Peer Review of Teaching

for MECH 364: Mechanical Vibrations

About the Course: A large core course for 3rd/4th year Mechanical Engineering students. The course requires development and application of mathematical models to practical vibration problems.

Instructor: The Teaching Perspective Inventory (TPI) score indicate that *Apprenticeship* is the dominant perspective and *Nurturing* is the fall back perspectives of this instructor

Purpose of this review:

1) To provide formative feedback on the lesson plan (notes), course syllabus and learning objectives shared with the reviewer prior to attending the class.

2) To provide formative feedback on three broad aspects of the classroom practice: (a) Nature of the learning environment fostered, (b) Student engagement, (c) Content and delivery.

Specific points to consider (suggestions only):

Q1) Is the lecture well situated in the broader context of the course objectives? Are the learning objectives for this lecture communicated effectively?

Q2) Did the learning activities correspond to the learning objectives?

Q3) What type of learning environment is fostered?

Q4) Comment on the student engagement, and suggestions for improvement

Q5) Comment on the content and delivery methods with suggestions for improvement

Q6) Any further suggestions/thoughts/comments/observations you made during the lecture

Feedback

1. **Is the lecture well situated in the broader context of the course objectives? Are the learning objectives for this lecture communicated effectively?**

I can't comment on the degree to which this lecture was situated within the context of the overall course…. I could see from the materials you gave me that this topic was related to Course Objective 3 and throughout the lecture, you referred to prior discussion of certain formulae/expressions that gave me the sense that this topic was related to the rest of the course material.

The learning objectives within this lecture were very clearly articulated at the beginning of the class, and from my perspective in the hour that I attended, you covered all of the stated objectives in the material you delivered.

I also noted that the learning objectives were designed according to a taxonomy of higher order learning (being able to apply the theory through design and critical analysis of trade-offs in design).

2. **Did the learning activities correspond to the learning objectives?**

From my perspective, the material covered in the lecture, corresponded to the learning objectives, and I noted that you engaged the students in answering some of the formulae/expressions that need to be created in order to solve the overall equation.

However, I'm not sure that students would be able to perform the higher order learning objectives you identified… ie. could they in fact design a vibration regulator? I don't know…. They might be able to apply the theory to a design, but I wonder if there is a missed opportunity to actually engage them in designing a simple one in the classroom if application is your final goal? For example, if you were to bring in the materials for a simple example and ask them to construct it in the classroom.

3. **What type of learning environment is fostered?**

I was interested to discover that you are wanting to create a learning environment that engages reflective practice and I could see from your SoTL presentation that you are very passionate about, and committed to, this goal. It was helpful for me to know that your TPI is predominantly Apprentice with a secondary Nurturing and I can see the Nurturing coming into play with your desire for reflective learning. Helpful, not only with respect to answering your question, but with respect to my own learning. It became very clear to me that, from the Apprenticeship TPI, breaking down the formulae to reveal the inner workings of the vibration damper and providing an ordered set of tasks by which to build one, is extremely important.

In my response to this question, please understand that I come from a different lens with respect to the TPI; in that my scores are predominantly Developmental and Nurturing. From this Developmental perspective, the learner's level of knowledge about the topic might be the first place to start along with an experiential opportunity for the learner to bridge the theoretical with practical, meaningful application – and hence, my comment in the question above, that I would encourage an experiential activity through which they could build a simple application of the vibration damper – to ground it in their own world.

4. Comment on the student engagement, and suggestions for improvement

So, ultimately, from my perspective, the learning environment appeared to be one in which the students were not very engaged. I make this assessment, partly because of the TPI lens I bring that would seek far more involvement as a measure of learning, and partly from observation of the students in the class. There were a couple of students beside me who tried to answer the questions whenever you created opportunity, but I also noticed other students, perhaps those who might respond to a different learning approach, were sleeping or surfing on their PDA's.

With respect to a suggestion for improvement, I wonder what would happen if you asked the students to work in teams to prepare a vibration damper for this class, for example. It would mean that your teaching would be reduced to providing feedback on their 'projects'. Because this is a higher level (3rd and 4th year) course, it seems that this level of involvement by the students might be possible and practical.

This project could then be followed by each student preparing a one-to-two page reflection on what they learned from the exercise. This latter exercise could then support your desire for reflective learning.

5. Comment on the content and delivery methods with suggestions for improvement

From my perspective, a response to this question is related to the question above. From a *Developmental* lens, the learner will only be engaged if the content and delivery methods are designed to help them bridge the theory to meaningful practice.

If I look at this question from an *Apprenticeship* lens, I still think there is an opportunity for the students to learn the applied principles by hands-on experience, or even observation of you, an expert building one, than by simply hearing a lecture and responding to questions that relate to the theory. My mind goes to the Apprenticeship model of the blacksmith for instance, in which the learner initially prepares the materials, gets to know the weight and usage of the various implements, watches the master at work, and slowly builds a knowledge base from

which to take their first practice steps at shoeing a horse, under the watchful eye of the master.

6. **Any further suggestions/thoughts/comments/observations you made during the lecture**

I really appreciate your asking me to view the class…. Not having an engineering or scientific background, it provided me a glimpse into a different world. I so encourage you to continue to explore opportunities for reflective learning and appreciate that this goal may be quite unfamiliar within the intellectual capital of your field, so I applaud your courage in branching out.