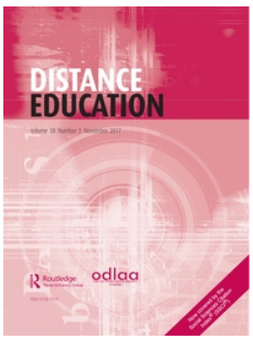

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Facilitating student learning in distance education: a case study on the development and implementation of a multifaceted feedback system

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ABSTRACT

This paper reports on a case study conducted in an American university investigating the role of feedback within a distance education environment. Based on data gathered from online and hybrid undergraduate students in a teacher education program and supported by existing research, we describe how we support online learners by implementing a feedback system that incorporates multi-draft formative assessments and various feedback strategies. We describe these strategies (i.e. explicit feedback directions and feedback surveys) as well as data from formative assessments to demonstrate the impact of clear expectations and feedback on student performance in distance education. We present recommendations for online feedback and propose a feedback model for further study.

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Feedback; strategies; distance education; online teaching

Introduction

One of the greatest challenges in distance education is finding ways to deliver timely and meaningful feedback to students. Although distance educators may incorporate a variety of written and audiovisual resources to deliver content, we cannot underestimate the power and importance of communication and feedback between teacher and student (Hattie & Timperley, 2007). In traditional face-to-face courses, instructors have the ability to incorporate feedback into their classroom instruction in order to immediately address misconceptions. They are also able to answer questions and prompt students to construct their own understanding of feedback and engage in higher-order thinking. Although some of this can also be done online, the ability to read body language and visually assess student understanding is missing. In an online learning space, feedback is an essential teaching practice as it can help scaffold learning and establish a connection between the distance educator and student despite their lack of face-to-face interaction (Bonnel, Ludwig, & Smith, 2007; Leibold & Schwartz, 2015).

Considering this knowledge of the important role that feedback plays within distance education, we spent a great deal of time refining our feedback according to literature on best practices (Fisher & Frey, 2009; Hattie & Timperley, 2007; Nicol & Macfarlane-Dick, 2006).

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Regardless of the nature or amount of feedback provided, we continued to experience similar challenges and breakdowns within our feedback cycles. We share students' perceptions of our feedback practices and describe implementation of feedback strategies created in light of their responses. This paper focuses on the use of select feedback strategies and the impact on student performance, and proposes a potential online feedback model for further study.

Review of the literature

Feedback and student learning

Alvarez, Espasa, and Guasch (2011) identify four types of feedback: (1) corrective, which focuses on requirements and content; (2) epistemic, which clarifies or explains through prompts and questioning; (3) suggestive, which includes advice or ideas for improvement; and (4) epistemic plus suggestive, which combines prompts, questioning and ideas to scaffold student learning. Feedback can take on a variety of forms, but the most effective feedback not only reflects students' current performance but also how they can improve future performance and subsequent learning (Wiliam, 2012). In a study conducted by Guasch, Espasa, Alvarez, and Kirschner (2013), students' writing performance showed the most improvement when students were provided with epistemic or epistemic plus suggestive feedback. The results of Ferrara and Butcher's (2012) study revealed that college students expect feedback that identifies errors, offers guidance on additional resources, and provides examples or prompts to guide their revisions. This demonstrates the importance of providing students with formative feedback that encourages revision and reflection with regards to their application of new knowledge.

There have been a number of studies that provide a foundation of knowledge around best practices in the area of feedback. Nicol and Macfarlane-Dick's (2006) seven principles of good feedback practice outline the importance of using formative assessments to increase self-regulated learning in the higher education classroom. Nicol and Macfarlane-Dick (2006) characterize good feedback according to the following principles: clarifies goals, criteria, and/or standards; facilitates self-assessment and reflection; delivers quality information about students' learning; encourages teacher and peer dialog; encourages positive thinking and self-esteem; attempts to close the gap between current and desired performance; and provides information to help teachers improve their own teaching practices. Although their review of the literature did not focus specifically on distance education environments, principles such as providing 'high quality information to students about their learning' and encouraging 'positive motivational beliefs and self-esteem' (p. 205) overlap with some of the best practices for providing online feedback outlined by Leibold and Schwartz (2015). Additional suggestions include personalizing the feedback for the learner, providing frequent and immediate feedback, and asking questions to promote thinking. Not only is feedback an integral part of increasing self-regulated learning but in distance education, it is 'an opportunity to develop the instructor-learner relationship, improve academic performance, and enhance learning' (Leibold & Schwartz, 2015, p. 36).

Fisher and Frey (2009) explain the feedback system for classroom teachers as having three parts: feed up, feedback, and feed forward. In their description, educators must clearly clarify the goal of an assessment and establish its purpose (feed up), respond to student work in a way that addresses the learning goal (feedback), and modify their own instruction in response

to student work (feed forward). Citing feedback as 'one of the strongest interventions at a teacher's disposal,' (Fisher & Frey, 2009, p. 25), it is important to consider how distance educators currently use this process to support student learning and how this feedback system and others should be adjusted to work online and asynchronously.

Formative assessments and feedback

Kearns (2012) recommends that complex assignments be broken down into phases with students submitting interim sections or drafts for feedback. In order to facilitate this process, it is important to consider assessment design and use forms and types of feedback that have been found to positively impact student learning (Vardi, 2013). Building from Nicol and Macfarlane-Dick's (2006) seven principles of good feedback practice, the goal of formative assessments is to increase self-regulated learning in the higher education classroom and feed forward the learning to the next assignment.

Ferrara and Butcher (2012) found that students prefer to interact with feedback as opposed to being 'passive recipients' (p. 66). Their study, which focused on the prior experiences and perceived feedback needs of pre-service teachers working towards teaching licensure, further supports the need for assignments that include multiple draft submissions and explicit opportunities for feedback, reflection, and revision. When students submit a single draft, teacher feedback, if any, is essentially moot; however, instructors can promote active learning and monitor student progress by requiring multiple drafts of critical assignments. By providing feedback and clear expectations for revisions, instructors encourage students to take responsibility for their own learning and create opportunities for students to feed forward their learning and meaningfully implement feedback they have received (Frey & Fisher, 2011; Vardi, 2013).

Challenges to feedback in distance education

In a distance education environment, students submit their work electronically and typically receive feedback electronically. As the distance educator provides feedback, and perhaps a grade, on the initial attempt of a formative assessment, there is an expectation that the student will use that feedback to make adjustments to the assignment in order to meet expectations and learning objectives. Bonnel et al. (2007), however, suggest that there is a learning curve associated with becoming a successful online learner, including how to access and attend to feedback. In a face-to-face environment, there are social cues that can be read by the instructor to indicate that a student does not understand the feedback given to him or her. Additionally, a student can ask questions immediately or perhaps stay after class to get clarification. These 'incidental opportunities for communication' (Kearns, 2012, p. 202) that can help enhance understanding of feedback are not present in a distance education context, thus increasing the possibility for students to misinterpret feedback in a manner that hinders their ability to revise work according to their instructor's expectations.

Wiliam (2012) identified four ways that students may respond to feedback: by changing behavior; by modifying the goal; by abandoning the goal; and by rejecting the feedback. With the knowledge that feedback can have a substantial impact on student learning, online educators may spend a significant amount of time on individual feedback, yet find that students misinterpret or reject it. Students also report that they 'recognize the value of

feedback in improving their learning, but … feedback is not as effective as it could be' and it is likely that 'misinterpretation will occur, which will affect students' response to feedback' (Weaver, 2006, pp. 389–390). The potential confusion surrounding feedback in an online environment supports the need for this study and future exploration as well.

Methodology

As teacher educators, we believe it is essential to systematically study our own practice as well as model for our students the power of practitioner research. This study grew from the discrepancy experienced between what we intended as instructors and what we experienced in our classrooms, laying the foundation for our inquiry to occur. Our goal is to contribute to the collective intellectual capacity of practitioners studying the problems of practice (Cochran-Smith & Lytle, 2009). The following research questions guided this study:

(1) How do students explain the function and value of feedback in an online and hybrid course?
(2) What is the impact of implementing feedback strategies in a distance education course on student learning?
(3) How do instructional feedback strategies work together within a distance education course to create a feedback system that supports student learning?

Research design

In the following section, we will describe how we used a case study approach to comprehensively examine the feedback systems in our own teacher education courses. Case study research is an intensive description and analysis of a single unit or bounded system and is often used when the connection between context and phenomenon is not clear (Merriam, 1998). This research is bounded by time, place, and participants, with a clear focus on two courses over three semesters. The design is broken down into two phases of data collection.

In phase I, an exploratory survey and focus group were conducted in Spring 2016 within our two teacher education courses. The purpose was to determine how feedback was understood and interpreted by students enrolled in our distance education courses (research question 1). Data were gathered regarding students' perception of current feedback practices and analyzed to determine which new feedback strategies should be implemented in Fall 2016 to address potential gaps in students' understanding of the feedback process.

Phase II took place in Fall 2016 and Spring 2017 and focused on implementation of the feedback strategies designed in response to the analysis of phase I data (research questions 2 and 3). We will discuss methodology and present our findings collectively, bringing together both of our experiences in order to highlight the overall impact that application of select feedback strategies had on student learning.

Research population

The study took place in two undergraduate courses in a teacher education program over the course of three semesters. Both courses were categorized as mostly to fully online on

the university course schedule and were capped at 30 students in each class. In Spring 2016, enrolments between both courses totaled 47; in Fall 2016, enrolments were 59; and in Spring 2017, they were 30. It is important to note that in Spring 2017 one of the authors was unable to teach the course due to other responsibilities, so data was only collected from one course. As our research was deemed exempt by our university's institutional review board, the need for informed consent documentation was waived. Our students were informed of our research and intentions, and all surveys were completely optional and anonymous.

Data collection

Phase I

The first phase of this study emerged in response to several conversations shared by the authors regarding how to best support their distance education students. Although we were spending a considerable amount of time and effort providing detailed, specific feedback on student work, we were frustrated by students' responses (or lack thereof) to the comments provided. Interested in learning more about students' perspectives on feedback, one author sent a brief three-question survey to all students enrolled in her fully and mostly online courses. The questions asked students to reflect on their instructor's feedback and share their thoughts on the most useful type of feedback, least useful type of feedback, and suggestions for how the instructor might improve feedback on future assignments. The other author, who was teaching a hybrid (mostly online) course, conducted a focus group based on the same three questions included in the online survey. The data collected in phase I were used to inform the methodology in phase II.

Phase II

In phase II, feedback strategies designed to deepen student understanding of online feedback and the course content were implemented within the courses to address some of the initial findings from phase 1 (see Table 2). Data collection in phase II focused on capturing the impact of these strategies on students' understanding of the function and value of feedback as well as the impact on their own learning within the courses. Formative assessments were used both as a strategy and a data collection tool to capture student learning. In addition, surveys were given following formative assessments to assess student understanding of feedback as well as to allow students to provide input for adjustments to strategies moving forward in the course. The survey questions focused on most and least helpful comments received, amount of revisions needed, and student opinion on various strategies. Surveys were given twice throughout the semester.

Data analysis

We used a systematic approach to reviewing the data as it was collected. Building from the constant comparative method, data was first analyzed and coded from our own course. We then met to analyze data from each other's course and discuss how this data impacted what we already knew about feedback from the beginning of this study. This dialog encouraged us to reflect on our own use of the feedback strategies and work together to make any

adjustments needed to refine the use of feedback strategies within our courses. The use of the constant comparative approach encourages analysis to be conducted simultaneously with data collection (Bogdan & Biklen, 2007). This allowed us to reflect on the data collected and consider the type of data needed as our proposed theory on an online feedback system began to emerge and change.

Findings

Phase I

The purpose of phase I data collection was to gather information regarding students' perception of the feedback practices we were already using in our courses. From the initial survey and focus group data, several themes emerged. Table 1 highlights these themes and includes baseline student response data on the topic of feedback as well as our interpretation and proposed implications.

Table 1. Student perception of current feedback practices and implications.

Examples	Interpretation and implications
'I liked that the Blackboard [LMS] was really organized by each week and by unit' 'The least useful feedback for me was the reading because it was just so much to read' 'The YouTube videos were very helpful'	Indicates lack of understanding regarding what feedback entails; references to course organization and content instead of feedback practices suggest a need for clarification of expectations and formative assessment process
'Group feedback - too confusing' 'Broad on some assignments' 'More in-depth feedback needed'	Indicates concern regarding feedback that is perceived as non-specific and/or unrelated to personal work; suggests a need for more extensive individual feedback as well as a clear rationale for the type of feedback provided by the instructor
'Being able to see what needed to be fixed helped understand the content a little more' 'Helped me change any errors … gave me a chance to change it for the final draft.' 'Most professors don't even bother to give feedback at all'	Indicates perceived benefit of multiple drafts and meaningful opportunities to revise and respond to feedback; emphasizes importance of formative assessment and its crucial role in the learning process

From these responses, it was evident that there were some gaps in students' understanding of feedback and the formative assessment process. Although some students highlighted their appreciation for opportunities to revise and resubmit their work for a higher grade, others cited course content and organization as useful forms of feedback. It was clear that these misconceptions about what feedback entailed would need to be addressed in order to successfully initiate the formative assessment process. In addition, multiple measures would be needed to support students throughout the assessment cycle.

Based on the student response data shared in Table 1, we chose to implement the following pre- and post-feedback strategies in conjunction with formative assessments, explicit feedback lessons, and feedback surveys. Table 2 outlines the selected feedback strategies and their intended purposes for use with formative assessments. The strategies identified as 'during feedback (ongoing)' will be implemented and investigated in future studies. The information below describes how we implemented formative assessments and the feedback strategies within our courses.

Table 2. Feedback strategies for distance education courses.

Proposed timeline for strategy use	Strategy	Intended purpose
Pre-feedback	Explicit directions for use of feedback	To outline instructor's expectations around revisions and feedback before submitting any assignments
	Examples of feedback often used by instructor	To outline instructor's expectations and expose students to phrases unique to instructor feedback and content before submitting any assignments
During feedback (ongoing)	Audio/video feedback	Use in place of written feedback (or in addition) to add depth to explanation as well as visual cues
	Comment back to instructor	Use LMS functions that enable students to comment back to instructor to indicate whether they understood feedback or need further clarification; may also exist as a like/dislike option in LMS
Post-feedback	Feedback survey	Use immediately after initial round of feedback to assess understanding of feedback; should lead to instructor revisions or another explicit lesson on feedback

Note: Pre- and post-feedback strategies are the focus of this study; 'During feedback' strategies will be implemented during the next phase of data collection.

Formative assessments

As discussed in the literature (Frey & Fisher, 2011; Kearns, 2012; Nicol & Macfarlane-Dick, 2006; Vardi, 2013), formative assessments provide opportunities to feed forward student learning and respond to feedback received. We implemented formative assessments with a first and final draft of key assignments in the course. Critical assignments that had previously called for only one final draft were redesigned to incorporate opportunities for us to provide feedback and further support students in constructing knowledge to develop a deeper understanding of course content.

Building on the principles of effective feedback, each student received personalized feedback on their first draft as well as ample time to apply feedback and complete revisions for a final draft. Although we recognize that formative assessments are not a new idea, we believe that they may be underused as a key component of a well-developed online feedback system. On our survey, one student indicated that, 'most professors don't even bother to give feedback at all,' thus suggesting that students often submit work once and never revisit the topic again. Not only is providing feedback essential, but it is also necessary to ensure that our students have opportunities to immediately apply feedback in a meaningful way on their next assignment.

Explicit feedback lessons

One of the findings from the baseline feedback data in Table 1 indicates that students were unclear about what feedback entailed as well as how to interpret and respond to feedback received on assignments. In order to prepare students to receive and respond to feedback, we delivered lessons with explicit instruction on feedback early in each course, including operational definitions of feedback, examples of feedback (specific to the instructor), and expectations of revisions and questions for clarification. To present our explicit feedback lessons, we each created lecture videos featuring a narrated PowerPoint presentation. The videos were shared through our university's learning management system before students

submitted their first formative assessment draft. Student were encouraged to watch the video in preparation for responding to the first draft feedback once received.

Feedback surveys

After students had the opportunity to apply instructor feedback to revise their work and submit their final draft of the formative assessments, they were administered a survey regarding their experiences with the formative assessment process (of the 89 students, 57 completed the survey, a response rate of about 64%). The purpose of the survey was to gather data regarding student perception of feedback, including the most and least effective comments, number of revisions, and suggestions for instructor improvement. The survey consisted of 6–8 questions, which varied slightly based on the assignments completed in the course or recent data analysis indicating issues that we needed to explore. This survey was given no more than two times per semester and results were often shared with the students, formally or informally, in order to validate our interpretation of the results.

The findings from phase I of data collection reveal students' perceptions and misconceptions surrounding instructor feedback as well as the need to alter our feedback system for the distance education environment. The following section presents additional findings based on implementation of the modified feedback system, including the use of formative assessments and targeted feedback strategies.

Phase II

Phase II investigated the impact of the selected feedback strategies on student learning as well as students' understanding of the intended purpose of feedback. Through our own observations of students within our courses, we surmised that students did not understand our feedback or how to use it appropriately within their course assignments. It was our goal to use the selected feedback strategies to remove any obstacles that might limit their ability to demonstrate learned knowledge and use formative assessments to accurately assess their growth across key areas within the course. In the sections that follow, we report on the results of data collected from formative assessments as well as specific strategies implemented in the two courses.

Formative assessments

Formative assessments were used to gather data on student growth within identified skill areas on key assignments within the course. The use of formative assessments is a research-based practice, and we felt it was essential for us to build in the time and space for students to apply their feedback in a revised assignment. The rubric used to score students on first and final drafts on multiple formative assessments includes three levels: developing, competent, and exemplary. In order to score exemplary in each category, students must demonstrate the following:

- Informational literacy knowledge: the student differentiates peer-reviewed articles from popular works and uses them as appropriate for the chosen inquiry topic, critically evaluates content within articles, and uses APA format accurately.
- Critical thinking: interpretation of the article is thorough and accurate without errors. Interpretation goes beyond summary of the article and demonstrates critical thought about the outcomes and implications to the field of the chosen inquiry topic.

- Communication: oral and written communication is completely focused, organized, and clear with no errors affecting comprehension.
- Formulating questions: the student identifies and consistently discusses questions, problems, and principles within the field of the chosen inquiry topic; and uses literature to support the identified problems.

Table 3 illustrates the growth across skills identified on course rubrics as key indicators in the course (informational literacy knowledge, critical thinking, communication, and formulating questions). It includes averages across first and final drafts to indicate the percentage of students who scored at that level of the rubric.

Table 3. Average percentage of students scoring at rubric levels over the course of multiple assignments.

Rubric area	Developing	Competent	Exemplary
Informational literacy knowledge– first draft	18	34.5	18
Informational literacy knowledge—final draft	0	22.5	61.5
Critical thinking—first draft	20	49	41
Critical thinking—final draft	7	17	79
Communication—first draft	10	59	30.5
Communication—final draft	7	21.5	74
Formulating questions—first draft	16	50	33
Formulating questions—final draft	8	4	88

In each area of the rubric, there was substantial growth between the first and final draft, with well over half of the class achieving an 'exemplary' score in every area in the final draft. Included in the area of informational literacy knowledge is proper use of American Psychological Association (APA) guidelines as well as a demonstration of knowledge of the difference between academic articles and entertainment publications. APA use, specifically within the areas of references and in-text citations, is an area that, historically, our students struggle with, as evidenced by only 18% of students scoring exemplary on first drafts within course assignments. The growth in this area within a semester is specifically encouraging, with 61.5% of students ending the course at an exemplary level. Furthermore, students commented within the feedback surveys that specific feedback on their use of APA was among some of the most helpful comments they received, citing examples such as 'fixing grammatical errors and APA formatting' and 'citation issues.' The combination of a formative assessment with two drafts and specific feedback that students understood and could effectively apply greatly impacted their growth in learning.

Explicit feedback lessons

As mentioned, the objective of the explicit feedback lesson was to frontload knowledge about the feedback process itself. Each author designed her own lesson that explained what feedback was, gave examples of feedback often used by the instructor, and set the expectation that feedback should be applied to the next draft or assignment in the course. A survey eliciting data on the feedback process was given twice during the semester following key formative assessments. When asked about the usefulness of the explicit feedback lesson in understanding their instructor's feedback, 90% of students who completed the survey reported that the lecture helped them assimilate and respond to draft comments and

feedback. Additionally, 100% of students who completed the surveys indicated that they felt more confident in their revisions which suggests that students understood how to apply the feedback they received on assignments. This differs greatly from the baseline data collected in phase I, where student comments indicated they were unsure of what feedback was and what it should be used for.

Feedback surveys

After students had the opportunity to apply instructor feedback to revise their work and submit their final draft of the formative assessments, they were administered a survey regarding their experiences with the formative assessment process. The purpose of the survey was to gather data regarding student perception of feedback including the most and least effective comments, number of revisions, and suggestions for instructor improvement. Table 4 includes select survey questions and sample student responses (in addition to data already shared from survey results in previous findings). These questions were also featured on the baseline survey administered during phase I of the study.

Table 4. Feedback survey questions and selected student responses.

Survey questions	Sample student responses
What was the MOST helpful piece of feedback?	'Knowing the exact components I was missing as well as a resource being provided for me to look back on for that specific mistake' 'The simple questions that were asked and cleared up my understanding' 'The comments on what I was missing. Also the specificity of the comments'
What was the LEAST helpful piece of feedback?	'Think a bit deeper' 'Conflicting. Felt like the feedback didn't align' 'To do another review for grammar errors'
What can your instructor do to improve feedback?	'Go over common mistakes that were seen on the assignment and go over how to fix them with the class' 'Include a little more detail on what exactly to fix' 'Maybe she can find a way to signal the different types of errors in student work (grammatical, content, etc.)'

These responses illustrate the forms of feedback provided, including specific comments, recommended resources, and prompts and questioning, which are representative of the effective feedback practices discussed in the literature (Guasch et al., 2013; Nicol & Macfarlane-Dick, 2006; Wiliam, 2012). Some students referenced instructor feedback that addressed specific elements related to their course content such as how to follow APA guidelines. One student indicated that he/she was 'not used to APA style and was more used to using MLA.' Other helpful APA feedback included, 'how to change my first quote into a block quote' and 'where to exactly look for the citations.' Although students praised comments that they perceived as specific to their work, results also reveal that general comments, on the other hand, such as telling them to 'think a bit deeper' or to 'do another review for grammar errors,' were not helpful. Suggestions for improvement indicate that students prefer when their instructor tells them exactly what is wrong and how to fix it.

Recommendations

This study emerged in an effort to address personal challenges to supporting students enrolled in our online courses. Due to the asynchronous nature of distance education courses,

we realized that additional effort was needed to ensure that students were prepared to receive and respond to feedback properly. After three semesters of research as well as plans to continue this line of inquiry, we are proposing further research for a feedback model that brings together the strategies researched and calls attention to key points in feedback delivery where breakdowns may occur.

Online feedback model

Based on our experiences as well as the results of both quantitative and qualitative data analyses, we have attempted to create a visual that captures the elements described in the previous sections. Figure 1 depicts a feedback cycle that may occur with the use of formative assessments in an online environment. We propose that there are two places along this cycle where frustration and pitfalls are likely to occur, largely resulting in students abandoning the goal or rejecting the distance educator's feedback. Based on these pitfalls, which are discussed below, we believe that implementation of the feedback strategies mentioned in Table 2 are necessary at various points during the formative assessment process.

Potential pitfall: Misunderstood feedback

The first potential pitfall occurs when a student receives feedback on a formative assessment from the distance educator. If the student understands the feedback and can address suggestions for the assessment, there is no problem, and the feedback cycle continues as intended. However, in cases where feedback is confusing to students, a few possible scenarios can occur: the student can contact the distance educator for clarification; the student can attempt to make revisions without a full understanding of what changes are needed; or the student can ignore the feedback and fail to make the suggested changes. Only in the case when a student reaches out for clarification, is there an opportunity to ensure the feedback cycle continues. For these reasons, we propose the use of frontloaded feedback strategies, such as a explicit feedback lesson to help students gain a clear understanding of feedback before they receive it. It is crucial that distance educators are clear about their expectations and their commitment to student growth and learning through feedback. Students must be informed that detailed feedback will be provided on assignments and that they are expected to address the educator's comments in subsequent drafts. It may require a shift in mindset for students who are accustomed to turning in one final draft that demonstrates complete mastery on the first attempt.

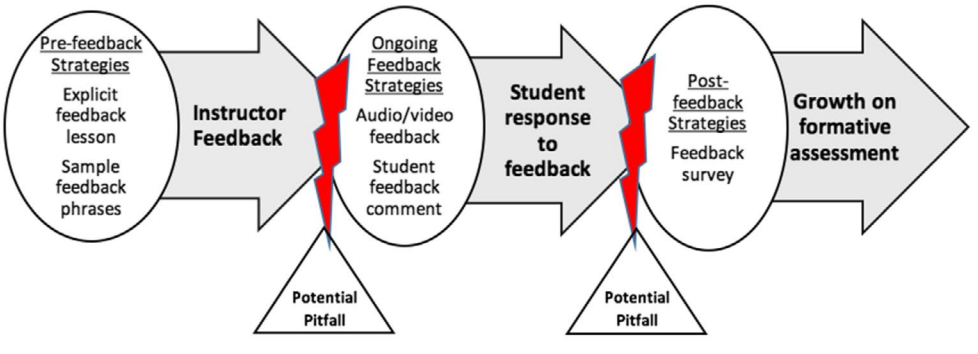

Figure 1. Feedback model with potential pitfalls in a distance education environment.

Potential pitfall: Incorrect response to feedback

Another potential pitfall may occur when a student does not seek clarification due to the belief that he/she has appropriately understood the feedback. In another situation, a student might not attempt to make revisions due to confusion surrounding the feedback. If the distance educator is not aware that a student did not understand, his or her perception of the student's ability or commitment to the assignment may suffer. As noted earlier, feedback is an opportunity to build interpersonal relationships with students and community in distance education course. However, with assumptions of understanding on the part of the distance educator, frustration may occur when there is a belief that the student did not incorporate the feedback that was crafted specifically for him/her. Our use of feedback surveys directly following formative assessments is designed to keep us informed and clued in to any misunderstandings that might occur during the feedback process.

Although we continue to research this model, our initial results regarding the use of pre- and post-feedback strategies are promising. In an effort to avoid the pitfalls that can occur when giving feedback online, we recommend the use of a multifaceted feedback system that includes multiple-draft formative assessments coupled with the suggested feedback strategies. The design of this feedback system is strategic in order to keep both the instructor and student constantly engaged in the feedback process.

Implications

The use of multiple feedback strategies had a positive impact on student learning and created a space within the course for both the distance educator and student to reflect on feedback and the formative assessment process. It is important to note that any one of these strategies would likely have a positive impact on student learning; however, the use of multiple strategies puts a clear focus on feedback as a vehicle for student learning. In addition, the use of strategies at different stages of the cycle (pre-feedback, during feedback, and post-feedback) emphasizes the distance educator's commitment to avoiding these potential pitfalls by frontloading instruction on feedback and providing clear expectations.

Results from the feedback survey regarding how to improve feedback alerted us to be even more explicit in our feedback lesson to include not only the type of feedback students should expect to receive but also the type of feedback they should not expect. Although students requested feedback indicating exactly what was wrong and how to correct it, as teacher educators, we must also emphasize the important role of active learning strategies and problem-solving in addition to our required academic content; therefore, telling students how to fix their mistakes would contradict our pedagogical views. Instead of changing the type of feedback according to students' requests, we will continue to alter our feedback lessons to emphasize how our feedback practices can contribute to helping students become independent thinkers and learners.

Through the use of explicit feedback strategies, we hoped to learn more about how to maximize the impact of feedback in an online setting and work with students to learn more about how feedback and its use as an instructional strategy may change in an online setting. Reflecting on how feedback is furthering student learning should be an essential part of an educator's instructional practice. Having students also reflect on their own understanding of feedback, how it makes them feel, and what action they can take as a result, can also

contribute to the process of feeding forward (Quinton & Smallbone, 2010). Our next phase of research will focus on the implementation of during feedback strategies (see Table 2), in which we will further investigate the importance of dialog and reflection as part of the feedback and assessment process.

Conclusion

As distance education opportunities continue to increase, it is necessary to reexamine traditional instructional strategies to see where modifications are needed for teaching in new mediums. The goal of the proposed feedback system and accompanying model is to call attention to the obstacles that can exist when giving feedback in a distance education setting. Based on our experiences as well as phase I data on student perception of feedback, feedback strategies were designed and implemented to assess the impact on student learning and student perception of feedback. The initial results support our belief that feedback is not only an essential part of student success in distance education, but also that careful attention must be paid to how this instructional strategy is used and modified by distance educators.

Because feedback is an essential tool to scaffold learning and forge relationships between distance educators and their students, it is increasingly important to anticipate potential pitfalls and front load instruction, not only on discipline-related content, but also on feedback and expectations. Results from the survey and focus group administered during phase I reveal misconceptions regarding what feedback entailed as well as how to respond to it. Students also indicated that other instructors rarely took the time to provide feedback or allow them to revise assignments; therefore, explicit instruction was needed to clarify our expectations for how students should proceed once feedback was received. If students are accustomed to submitting one final draft with no plans to revisit their work, the concepts of formative assessments, multiple drafts, and feedback are likely to require a significant shift in mindset and direct instruction on this topic.

Initial results indicate that the explicit feedback lessons prepared students to receive and respond to their distance educator's comments more readily. The feedback survey provides an avenue for students to reflect on the feedback that they received and offer suggestions that may enable instructors to refine their practices. We will continue to refine this feedback system and implement 'during feedback (ongoing)' strategies in addition to the pre- and post-feedback strategies discussed in this manuscript. The results of this study and the proposed feedback model aim to assist distance educators by identifying potential pitfalls in online feedback and utilizing multiple strategies to minimize breakdowns in the feedback cycle.

Disclosure statement

No potential conflict of interest was reported by the authors.

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