By Their Pupils They'll Be Taught: Using Critical Incident Questionnaire as Feedback

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Abstract

Can students teach their professors? The purpose of this study was to determine if students provided more immediate feedback to the professor on what engaged them and what distanced them in their learning and if the professor made changes to course delivery based on that feedback, would students become more engaged in their learning. In this action research study, a cohort of thirteen teacher education students responded bi-weekly using Critical Incident Questionnaires identifying what engaged them and what distanced them in the course. The sooner, rather than later, feedback to their professor allowed the professor to make changes to course delivery throughout the semester and thus helped students become more engaged in their own learning. The study found that the use of Critical Incident Questionnaires helped the professor assess her own teaching, make adjustments to class delivery based on student feedback to engender greater student engagement, and encourage future teachers to engage in the process of self-reflection.

It's a very ancient saying
But a true and honest thought
That if you become a teacher,
By your pupils you'll be taught.
(The King and I, 1956)

Teachers reflecting on their practice have a long history in the United States. John Dewey (1859-1952) and Kurt Lewin (1890-1947) are among the early supporters of this practice known today as action research (Mills, 2014). Action research provides teachers with a way to be problem solvers in their own classrooms with the intent to improve student learning while engaging in reflective practice. Unlike most research on education where the teacher or student is studied by an outsider, in action research, the teacher is the researcher. According to Gay, Mills, & Airasian (2012), "Action research is also about incorporating into a teacher's daily routine a reflective stance—a willingness to look critically at one's own teaching so that it can be improved or enhanced" (p. 508). Student feedback is one way teachers can study their own practice. This feedback is one of the most powerful influences on teaching and learning (Hattie & Timperley, 2007) and, unfortunately, although research recognizes the importance of feedback, minimal research exists on its effectiveness in higher education. In addition, considerable research

indicates this feedback is ineffective, untimely, and lacks incentives to improve teaching (Bianachi, 2014; Blair & Valdez Noel, 2014; Huybers, 2014). The purpose of this study was to determine if timely and informative feedback to the professor could result in greater student engagement if the professor used the feedback to make course changes throughout the semester.

The Research Question

A professor in a teacher education program in a private college in New York City was disappointed with feedback she received from students via course evaluations at the end of each semester; feedback after the course ended seemed pointless. This professor wondered if she knew earlier what engaged or distanced students could she make changes to the course during the semester.

In her first three years the professor (Grace) taught seven different courses. Grace questioned if generic changes she made to new courses based on end-of-semester evaluation feedback from previous courses were effective. In her fourth year Grace taught yet another new course, the first pedagogy course in the program for teacher candidates. Thirteen students in the fall of their sophomore year were registered to take the course, and they would take the second pedagogy course the following semester. She recognized this as an opportunity to work with the same group of students for two consecutive semesters, and her goal was to increase their engagement. Her research focused on using the feedback these students provided during the two consecutive semesters and to make changes to her teaching by adapting her strategies based on the students' feedback with the goal of promoting greater student engagement.

This question drove her study: Can regular student feedback during the course assist the professor in making immediate changes in course delivery to promote greater student engagement? This article details findings from data collected from the thirteen participants over two semesters.

Review of the Literature

Importance of Student Engagement

Student engagement is a predictor of college completion. Price & Tovar (2014) found that active and collaborative learning is a positive predictor of graduation rates. When professors incorporate active and collaborative learning practices, these yield better student engagement and success. A study on support, belonging, motivation, and engagement described engagement as the time and energy students invest in their learning activities (Zumbrunn, McKim, Buhs, & Hawley, 2014). Students' sense of belonging is linked to their level of achievement, and higher levels of engagement are linked to higher grades.

In a recent synthesis of the literature on student engagement, researchers concluded the primary elements of the learning environment—student, teacher, and content and how these interact—impact student engagement (Bundick, Quaglia, Corso, & Haywood, 2014). Research indicates that greater student engagement has many desirable results for students as well as for professors and their institutions (Bundick, et al., 2014). Student engagement results in academic and life success and engagement between learner and professor promotes critical thinking and a sense of connectedness to colleagues and content.

When students value academics and believe in their own ability to complete tasks and set and attain goals, they are more cognitively engaged. These students attend classes and participate regularly, put effort into their academic tasks, seek challenges, plan, monitor, and evaluate their own thinking, and collaborate with others. Professors who create an emotionally safe environment by incorporating collaborative activities, encourage student contribution and sense of connectedness to colleagues and the content, and provide opportunities for honest and respectful feedback help students connect their current effort with future goals.

Each year freshmen at colleges and universities complete the National Survey of Student Engagement (NSSE) (2012). This survey collects information on students' perceived levels of engagement in programs and activities the institution provides. The survey reports on engagement in academic challenge, learning with peers, and experiences with faculty. This can provide valuable information to the institution if the data is studied and the institution uses the data to develop opportunities for even greater student engagement.

Using Feedback to Improve Teaching and Learning

While research indicates the importance of feedback in the classroom, minimal research exists on the effective use of feedback in higher education. Blair and Valdez Noel (2014) conducted a study on the effectiveness of course evaluations—the most common form of feedback to professors—by asking one question of the participants: How do you think this course could be improved? While the literature supports student evaluation systems as a means to teacher improvement, their study found little evidence that evaluations led to teacher improvement.

Other researchers had similar findings. For example, few items on course and teacher evaluations relate to student learning; current evaluations are fragmented and professors and institutions did not change over time nor enhance teacher performance based on course and teacher evaluations (Blair & Valdez, 2014; Bianchini, 2014; Frick, Chadha, Watson, & Zlatkovska, 2010). Therefore the question remains: If these standardized tools yield minimal practical information for professors, does it make sense to continue using

these assessments when it does not improve practice for the professor or learning for the student? And if these instruments are not providing information to improve teaching and learning, then how can educators who have an interest in quality education improve their practice?

While feedback is one of the most beneficial aspects for improving teaching and learning, current practices in higher education for gathering this feedback does not seem to promote greater quality of teaching by professors or the institutions (Bianchini, 2014). More effective ways for gathering feedback from students sooner, rather than later, are needed for professors to make changes to engage students in their own learning. In order for feedback to be effective, the feedback must be used.

Examining Feedback through Action Research

The practices of teaching can be examined, changed, and ultimately transformed through the self-reflective process of action research. Sagor (2005) describes the process of action research as a "disciplined process of inquiry considered by and for those taking the action. The primary reason for engaging in action research is to assist the actor in improving or refining his or her actions" (p. 1). When the action researcher—which in most cases is the teacher—takes into account the views of others, this can "lead to knowledge from and about educational practice" (McNiff, Lomax, & Whitehead, 1996, p. 8). Action research involves professionals studying their own practice in order to improve it (Kemmis, 2011). In this study student feedback from Critical Incident Questionnaires gave Grace insights on how to transform her teaching and generate greater student engagement.

Focus Statement

The purpose of this study was to determine if regular student feedback to the professor could help her make changes that would promote greater student engagement. This research was conducted over two semesters with the same thirteen participants in their sophomore year who agreed to be part of this study. In the first course, which was mainly face-to-face but included some on-line classes, students completed pre- and post-course surveys on their own perceived engagement and also completed the course evaluation at the end of the semester. Results of the data led to the action plan in the second course to gather and use more effective feedback that would result in greater student engagement.

The First Course

In the first week of the first course, students completed a survey of selected questions from National Survey of Student Engagement (2012) in areas that addressed academic challenge, active and collaborative learning, and enriching educational experiences. The purpose of the survey was to determine students' perceived level of engagement of their first year in college. The same survey was repeated at the end of the semester

to determine if there was any change in student engagement. All thirteen students responded anonymously to both surveys and answered all questions.

Results from the pre-course survey for this cohort revealed:

- 46% asked questions in class or contributed to class discussions
- 54% made class presentations
- 31% worked with classmates outside of class to prepare class assignments
- 8% participated in a learning community
- 46% discussed ideas from readings or classes with others outside of class
- 31% used an electronic medium (listserv, chat group, Internet, instant messaging, etc.) to discuss or complete assignments

Less than half of this group previously participated in class discussions, collaborated on a regular basis outside class, or used technology to collaborate on assignments. Knowing each class is unique and the makeup and interaction of the group is also distinctive, Grace needed a way to determine which college experiences the students had and how their experiences would shape her decisions for course delivery.

Analyzing Results of the Initial Survey

Student responses in the pre-course survey indicated some level of engagement in previous classes as they reported their former courses emphasized analysis, synthesis, and application but limited collaboration. In the first course Grace deliberately incorporated collaborative learning activities including group presentations, writing a response/reaction paper to promote critical thinking, and using an electronic medium to discuss and complete course assignments to promote student engagement.

Results from the First Course

As the semester came to a close, students completed the survey again. In comparing pre- and post-course survey results, more students reported asking questions, making presentations, having conversations with diverse students, and using evaluation within their course work. While these results showed some changes in student engagement, Grace wondered what else she could do to promote even greater engagement. Her action plan was to incorporate the Critical Incident Questionnaire in the next course the following semester.

Critical Incident Questionnaire

Critical Incident Questionnaire (CIQ) is Brookfield's (2007) model for critical reflection. Although the model dates back 20 years, it is still used by practitioners today (Phelan, 2012). The CIQ is a brief written report completed by participants about their experience of learning. Students respond anonymously to five questions:

1) At what moment in class these two weeks were you most engaged?
2) At what moment in class these two weeks were you most distanced?
3) What action that anyone in the room took during these two weeks did you find most affirming or helpful?
4) What actions that anyone in the room took did you find most puzzling or confusing?
5) What surprised you most about class these two weeks?

Critical incidents are vivid happenings that for some reason people remember as significant (Woods, 1993). Every class contains such moments and teachers need to know what they are so they can plan accordingly for other vivid happenings. CIQs have been used in a variety of research in both face-to-face and on-line courses for exploring how and what learners perceive as significant incidents of learning (Gilstrap & Dupree, 2008; Hedberg, 2009). Sufficient evidence indicates that the tool can be used to inform research findings and teaching (Keefer, 2009). The CIQ provides accurate information about students' learning on a regular basis as the responses allow teachers to monitor the emotional highs and lows of student learning and enable teachers to make adjustments in teaching based on this information (Brookfield, 2011).

Using the CIQ

The first CIQ was used in the second week of class in the new semester with students completing the questionnaire at the end of the last class in the second week. Grace read the responses, noted common themes, and in the following class reported a summary of themes that emerged to students.

Analyzing the CIQ

In the first CIQ students reported they were most engaged in activities they did as groups including creating interview questions, conducting interviews, listening to results of group interviews, and discussions on presentations. Students felt least engaged when participating in an on-line class which was almost a unanimous response as students commented, "the PowerPoint was too hard to follow," and included only "slight group interaction." Students reported working as a group, giving and receiving feedback on group presentations, and questions that students asked which "made me think of better interview questions" were most helpful and affirming. According to the students in the

on-line class, the most puzzling or confusing action was a class "without face-to-face" interaction. Students were also most surprised by how well their interviews went and how comfortable everyone was with presenting.

Grace found the first report informative and encouraging as students reported they enjoyed working together on projects and presentations in contrast to isolation with on-line classes. Without eliminating on-line, she had to find a better way to organize on-line classes to allow for more engagement.

The second round of CIQs revealed that discussions were the most engaging activity. Students investigated forms of discussion based on Brookfield and Preskill's (2005) Discussion as a Way of Teaching. Each group used techniques to lead a discussion on a selected article. Students commented on what was affirming and helpful: "The science group had an interactive activity for their discussion," and "Presentations were great—students have passion for their content areas." Students were least engaged when they took lecture notes. They were surprised by the seeming ease with which their colleagues led discussions and how "quotes I passed over in articles others found and drew meaning—how we notice different concepts."

As the weeks progressed students became more focused on describing their own engagement by citing specific class activities as they commented on critical debates and the benefits of post discussion reflections. They acknowledged classmates who were specifically helpful and explained what the classmate did such as "great discussion facilitator," and how the math group made a discussion "more intense with deep conviction."

As the semester continued fewer comments were made on being distanced in class and on what was confusing or puzzling. Students also began to honestly critique class presentations with comments such as, "I struggled to understand the social studies and English group," and "Listening to presentations without handouts was difficult." Some weeks even had no comments on actions that were puzzling or confusing.

Adjusting Instruction

After each bi-weekly review, Grace made adjustments to her teaching strategies based on the feedback from the students. One significant adjustment was in the on-line class instruction as PowerPoint presentations were eliminated and some form of group interaction was incorporated. On-line classes were announced in advance and students made arrangements to work with colleagues at a mutually convenient time. Discussion techniques were included through a forum so students could talk with each other at some point before the next class.

Another adjustment was with similar instruction in the face-to-face class. Slides were made available in the course delivery platform, yet few students used them. Previously, when slides were used, students were intent on copying the slide and missed the discussion. As a result of students' feedback, slides were limited to no more than four in a 50 minute class.

Discussion techniques, which were already used frequently especially with assigned articles, were changed as students were told in advance which discussion technique would be used so they could better prepare for class. In addition, at least one group activity became a part of every class. These group activities included discussions or group projects planned in or outside of class, but always delivered to an audience. Feedback time for students to respond to each other also became a part of each discussion.

A Culminating CIQ

At the end of the second course, students completed a culminating CIQ reflecting on the entire course as they answered the five questions. The purpose of this culminating CIQ was to determine if what students shared during the course was what they still experienced at the end of the course. This survey gave insights into incidents that were ongoing

In the final CIQ, students listed group discussions and related techniques, projects, presentations, teaching and watching peers teach, and field experience as most engaging. Least engaging moments included videos, PowerPoint lectures, note-taking in class, and on-line classes. Most helpful actions were group interaction and lessons, peer questions, constant contact with each other, graphic organizers, discussions shared with peers, and sharing personal experiences. Three actions were listed as confusing or puzzling: on-line classes, taking notes, and a group member not knowing what to do. Students said what surprised them most was,"classmates solving problems together," "how much I learned," "all the differentiation," and the "tight knit community created as a result of the class."

Evaluating, Reflecting, and Next Steps

The Critical Incident Questionnaire (2007) allowed Grace to examine her practice through her students' eyes. Student feedback was timely and informative, allowed her to make adjustments to the course as the course progressed, and indicated the learning activities and strategies students determined engaged them most. Comments on when they felt most distanced during class gave her insights into strategies least effective for this group and the culminating CIQ allowed her to evaluate the consistency of students' comments throughout the course. Students also completed the same post-course survey to measure their current perceptions of their own engagement.

What Was Learned?

Data from the CIQs suggested that strategies that promote collaboration—group projects, presentations, interviews, discussions, observing peer teaching, and field experience—were most engaging. These strategies required students to be actively involved in their own learning and in developing learning with colleagues. In addition to discovering engaging strategies, the study revealed which typical college strategies did not work well for these students. PowerPoint presentations seem to have run their course with these students, or these students did not know how to use them to enhance their learning. These students did not find on-line classes engaging as they described the experience as isolating and disengaging because they could not ask an immediate question or hear what others were thinking.

The study also indicated the CIQ to be most effective in engaging students in their own thinking and providing feedback to the professor. In contrast to end of semester course evaluations, this form of on-going feedback was immediate and allowed her to make changes while the course was in process. Feedback to the professor and shared with the class also provided participants an opportunity to hear how learning was happening for colleagues and discover the effects their actions had on one another. This reflective practice for students introduced them to this teaching practice, which they can use in their own classrooms.

Students completed a final post-course survey at the end of their sophomore year and at the end of the course. This survey showed that in many categories, students indicated higher levels of engagement from when they started their sophomore year to the end of the year. While the increase in the percent scores was minimal, the data reveals some greater levels of engagement is included in Table 1.

Table 1.

Pre-course and Post-Course Survey Comparison

Survey Statements	Pre-Course	Post-Course
1. Asked questions in class or contributed to class discussions	46%	69%
2. Made a class presentation	54%	92%
3. Worked with other students on projects during class	54%	54%
4. Worked with classmates outside of class to prepare class assignments	31%	38%
5. Tutored or taught other students (paid or voluntary)	15%	15%
6. Participated in a community-based project (e.g. service		

learning) as part of a regular course	8%	15%
7. Used an electronic medium (listserv, chat group, Internet, instant messaging, etc.) to discuss or complete assignments	31%	54%
8. Worked harder than you thought you could to meet an instructor's standards or expectations	62%	85%
9. Discussed ideas from your readings or classes with others outside of class (students, family, co-workers, etc.)	46%	69%
10. Had serious conversations with students who are very different from you in terms of ethnicity, religious beliefs, opinions	46%	69%
11. Coursework emphasizes: Analyzing the basic elements of an idea, experience, or theory	85%	85%
12. Coursework emphasizes: Synthesizing and organizing ideas, information, or experiences	100%	92%
13. Coursework emphasizes: Making judgments about the value of information, arguments, or methods	62%	85%
14. Coursework emphasizes: Applying theories or concepts to practical problems or in new situations	77%	85%
15. Number of papers or written reports between 5 and 19 pages	-	-
16. Choose the response that best represents the extent to which your examinations challenged you to do your best work	69%	62%
17. Will you participate in practicum, internship, field experience, or clinical assignment	85%	92%
18. Will you participate in community service or volunteer work	85%	92%
19. Will you participate in a learning community or some other formal program where groups of students take two or more classes together	54%	77%
20. Will you work on a research project with a faculty member outside of course or program requirements	23%	62%
21. How much time do you spend preparing for class (studying, reading, writing, doing homework, analyzing data, rehearsing, and other academic activities (6-15 hours per week)	69%	69%
22. How much time do you spend participating in co-curricular activities (organizations, clubs, student government, intercollegiate or intramural sports?		

(6-15 hours per week)	54%	62%
23. How often are you spending significant amounts of time studying and on academic work	77%	92%

Note. The % represents the students who responded very often or often, or the combination of the two highest scores for the statement. Questions 17-20 include responses of done or plan to.

Limitations of the Study

This study examined the use of Critical Incident Questionnaires (2007) as a means of feedback to the professor. The study also examined if student engagement could increase because the professor used student feedback while the course was in process. Both aspects of the study present limitations. One limitation in using Critical Incident Questionnaires (CIQs) is that the instrument was used in a short period of time. In each semester, students completed the CIQ about seven times. While the instrument has only five questions, answering the same five questions every other week can become burdensome and student responses may become less valid and reliable. Another limitation of the CIQ is the interpretation of student responses by the researcher. Qualitative data is harder to interpret and analyze, and student handwriting may be a factor in reading and correctly translating the response.

Using the data to make adjustments to the class may not always be possible. While students may respond that they are less engaged with on-line classes, making adaptations that may engage some students may also alienate other students. A definite limitation of this study is the small number of participants. The researcher was fortunate to have the same thirteen students in both semesters, but that is not likely to happen on a regular basis. Losing or gaining additional participants can alter the results.

Responding anonymously to a survey may also be a limitation as participants may feel they can react on paper rather than reflect as is the intent of this instrument. Related to the small number of participants, a small class size may lead to the professor being able to recognize penmanship or writing style, which in turn eliminates anonymity. Measuring student engagement through a survey also has its limitations as an observation tool may be more effective to note levels of engagement. One cannot verify that the use of CIQs caused greater student engagement.

Finally, drawing conclusions based on the limited number students' responses to the survey is obviously limited. The survey, based on valid and reliable questions from the National Survey of Student Engagement (2012), may not provide valid and reliable data for this study. The study needs to be replicated with more participants and in diverse settings to establish reliability and validity.

Discussion

This action research study is on-going because improving teaching and learning is never finished. The goal of this research was to determine ways to engage students in their own learning. Student feedback in the form of CIQs on what engaged and distanced them was used to plan for greater engagement. These students indicated forms of collaboration engaged them while working in isolation did not and Grace changed her course delivery throughout the course as she learned what activities engaged this group of learners.

In the final CIQ, students reported they invested time and energy when they were engaged in group projects, presentations, interviews, discussions, observing peer teaching, and field experience. The post-course survey results indicated that students were more engaged at the end of this semester than at the beginning of the previous semester because bi-weekly feedback allowed Grace to make immediate adjustments to the course. Student responses to questions one and three from the CIQ gave insights to the professor on learning activities that students found engaging while responses to questions two and four indicated the disengaging activities that needed to be adjusted or eliminated. These adjustments could be made while the course was still in session. While one would like to believe the engagement strategies identified by this cohort has transferability to every cohort that may not be the case. Significant happenings for each group and the impact the cohort has on each other will need to be determined for each individual group.

Further studies need to be made on the effectiveness of CIQs. In this study, CIQs were used bi-weekly over two semesters. While the feedback from students was timely and informative, this frequent use of the instrument may eventually cause students to merely answer the questions just to complete the task. How often CIQs should be used in a course needs to be determined by the user.

CIQ's also had two benefits for the students. The CIQ gave them an anonymous voice as this silent and anonymous report allowed students to speak their minds without fear of retaliation from colleagues or the professor. CIQs allowed students to hear what their colleagues were thinking as each time they completed the CIQ, Grace began the next class with a summary report of what students shared. This was a form of engagement that increased individual and class participation.

While a set of engagement strategies totally transferrable for all teacher candidates may never be determined, what can further develop student engagement is the information gathered by professors who use CIQs. When a professor receives student feedback at the end of the course, the course is over, students are already gone, and no change can be made to improve teaching, learning, or engagement for students in that course. When CIQs are used throughout the semester, immediate adjustments can be made as

the professor learns what engages or disengages her students. Students can teach their professors, and perhaps this experience for these teacher candidates will eventually inspire them to use CIQs in their own classrooms as they discover the pulse of learning for students they teach.

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