throughout the length of the class. These evaluations were, in turn, used for course quality improvement. This case study model was used to evaluate the use and value of formative evaluations in online courses.

Medical Terminology

Medical Terminology is offered as an on-line only course at this university; there are no face-to-face sections offered. It is offered to specific majors during both semesters and the summer. These majors are all health related and include nursing, health information management, athletic training, and speech pathology. The students in this course can range from first semester freshmen working on prerequisites to last semester seniors filling electives. It is not known by the instructor at the beginning of each course whether or not the students have

taken an online course before or if they are familiar with the university's learning management system. This course, however, does offer some basic instruction on taking courses online and the university does provide basic training on the learning management system for students. These formative evaluations did not collect information regarding students' past experiences with online courses or the university learning management system.

At the time of the formative evaluation, the course had been offered in the online format for approximately 15 years and offered online-only for approximately eight years. As this course had been taught in the same format for many semesters, it was felt that formative evaluation could be a useful method to assess the course and make improvements. This course was evaluated during the summer of 2014, which was a 6 week compressed version of what is normally offered during a regular school semester. There were 28 students in this course and two formative evaluations were given. The students consisted of the regular mix of majors and levels as outlined above. The instructor administered and analyzed both evaluations. The first was at the midpoint of the course and the second was during the final week of the course. In order to obtain participation, students were given a small number of extra credit points for completion of these evaluations. In addition a standard student course evaluation was given to the students at the end of the course.

The first formative evaluation was provided to the students in the form of an on-line minute paper asking the students to respond to four basic questions regarding their opinions of the course thus far. The first evaluation consisted of four questions: 1) Name two things about this course that you feel are helpful to your learning medical terminology. 2) Name two things about this course that you feel are barriers to your learning medical terminology. 3) Name one thing the instructor could do to better assist you with learning medical terminology in this course. 4) Name one thing that you (as a student) could do to better assist you in learning medical

terminology in this course. Twenty-one of the twenty eight students responded. Their answers to the four questions were analyzed in order to determine potential changes that could improve student learning. An action plan was subsequently developed and was implemented for the second half of the course.

The second evaluation was given the last week of the course to determine the success of the action plan. The second evaluation consisted of three on-line questions designed to assess the students' perceptions of the changes made after the first evaluation: 1) Did you utilize the discussion boards, office hours, or email tips implemented after the Midterm Course Feedback? If yes, what tool(s) did you use? 2) If yes, how did you find this to be helpful in your learning of medical terminology? 3) If no, why not? The answers to the questions in both evaluations were analyzed and used to make changes and improvements to the existing class as well as future classes. Nineteen students responded to the final minute paper. The answers to the questions on this evaluation were used to assess the success of the changes that had been made to the course as well as to assess further changes needed for future offerings of the course.

In addition to these two on-line minute papers, student scores on the first two exams and midterm, before the first evaluation, were compared to student scores on the final two exams and the final exam. This allowed for a limited evaluation of student learning changes.

Pathophysiology I

Pathophysiology I is the first of a sequence of two required early major courses and is one of the courses Health Information Management students take in their first semester of their junior year. This course is a content-heavy course with a great deal of knowledge that must be learned for subsequent courses, the Registered Health Information Administrator certification exam, and students' future jobs and careers. Pathophysiology is the basis for what sets this major

apart from other business majors; the focus on understanding disease and medicine is a fundamental component of the major. During the summer of 2014, due to a vacant faculty position and the need for release time for a faculty member, the decision was made to change Pathophysiology I from a face-to-face course to an online course. This was based on the fact that there were no instructors available to teach a face-to-face course during the daytime time slot scheduled for the course. However, there was an instructor available to teach an online course. This course was also felt to be an appropriate course for the online format due to the fact that it was content-heavy and did not involve a high level of critical thinking or the need for lab-based experiences. The instructor who had taught the course in the past recorded audio to accompany power point slides for all the topics for the course. An adjunct instructor who had prior experience teaching online was hired to teach the course in this online format. Due to the short time frame surrounding this decision, there was not a formal, well planned transition of this course from a face-to-face to an online format. This is recognized as a limitation of this study as is the fact that an adjunct instructor taught the course.

Due to the fact that this was a change in course format, it was decided that formative evaluations should be done throughout the Fall 2014 semester to assess the success of the changed format and to make needed improvements throughout the course. The principle stakeholders were involved throughout this process in order to assess the success (or lack thereof) of the course at both the teaching and administration level. Another faculty member, not the instructor, administered and analyzed all evaluations. There were 27 students in this course. All of these students were junior level Health Information Management majors. It is unknown if the students had previous experience with online courses, however, they were all familiar with the University's Learning Management System. There was limited to no instruction on how to take the course online. During this semester this required course was only offered online.

The first on-line student survey was administered after the first exam. In this class as well, students were given a minimal number of extra credit points for completion of each survey. The first survey included the following questions: 1) For you personally, what has been the most difficult part of the course material so far? 2) What was the most difficult part of the first exam? 3) What can we do to improve learning outcomes?

The second on-line survey was administered following the third exam. There were a number of course changes that had been made following the first survey, therefore, students were asked questions about what changes they had taken advantage of and how those had helped their learning: 1) What changes that have been made to the course have you used or taken advantage of? 2) If you used any of these changes, how have they helped your learning? 3) What changes have you made in your test preparation methods? 4) How have these changes that you have made helped you? 5) What areas of the course do you still find difficult? 6) What additional changes would you recommend to facilitate your learning?

Again, in addition to the two student surveys, statistics were gathered on the mean test scores for the exams for internal comparison purposes. These were compared to assess learning outcomes.

RESULTS

Medical Terminology

The first minute paper in the medical terminology class elicited a 75% response rate (21/28 students). The first question asked the students to name two things about this course that they felt was helpful to learning medical terminology. The most common answers were the practice exams, the chapter content learning modules, and the textbook. Overall the responses were positive. Question two asked the students to name two things about the course that they felt

were barriers to learning medical terminology. The most commonly listed barrier was that the course was online. Related barriers included the fact that there were no lectures or discussions in the class and no peer interactions. Students also stated that they felt it was harder to ask questions of instructors in online courses and that they had technology concerns. Other barriers listed included the fast pace of a summer course as well as the fact that there was a large amount of material to learn in the course. The third question asked the students to write one thing that the instructor could do to better assist them in learning medical terminology. Interestingly enough, the students requested more assignments. They wanted more opportunities to practice the terminology and to gain points outside of exams. In addition, they stated that more discussions, instructor on-campus office hours, and weekly emails would be helpful. However, many students stated that nothing needed to be done to assist them in learning medical terminology. The final question asked the students to name one thing they could do to assist themselves in learning medical terminology. Most students commented that they needed to stop procrastinating, organize their time better, commit time to the course, and to study differently.

The course grades for the first half of the course were also analyzed for future comparison purposes. All 28 students were included in this analysis. It was noted that the course grade mean was 88.25%, the mean score on the first two exams was 90.6%, and the midterm exam mean was 95.2%. This grade comparison was completed to determine if there were any substantive changes in grades before and after the formative evaluation was completed and changes were implemented. While many factors could influence grades, it was felt that this comparison might elicit additional useful information.

The second half course grades showed a modest improvement over the first half grades. The overall course grade mean and means on the last two exams increased, however the final exam mean was slightly lower than the midterm. This can be seen in Table 1.

Table 1

Comparison of First Half Course Grades to Second Half Grades, Medical Terminology

Grade	First Half Mean (Standard Deviation)	Second Half Mean (Standard Deviation)
Course Grade	88.25% (11.49)	91.12% (18.04)
2 Exams	90.6% (13.68)	92.4% (7.91)
Midterm/Final Exam	95.2% (18.27)	89.5% (18.34)

Interventions for Medical Terminology

Based on the minute paper responses, the following action plan was put into place. A discussion board was added for peer discussion and/or arranging study groups. Two hours of on-campus office hour time was added for each week of the final weeks of the course, and weekly emails outlining the requirements for the week were also added. An email was sent to all students outlining these changes as well as including the following: recommendations for the use of the practice exams and chapter content reviews for students who were struggling; comments addressing the fast pace and technology concerns for the final weeks of the course; encouragement of email questions; and encouragement for students to use good time management and study habits for the final weeks of the course. In order to assess the effectiveness of these changes, a second minute paper was made available to the students during the final days of class.

Nineteen (68%) students responded to the final minute paper. This three question minute paper asked the students basic questions about whether or not they had used the implemented improvements, and, if so, if they found them helpful. It was noted that it was apparent that no students used the discussion boards or office hours, however, the first question in this minute paper asked the students if they had used the discussion boards, office hours, or email tips

implemented after the Midterm Course Feedback minute paper. Fourteen students stated that they had not used these additions; five stated that they had used the email tips. The second question asked the students to note whether or not the improvements that they used had been helpful. Four of the five students who had used the email tips stated that they were helpful. The third question asked the students to comment as to why they had not used the improvements, if, indeed, they had not used them. Fourteen students responded that they were satisfied with their study habits or with how they were doing in the class so they saw no reason to use the new tools. Two stated that they were not residing close to campus so the office hours were not an option for them. Other students stated that they didn't really think about using the new tools or forgot about them. One student stated that they were not aware of the improvements. A review of this information indicates that the office hours and discussion boards may be more useful to students during the fall or spring semester when more students are on campus and have more time to utilize such tools.

Pathophysiology I

The first formative evaluation student survey in Pathophysiology, which was given following the first class exam and elicited an 85% (23/27 students) response rate, provided a great deal of information. The prevailing theme was that the students were not happy with the online course format, communication between students and the instructor, grading, being required to "teach themselves", and their inability to assess their own learning prior to the exams. Sixty-one percent of the respondents stated that the most difficult part of the course was the online format and lack of face-to-face discussion. Student suggestions included more activities, quizzes or practice exams so that learning could be assessed prior to the exams (78%). In addition, students suggested face-to-face exam preparation sessions that could be used for

questions and clarifications (57%). Finally, students requested additional communication from the instructor in the form of email responses, updates, and progress reminders (22%).

These survey results were provided to the instructor, the department chair, and the college dean. Following review of the survey results, meetings were held between the stakeholders. Weekly face-to-face sessions were added to improve communication between the instructor and the students. “Addendum assignments” were added to allow for additional student assessment of learning. These were also added to exam scores as extra credit.

The second online student survey was completed approximately a month later following the third exam. This survey also elicited an 85% (23/27) response rate. At the time of this survey, the above noted changes had been implemented and student overall course grades had improved based on the addendum assignments. The students were much more satisfied with the course than they were at the time of the first student survey. However, there were still areas that they found difficult or that they felt could be changed to aid in their learning. The vast majority of the students had taken advantage of the two main changes that had been made to the course, the face-to-face review sessions (59%) and the addendum assignments (82%). The students had found that these had improved their learning as well as their focus on the exam material. The ability to ask questions and get explanations in person was noted to be helpful. Students also felt that the changes had helped them study more effectively and become more confident with the material. In addition, the addendums had improved their grades. Students further stated that they had revised their test preparation methods to include spending more time preparing (59%), using flashcards and quizzing themselves (23%), paying more attention to the notes and audio (14%), and becoming more organized (9%). The students stated that they felt that they were more prepared and understood the material better and were learning, not just memorizing. Students did, however, still find the wording of the test questions and the format of the expected answers

difficult (32%). They also cited the large amount of information to be learned (23%), the lack of a face-to-face course (18%), and the time allotment for exams to be problematic (9%). They requested clearer expectations for answers or the type of exam answers (23%), more review sessions that were longer or offered at different times (28%), more assignments (14%), and offering the class in a face-to-face setting (14%).

This report was again forwarded to the instructor, the department chair, and the college dean. Only one change was made following the review of this report and that was offering the face-to-face review sessions at different times.

While exam scores are not the sole measure of student learning, they are a method of assessing student learning. In order to progress in the Health Information Management major a student must obtain a grade of a C or above in this class. The grade scale for the major is also a higher scale with a 77% being the lowest C. Therefore, exam scores are a valuable indicator of student success in the course and success in moving forward in their major area of study. Table 2 summarizes the mean exam scores for the first four exams of the course as well as the mean exam scores and standard deviations following the addition of the addendums. There was no addendum provided for the fourth exam. As can be seen, exam scores did increase over the course of the semester after implementation of the above noted changes. The addition of addendum assignments to the exams as extra credit dramatically increased scores as well.

Table 2

Mean Exam Scores for Pathophysiology Exams 1-4

Exam	#1 Mean (SD)	#2 Mean (SD)	#3 Mean (SD)	#4 Mean (SD)
Prior to addendum	54.76%	63.43%	75.50%	74.42%
After addendum	82.10% (15.64)	89.21% (12.84)	92.62% (9.84)	74.42% (13.92)

DISCUSSION

The Medical Terminology formative evaluation project resulted in positive feedback regarding the course overall as well as some useful suggestions for improvement. In addition, the students stated that they appreciated the initial minute paper and the fact that the instructor was interested in their opinions about the class. Most students did not use the improvements, however, the course was a short summer course so there was limited time after these were implemented. The students did use the email tips, stating that these were helpful. An evaluation of the grades before and after the implemented changes did not show any significant change. Discussion boards, office hours, and email tips will be included in future Medical Terminology courses and further evaluation can be done to see if these are used, and, if so, if they aid in student success. Potential long-term plans include adding audio for pronunciation purposes, adding additional assignments, and including some student study suggestions in the initial email sent to students in future courses.

The change in the format of the Pathophysiology course affected many on a deep level. The students were initially extremely unhappy with this course. There were many student complaints. Therefore, the evaluation results were reviewed closely and the student suggestions and comments were taken quite seriously.

The formative evaluations were quite valuable in that they provided the instructor and other stakeholders with direct feedback during the course, while changes could be made. They enabled a full assessment of what concerns the students had with the course as well as what suggestions they had for improvement. These results allowed those involved to take steps to improve the course during the semester, resulting in a higher level of student satisfaction and greater learning outcomes during the second half of the course. This is also reflected in the

improved grades as the semester progressed and as changes were made. Based on the students' extreme level of dissatisfaction, it was decided that the second part of the course, Pathophysiology II, would be taught in the classroom during the spring 2015 semester. The long term use of the formative evaluations in this course was, however, valuable. The stakeholders found that the transition of a course to an online format was not as simple as originally thought and takes more time than was allotted in this situation. In addition, it was found that student and instructor preparation for online courses is of great value in student success and learning. In the future, the results of these formative evaluations as well as the lessons learned during this process will be used as other courses are transitioned to an online format.

CONCLUSION

As the number of online courses continues to grow the need for quality and accountability will only increase, therefore, there need to be effective methods of course evaluation that evaluate the course and the teaching methodology and provide for improvements in these areas as needed. Formative evaluations have been found to play a valuable role in ongoing continuous improvement of teaching and learning. "Assessment (or evaluation), in general, helps maintain quality and demands accountability" (Aggarwal and Lynn, 2012, p. 44). Formative evaluation provides a legitimate method of assessing and improving quality to meet the demands for accountability. "Moreover, regardless of the outcome (of formative evaluation), students take on a responsible role that encourages them to participate" (Walker, 2005, p. 10).

The results of the formative evaluations in these two courses clearly shows the value of such evaluations throughout a course. The findings in the Medical Terminology course, a long-time online course, show that there is always room for improvement and making even small changes throughout a course can improve student satisfaction and learning outcomes. The

findings in the Pathophysiology I course led to more major changes as well as a deeper understanding of online course needs for student satisfaction and student learning. Even though the students were quite dissatisfied at the beginning of this course, the use of the formative evaluations and associated course improvements resulted in a significant increase in student satisfaction and learning outcomes. In both courses, students expressed appreciation for the fact that their opinions were sought and changes were made based on their input. The fact that their opinions were validated and changes were made led many students to feel more a part of the on-line class experience and increased their role in their success as well. These formative evaluation case studies demonstrate that formative evaluations can be a valuable tool in online course evaluation and improvement. Formative evaluations provide a method for continuous improvement within a course, thus leading to more effective teaching and learning.

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Appendix A

Medical Terminology Formative Evaluations

Formative Evaluation #1 (online minute paper administered through learning management system at midpoint in course)

1. Name two (2) things about this course that you feel are helpful to your learning medical terminology.
2. Name two (2) things about this course that you feel are barriers to your learning medical terminology.
3. Name one (1) thing the instructor could do to better assist you with learning medical terminology in this course.
4. Name one (1) thing that you (as a student) could do to better assist you in learning medical terminology in this course.

Formative Evaluation #2 (online minute paper administered through learning management system during final week of course)

1. Did you utilize the discussion boards, office hours, or email tips implemented after the Midterm Course Feedback? If yes, what tool(s) did you use?
2. If yes, how did you find this to be helpful in your learning of medical terminology?
3. If no, why not?

Appendix B

Pathophysiology I Formative Evaluations

Formative Evaluation #1 (online minute paper administered through learning management system at first month point in course)

1. For you personally, what has been the most difficult part of the course material so far?
2. What was the most difficult part of the first exam?
3. What can we do to improve learning outcomes?

Formative Evaluation #2 (online minute paper administered through learning management system at two month point in course)

1. What changes that have been made to the course have you used or taken advantage of?
2. If you have used any of these changes, how have they helped your learning?
3. What changes have you made in your test preparation methods?
4. How have these changes that you have made helped you?
5. What areas of the course do you still find difficult?
6. What additional changes would you recommend to facilitate your learning?