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ACUE Certificate in Effective College Instruction Curated Reflections: Cohort C, Fall2019- Spring 2020

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Introduction:

The ACUE course is full of useful, best practice, experts' opinions, and elaborated research on effective teaching. I feel I need another round of reading and watching the videos and classroom scenarios and go through the state-of-the-art techniques and work samples. My peers who participated in this course enriched the discussion and their own experiences best practices. Samples of reflections and implementation strategies listed below.

1. Planning an Effective Class & Delivering an Effective Lecture

Effective Class: In my CSE 431: Algorithm analysis class. A 77-student class taught at 4-6 pm. I use two active learning techniques; Think-Pair-Share, and Team-Based Learning. The topics of this class have a reputation for being a difficult and boring class, so I tried to change the stereotypes. The key is to get them interested in the material and to keep them engaged. So, my default technique is Think-Pair-Share where while solving a problem, or talking about a concept, I ask a question and give them like 2-3 minutes to think alone, and then discuss with their partners and choose one to share and defend their answer (s). Every week, I have them set in assigned groups (carefully chosen to ensure balance and diversity) and we do a worksheet, where students discuss, solve, and share. I act as a facilitator to ensure all on the same page.

Effective Lecture: I used the skeletal outline to create a checkpoint while delivering the lessons and ensure the course and class objectives achieved. It consisted of the main concepts and definitions that the students need to take home after class, with some problems to practice and ensure they master the topics. It acts as a *take-home message* of this class.

All approaches were a success, students are happy, and provide positive feedback. I made a mid-quarter evaluation and recently got their feedback. The majority requested to keep doing group worksheet, and the skeletal outline. Some of the challenges encountered is that some students are shy and do not like to share or be outside of their comfort zone. It is taking time for them to get used and go outside their comfort zone. Hopefully, by the end of the semester, they will adjust and be a better team member and actively involved. As for the skeletal outline, I found that the student got confused between note-taking and doing the outline.

As for the student who is not active, I will be doing more icebreaking at the beginning of the semester. For the skeletal outline, it will reduce the amount of information on the outline.

2. Promoting a civil learning environment

The technique I used is: "**Work with your students to create classroom norms.**"

In this quarter I am teaching the second course CSE 308 of Computer Engineering Design series. In the first course in the series CSE 208, the students (same cohort) worked in teams and submitted the final report and presented their work to their peers, instructor, and guests. During the first quarter, I noticed students keep missing deadlines, came to class late, and the teamwork peer reviews showed me some flaws in the team dynamics. In addition to some were watching YouTube videos while I was teaching. So, I decide this quarter to start the class with the course and classroom norms. On the first day of class, I created an activity "Activity1: **Collaborative Classroom Norms**". Where I put the students in groups of 4 and asked them a couple of questions: re-introduce themselves to one another and to come up with three ground rules for the class. Then after that, they shared with the class, and we vote for them. Later I posted the agreed-upon rules on the course website.

This approach was a success, as students themselves agreed and voted upon, and the next time we met, attendance (punctuality) improved. We had a cell phone ringing in the class, and everyone said "silence *the phone*" *remember the ground rules!!* "I was happy with that since I did not need to say it myself!

Two refinements I would do next time; to provide a list of some ground rules as reference and guidance and allow students to re-use and come with new ones.

Also, I will allow the students to review and make final modifications before being set as ground rules.

3. Motivating your Students

I used the technique of *offering a variety of assessment types*. I teach Computer Engineering Design Series courses, CSE 208, 308, and 408. The series starts with 208 for the Fall quarter and the other two follows for winter and spring quarters respectively. In CSE 208 I teach the fundamentals of engineering design, and I assess the progress of the students through homework, midterm, worksheets, progress reports, and final design documents and oral presentations.

This week I used a flavor of the worksheet I called it “Case Study”. I was talking about Engineering Design Requirement analysis and decided to teach it through a case-study by offering the students a real engineering problem and walk them through the solution and the analysis by having them answer it as if they were the design engineers. I built the case around their previous technical knowledge and the knowledge I explained in the class.

The successes to the use of this technique include the level of engagement and the curiosity I saw on the students and the quality of the solutions provided. I had an interactive discussion that had more students voice their opinion or raise questions about the best practices. Which I usually do not see during lecturing. One challenge encountered is that I made an assumption about the students’ prior knowledge, I found gaps in their previous knowledge and skills.

Next time, I will make sure I trigger the prior knowledge by assigning a pre-class quiz /test/activity to ensure they know the required skills to be able to understand the case study, and if not he/she will need to review a supporting material provided me. Since the case study had some prior knowledge and some transferred students might not have acquired by the course offering in their college.

4. Providing rubrics and checklists help the students understand expectations and create a roadmap for them

I used the *rubric and checklist to facilitate self and teamwork assessment*. I usually do provide the grading rubric with the lab assignments. However, in my

Engineering sustainability course, they're a lot of gray areas, and students might not deliver the expected work and might misunderstand the requirements. So, I found it useful to provide them with the checklist of the things I am looking for in addition to the grading rubric so that they know the weight and the expectations to meet each criterion. I revamped and created new course material, so I do not have sample work from previous students to share, and since each project was different from the other both in scope and area. I found sharing a guideline (checklist and rubric) is the best for the students.

The approach was useful, as I can see the progress in their writing and the level of the submitted assignments. Some of the students followed the details and I felt they took each item in the list as a separate section and context. This resulted in duplicate and redundant work, and the report lacked the smooth transition of ideas. Others, which I believe due to maturity and more experience and possibly the reached out to me and clarified some points, created a very logical and close to perfect report. Two of my students who are suffering illness found this checklist and rubric very helpful to keep them focused and direct to the point.

I am planning and actually started discussing the rubric and the checklist expectations and what each criterion means and its scope to make sure their work is logical as if they are telling a story with minimal repetition

5. Using Student Achievement and Feedback to Improve Your Teaching

I used this technique, *Secure mid-semester feedback from students*, in two of my courses, Engineering design, and algorithm analysis. Both are completely different courses and different students' cohort and background. The reason I used it because I am new to the university and did not have good information about the students and how they learn, what is the best methodology to deliver the content. In addition to being used to do it in previous institutions.

I asked students about their own role in the course such as: do they prepare for the class meetings, are they actively participating, how they understand the material and whether they apply what they learn in the new situations.

I asked them about their relationship with me as an instructor: am I approachable, motivator, how I introduce new concepts, whether they benefit

from my feedback are happy with this feedback, or have different expectations...etc.

Then I ask an essay question such as:

- What has been most helpful for your learning?
- What has caused you the most difficulty in terms of learning
- What suggestion(s) can you make that would enhance your learning experience
- What do you think about the review/discussion session, any suggestions for improvement?

[The last question was added because I offer them recitation sessions conducted by my student's assistant.]

I got really good feedback; such as the use of whiteboard vs PowerPoint slides, or both in a smart way. They liked the worksheets I give in the class. Some suggested more in-class homework type problems. And I did offer them a lecture plan that I embedded HW like questions.

With the COVID-19 issue and the virtual class delivery, the students were 80% with the synchronous vs Asynchronous classes. The 20% who liked the Asynchronous tend not to attend the course any way unless we have a worksheet or a quiz. I checked their blackboard activity, and they tend to not access it frequently. I think the current grading options due to Covid-19 is affecting their decision and slackness(I believe).

Possible refinement: to put the students in groups and let them discuss it as a group, they will give me better feedback that would fit most of them, and minimize the conflicts among students.