Advancing Peer Observation Processes: Progress, Lessons, and Faculty Development

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Work in Progress: Advancing Peer Observation Processes-Progress, Lessons, and Faculty Development

Background and Introduction

The National Science Foundation (NSF) has funded a grant aimed at advancing STEM (science, technology, engineering, and mathematics) programs at a large research institution in the South. From this grant, the College of Engineering has developed an instructional Action Team (E-IAT) where they worked to target three areas: Self-Assessment to Enhance Student Engagement, Faculty Peer Observation to Enhance Teaching, and Enhancing Assessment Through the Use of Test Blueprints [1]. Each of the target areas was decided upon through what faculty thought were important focus areas given previous conference presentations or literature. Faculty peer observations chosen to be a target area because The University is headed towards a peer observation model. Ultimately, peer observation will be further implemented in the various schools within the College after being piloted in the School of Environmental, Civil, Agricultural, and Mechanical Engineering (ECAM).

Peer evaluations are a way to monitor successes and areas of improvement within the classroom. Historically, student evaluations have been used to assess faculty on their teaching and classroom management skills. It has been found that this evaluation method only sometimes accurately reflects faculty performance due to students' lack of understanding of the instructional process and other external factors [2]. Additionally, more than this assessment approach is needed for measuring student learning outcomes [2]. In contrast, the peer observation process allows faculty to get detailed feedback about their courses from qualified faculty members. Other educational systems have been known for their successes in implementing peer observation systems. The United Kingdom has seen a widespread of peer observation models and they have been highly successful in establishing good practices for teaching [3]. This has been a prominent example for other educational systems in improving their approach to instructional development.

In piloting this assessment approach in the School of ECAM, the grant project team had to construct a peer evaluation process composed of seven faculty members who were handpicked based on their backgrounds and how comfortable they were with the ECAM curriculum. The group was split among two teaching modalities; lecture-based and flipped classroom [1]. This created an observation team for each focus area. The observed faculty were not a part of the grant team and were picked to be observed based on convenience and willingness for the pilot.

Although there are many benefits to the College adopting this faculty development process, there are lessons to be learned from the previous study conducted in ECAM. We work to understand the challenges faculty face with implementing this approach by examining the feedback from observers and the methods used for observation. This will consist of insight from lead faculty from both focus areas and an analysis of lecture-based and flipped classroom observation rubrics.

This work is being done to capture lessons learned in the original pilot implementation of these observation procedures, to inform protocols and procedures for applying the peer-observation process across the College and eventually the University. This paper will document the progress that has already been made by the grant project teams and make suggestions for future work, with particular attention to implications for faculty developers interested in training faculty in peer observation processes.

Goal and Objectives

Hutchings has developed three main arguments for the peer observation process [3], [4]:

- to encourage collaboration amongst academic staff in order to share ideas and good practice.
- to ensure that the enhancement of teaching is largely the remit of professionals rather than members of outside agencies; and
- to supplement student evaluations of teaching with the comments of respected colleagues and thereby provide multiple data sources.

Currently, the College of Engineering does not have a formal process for assessing faculty on their teaching practices outside of student evaluations, which have been proven not as effective [5]. By encouraging the use of peer observations, The College can work to satisfy each of Hutchings's arguments. Additionally, in the previous publication, it was stated that the objective of the project was to "incorporate faculty peer observation as a feedback tool to improve the quality of the instructor teaching method" [4]. The practice of Peer Review offers significant benefits for faculty development, including the validation of teaching methods, encouragement for pedagogical innovation, and the enhancement of collegial relationships. Studies have shown that PRT leads to statistically significant improvements in teaching behaviors, with formative peer evaluations fostering a sense of autonomy and self-regulation among faculty members [6]. However, the implementation of Peer Review faces challenges such as fear of criticism, time constraints, and potential biases [6]. The conclusions drawn from "Moving Beyond Peer Review of Teaching: A Conceptual Framework for Collegial Faculty Development" reveal that the majority of existing research on collegial faculty development (CFD) is made up of intervention studies [7]. These studies often show a limited linkage to extensive theoretical contexts. The study's authors conceptualize CFD to include any efforts that aim to improve the teaching capabilities of faculty members by utilizing the knowledge and skills of their colleagues. Although the participants in this study were voluntary and cooperative, there was noticeable resistance towards adopting both the roles of observer and observed [8]. For the enduring growth of peer review practices, recognizing this resistance and suggesting measures to mitigate it are essential steps. These findings indicate that not only is there a need for further research to actively engage in the peer review process, but also to enhance it. Simultaneously, such research should be firmly rooted in theoretical frameworks.

Current Approach

In the recent pilot of peer observation in the school of ECAM, grant project teams were to follow a three-step process as displayed in Table 1. Two protocols were developed using this process to account for differences in teaching modality; flipped classroom and lecture-based [1].

Table 1. Peer observation instruments main content adapted from "*Engineering Instruction Action Team (E-IAT): Improving Teaching Methods in Engineering"* [1]

Flipped Classroom Instrument	Lecture-Based Classroom Instrument
Section A: Prior to classroom observations The observer reviews the course material on the course LMS, meet with the instructor to discuss the approach to the course, student challenges and issues, and plan for observed lessons	**Section A: Prior to classroom observations** The observer reviews the course material on the course LMS, meet with the instructor to discuss the approach to the course, student challenges and issues, and plan for observed lessons
Section B: Flipped Classroom Observation Tool This tool involves observation items in areas related to instructor-student interactions and collaborative learning activities.	**Section B: Lecture-Based Classroom Observation Tool** This tool involves observation items in eight major areas: Lesson Organization, Content Knowledge & Relevance, Presentation, Instructor-Student Interactions, Collaborative Learning Activities, Lesson Implementation, Instructional Materials, and Student Responses
Section C: After Classroom Observations The observer meets with the instructor to hear their reflections, discuss new ideas or questions, and provide constructive feedback with a focus on highlighting strengths over areas for improvement (at least three times as many strengths as areas with room for improvement).	**Section C: After Classroom Observations** The observer meets with the instructor to hear their reflections, discuss new ideas or questions, and provide constructive feedback with a focus on highlighting strengths over areas for improvement.

Section A

This initial step in the peer observation process is meant to orient the observer to the course. This means reviewing the course material and understanding the classroom structure. During the

implementation in ECAM this was done by reviewing material on the Learning Management System (LMS) and meeting with the faculty member who led the course. LMS content consisted of the syllabus and assignments. Throughout this review process, observers stated that they primarily identified learning objectives to see if they were being applied during Section B of the peer observation process. Evaluator faculty also identified any improvement areas in this area. For lecture-based courses, observers discussed which sections were to be evaluated based on the goals for the observation and the planned activities for the class period.

Section B

Section B of the peer observation process is the evaluation period. This step was assessed based on the lecture-based or flipped classroom teaching modality. The lecture-based evaluation rubric was more intensive than that of the flipped classroom and was composed of eight sections; Lesson Organization, Content Knowledge & Relevance, Presentation, Instructor-Student Interactions, Collaborative Learning Activities, Lesson Implementation, Instructional Materials, and Student Responses [9]. Each of the eight sections aids in the goal of peer observation because it provides space to reflect on classroom management, how content is presented, and if students are receptive to the course. Assessing each area produces information on what faculty successes and areas of improvement are. This encourages faculty in both roles to be reflective in their instructional methods and enhanced teaching practices. These sections have 44 items scored numerically using the scale shown in Figure 1. There was no formal process or guidelines for which items or sections would be scored during the observation. Lecturers and observers decide in Section A which areas are to be scored depending on the goal of the observation and the instructional activities for that class period.

Table 1. Scoring rubric for peer observation in lecture-based classrooms.

4	**3**	**2**	**1**
Very evident throughout the class session	Evident during most, but not all, of the class session	Evident during a limited portion of the class session	Not evident to any degree during the class session

Flipped classrooms were not scored numerically and only assessed by checking if the instructional activity was completed. This was verified for 17 observation items; Figure 2.

Serial No.	Checklist	**Check if observed**
1.	Made clear statement of the purpose and learning outcomes of the lesson.	
2.	Defined relationship of this lesson to previous lesson.	
3.	Presented an overview of the lesson.	
4.	Maintained students' attention.	

5.	Provided clear transitions between activities.	
6.	Provided clear tasks for student individual/groups.	
7.	Provided individual/group tasks that were related to the lesson's learning outcomes.	
8.	Provided individual/group tasks that promoted higher-level thinking.	
9.	Provided clear directions for forming student groups.	
10.	Facilitated learning in student groups.	
11.	Responded appropriately to non-engaged students.	
12.	Effectively managed time during collaborative activities.	
13.	Synthesized group work at conclusion of collaborative activity.	
14.	Developed student learning through active participation in lesson activities.	
15.	Frequently checked student understanding or performance.	
16.	Reminded students of upcoming assignments, quizzes, or tests.	
17.	Talked with students informally before or after class.	

Figure 2. Assessment tool for peer observation in flipped classrooms.

For both teaching modalities, observers were allowed to provide written notes and feedback. Section B of the process is to be carried out multiple times during the semester and each evaluation session is expected to last approximately 15 minutes each.

Section C

The final step in the peer observation process was to reconvene with faculty and discuss the observation findings. During this meeting, the strengths and areas of opportunity are emphasized. This section was not completed by the lecture-based observation team and was completed by the flipped classroom observation team.

Methods

Information about the peer observation process carried out in the School of ECAM was obtained using unstructured interviews of the observation team leads for both modalities. Interviews were conducted one year after the peer observation process in the School of ECAM was piloted.

Observer Feedback

Lecture-Based

The lead of the lecture-based observation team is a clinical professor in the School of ECAM and specializes in civil and geomatics engineering. They shared that there are challenges with this process because many faculty are not willing to participate in the peer observation process. They credited this to faculty not feeling confident in their classroom practices and not being knowledgeable about the benefits of peer observations. They also stated that the observation tool

for lecture-based courses was “too lengthy” and needed to be adjusted for more appropriate feedback. They asserted that peer observations help you build confidence and allow you to implement practices in your own courses. They also stressed the importance of observers knowing of the course they are observing, so that they can accurately assess how learning objectives are being applied.

Flipped Classroom

The lead of the flipped classroom observation team is a senior lecturer in the College of Engineering and specializes in computational electromagnetics and digital signal processing. They shared that the most prominent limitation in the peer-observation process was aligning schedules with other faculty. This became difficult when observer two and the faculty being observed were teaching at the same time or they both had other commitments. This became extremely limiting considering that the protocol requires 3-5 observation periods to be able to give valuable feedback. While this was a challenge, they also contributed that the process was beneficial for both faculty and those observing. They stated, “I like to get feedback; student evaluation is not enough, faculty evaluation is needed”. Observer two explained that they thought it was good that faculty get to see other teaching methods and it aids in the observer's development as well. They furthered this statement by sharing that they implemented some teaching practices from their time as a peer-observer.

Lessons Learned and Future Work:

The insight from peer observation leaders and observation of observation tools, as provided information on how to approach applying peer observation more broadly. By piloting peer observation in the largest school in the College of Engineering, ECAM, we were able to observe how to begin the process of expanding.

The previously formed peer-observation committee will now join an interdisciplinary Faculty Interest Group (FIG) to further discuss ways to implement peer observation more broadly. From the feedback, the committee needs to first identify faculty to take on leading this process. Due to the scheduling conflicts and limitations faculty may have due to other commitments, it will be most beneficial to assign this role to individuals whose schedule allows for them to be committed to the process. Next, the group should gauge faculty buy-in to determine if faculty would be interested in being evaluated in this manner. This can be accomplished by surveying faculty across The College. Additionally, there needs to be further instruction developed for what should happen after the peer observation process is completed. This will be done by exploring how the information discussed in Section C can be used to advance teaching beyond the protocol. Moreover, how is the peer feedback received and what types of practices are being implemented after classes are evaluated? Lastly, it is recommended the committee revisit the evaluation tools to make them more user-friendly and to assess if they are appropriate for the teaching modality.

This would include abbreviating the lecture-based rubric and developing a rubric for online courses.

In looking to implement peer observation at other institutions, it is necessary to consider the lessons learned from this pilot. In beginning the implementation of peer observation, it is vital that institutions align the schedules of both observers and the observed faculty. By doing so, they can avoid the challenge of timing conflicts, which will allow for more observations to take place over the course semester. This is also necessary for providing detailed feedback to faculty. Additionally, it will be beneficial for institutions to consider the varying course modalities. While this study only observed flipped classrooms and lecture-based courses. Both observers agreed that instruments should be developed for other course modalities. This could mean considering online, hybrid, and asynchronous courses. Because each of these modalities has a different structure, the process for observing teaching should also reflect this difference. Peer observation has great potential to be implemented across the College of Engineering and at similar institutions. By addressing the areas of improvement and using prior feedback as the foundation for this expansion, the College of Engineering can work to develop teaching practices and build confidence among faculty.

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