



Bidirectional and Collaborative Feedback between Instructors and Students for Scholarship of Teaching and Learning (SoTL)

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Abstract

Feedback is specific, nonjudgmental information, comparing performance with a standard, with an intention to improve performance. Students and faculty must incorporate feedback to develop expertise in both teaching and learning. In this paper, a methodology is proposed for bidirectional and collaborative feedback between instructors and students for scholarship of teaching and learning (SoTL). And it was used in a University course - EE 263: Digital Logic Design. The course evaluation showed that with new feedback method, the evaluation measurement for overall performance of instructors increases by 11.3%. Regarding to course policies, useful feedback, course comparison, examinations and assignments, difficult concepts, and online materials, the evaluation measurement increases respectively by 10%, 10%, 6%, 15%, 8%, and 6%.

1. Introduction

The current practice on feedback in Universities is that students provide feedback to their instructors in the mid-term or final-term of the course, that are primarily unidirectional. While this approach may partly improve the teaching and learning, but sometimes, it will produce side effect and even hurt the effective teaching and learning. There are three reasons: 1) In one class, students have so different backgrounds and preferences, so their feedbacks usually subjective and hard to be always shared with all other students; 2) In one class, for example, there are totally around 30 students, instructors are impossible to always change to follow all of suggestions from feedbacks. Students have to adapt instructors sometimes; 3) Universities have built a complete system to collect students' feedback, but instructors also need to some paths to give suggestions to change students; 4) Instructors' feedback raise a thought for students to check themselves to give the efficient and objective feedback to instructors. We all know that in SoTL (Scholarship of Teaching and Learning) concept, instructors and students work best when information goes both ways [1]. From instructors to students and from students to instructors, feedback can travel, and both people work as a team, so students improve their performance, and instructors improve their ability to help students perform better [2].

2. Methods

In my research, I used courses - EE 263: Digital Logic Design, which was provided by Department of Electrical and Computer Engineering at University of South Alabama (USA) as research scenario. It was a required course for the Electrical Engineering and Computer Engineering

programs, 3 credits, class time: Tu. Th. 8:00 - 9:15 for 16 weeks for both Spring and Fall semester. The students usually were sophomore and junior. The prerequisite for this course was CIS 210 - Introduction to C++ Programming. The requirement for the class was minimum Grade of C. The students included White, Asian, Black, Hispanic, and Woman students. I was the only faculty as instructor for this course. All students in my class were selected in my research. There were two groups, one group was enrolled students in my EE 263 class at 2018 Fall, and second group was enrolled students in my EE 263 class at 2019 Spring. I will make some comparisons based on normal instructor and course evaluation between 2018 Fall and 2019 Spring.

The procedure is like this:

- 1) At the mid-term of the semester in both 2018 Fall and 2019 Spring, instructors from Innovation in Learning Center (ILC) at University of South Alabama (USA) had Small Group Instructional Feedback (SGIF) in my class to collect feedback from students about my class for what I should improve or change. SGIF is a formative mid-course check-in process for gathering information from students on their learning experience. The process is designed to foster communication and dialogue between students and instructors so that learning objectives and outcomes can be met successfully.
- 2) After I got report from SGIF, I reviewed the report with my students in my SGIF review class and gave students formal feedback.
- 3) Students in my class had midterm exam and final exam.
- 4) Students in my class had normal instructor and course evaluation.

The differences between in 2018 Fall and 2019 Spring at Step 2 were as following:

- 1) In 2018 Fall, following the traditional method, based on the report from SGIF, I tried my best to follow all requirement from students and improve my class.
- 2) In 2019 Spring, I actively gave feedback to students and even denied some suggestions from students. For example, I suggested students to improve study habit, study schedule, study method, and study materials, as well as find appropriate partners. Also, when I made the change to following specific student's feedback, student also had group discussion to determine whether this feedback was applicable to other students.

3. Result Analysis

The comparisons for the evaluation data are shown in Table 1 and listed in Fig. 1. They are respectively about (a) the instructor had clear policies (e.g., grading, attendance, and assignments); (b) the instructor provided useful feedback on my progress within the course; (c) the instructor was well prepared for in class meetings; (d) examinations and other assignments reflected stated course objectives and course material; (e) the instructor was successful in clarifying difficult concepts; (f) the instructor was well prepared for online class sessions and activities.

Strongly disagree 1 ----- 5 Strongly agree

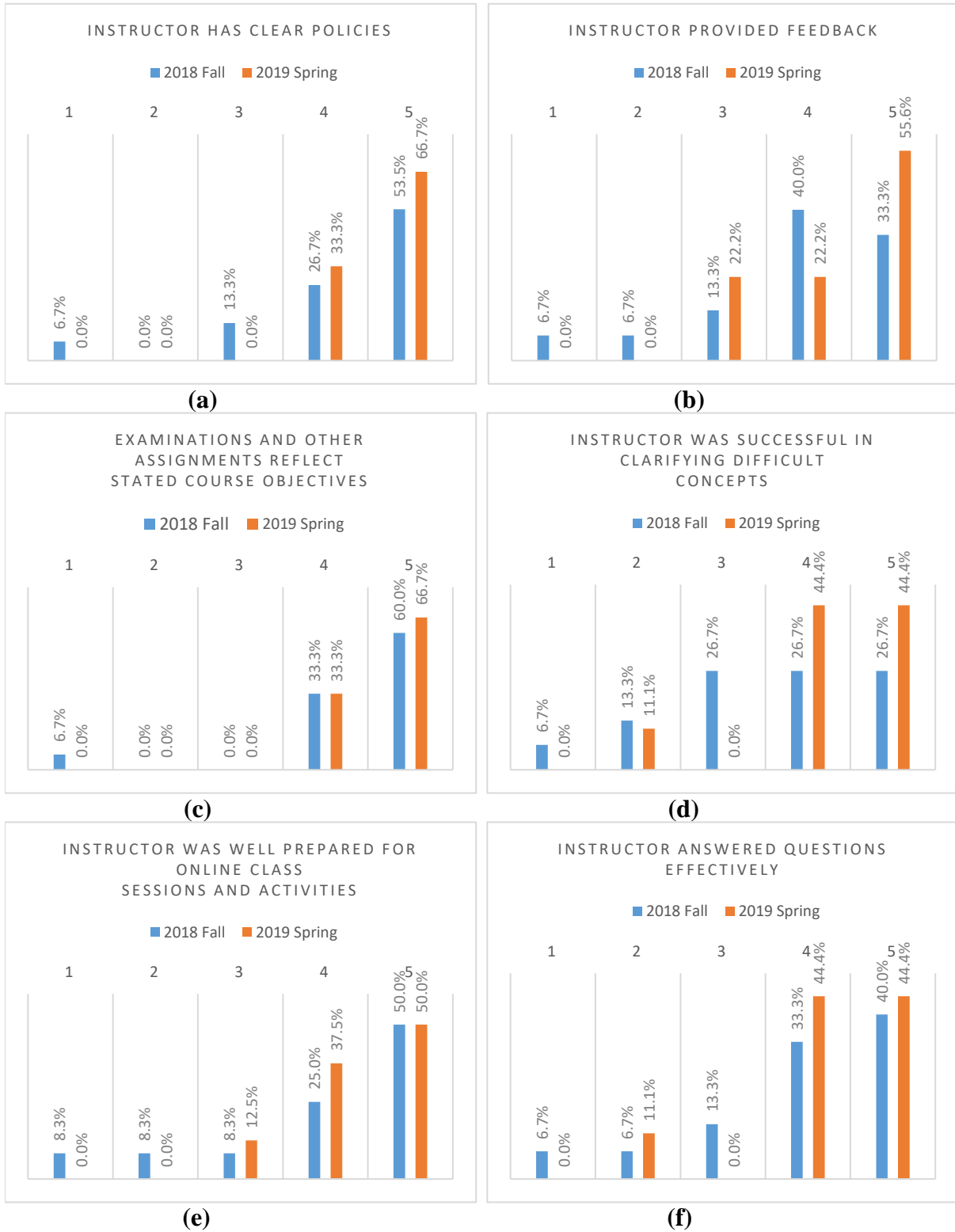


Fig. 1 Detailed evaluation data in 2018 Fall and 2019 Spring

Table 1 Comparisons for the evaluation data

Topics	(a)	(b)	(c)	(d)	(e)	(f)	Overall for instructor
2018 Fall (Av.)	4.20/5	3.87/5	4.40/5	3.53/5	4.00/5	3.93/5	4.14/5
2019 Spring (Av.)	4.67/5	4.33/5	4.67/5	4.22/5	4.38/5	4.22/5	4.67/5
Increase	10%	10%	6%	15%	8%	6%	11.3%

For (a) - (f), Strongly disagree 1 ----- 5 Strongly agree
 For Overall for instructor, lowest 1 ----- 5 highest

From Table 1, it is obviously that all topics in the evaluation are increased to indicate the bidirectional and collaborative feedback is effectively to improve both the teaching and learning. Especially for topics (a) and (b), in 2019 Spring, they are increased by 10% as compared with 2018 Fall, because these two topics were just directly covered by my SGIF review class in Spring 2019. Also, in 2019 Spring, because some students followed my suggestions to improve study habit, study schedule, study method, and study materials, as well as find appropriate partners, their grade also had increase, so they gave more positive response in topics (c), (d), (e), and (f) and the evaluation measurement increases respectively by 15%, 8%, and 6% as compared with that in 2018 Fall.

In addition, in Fall 2018, I tried my best to follow all requirement from students and improve my class. For example, some students required more practice examples in class, so I changed my class through providing more questions practicing in class. However, not all students satisfied such changes, because when we practiced more in class, we had to decrease time for the new topic study and slow down the study process, even we had to cut some topics to give time for more practices. Accordingly, my overall for instructor is 4.14/5 as listed in Table 1. In Spring 2019, I used method of bidirectional and collaborative feedback. For example, some students suggested more examples on difficult concepts. I brought this suggestion to students for discussion, and I also told them if we had more examples, we had to slow down the progress and had a risk to lose some topics. To my surprise, most of student disagreed to add more examples. Finally, I gave other option that - in my homework, I gave more questions for difficult concepts. In contrast, for other suggestions, such as giving more detailed PPTs slides, I thought it would be much helpful for students to review my class, so I directly accepted it. What is more, I suggested students to 1) wake up early in the morning to avoid being late for class, 2) group study to improve study efficiency, and 3) read books related study topics out of text book. Finally, students improved grade a lot. As a results, in Spring 2019, my overall for instructor is 4.67/5 as listed in Table 1, which is improved 11.3% as compared with that in 2018 Fall.

7. Conclusion

The proposed method will build a mechanism in University to conduct bidirectional and collaborative feedback between instructors and students to improve efficient teaching and learning. It will improve instructor's teaching and make it as reference and sample for other faculty at Universities and also improve departmental teaching atmosphere and benefit both faculty and

students. In addition, it explore new method in college teaching and learning and significantly enhance SoTL.

Reference

[1] C. N. Mabude and I. O. Awoyelu, "Performance Evaluation of a Bi-directional Feedback Approach for Expertise Recommendation in Academic Research," *World Journal of Computer Application and Technology*, vol. 3, pp. 27-39, February 2015.

[2] K. Myers and C. L. Chou, "Collaborative and Bidirectional Feedback Between Students and Clinical Preceptors: Promoting Effective Communication Skills on Health Care Teams," *Journal of Midwifery & Women's Health*, vol. 61, pp. 22-27, November 2016.

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