

**Ali Kefeli**  
**Workshop Reflection**

**Part I: Describe**

**Title of the workshop:** Active Learning

**Purpose statement:** This workshop is designed to explore a variety of active learning strategies that can be used in any classroom setting to engage students and enhance learning.

**Lead presenter:** Barbi Honeycutt

**Date:** February 18, 2009

**Location:** Research Building 3, Centennial Campus, Room 230

**Number of people attending the workshop:** ~16

**What happened at this event? How was the workshop organized? What presentation styles did you see? What types of activities did you participate in?**

The presenter first started with talking about workshop outcomes. Then as an illustration of an active learning technique, we played a game called “Scavenger Hunt”. It provided a means to get to know other workshop participants. But more importantly, it helped all players to learn different definitions of active learning from other participants. We then filled in the blank in the powerpoint handout with these definitions, followed by formal definitions from different references. After discussing active and passive learning from teacher’s and student’s point of view, we were introduced a very interesting concept: “cone of learning”. Next, as another illustration of active learning, Barbi asked us to come up with examples demonstrating a type of activity pertaining for each layer in the cone. Next, we discussed some strategies to implement active learning in our class. After that, we played yet another game as another powerful illustration of active learning “Role Playing”, where the class was divided into two groups, new faculty advisory committee and new faculty members, one brainstorming on challenges, the other on benefits of active learning respectively. Following a debrief on our role playing game, Barbi finished off with some advice on how to apply the techniques we learned.

**Part II: Analyze**

“Students learning by themselves”, “Students learning and teaching at the same time”, “Learning by doing”, “Students engaged in activities such as games and labs”, “Anything you learn out of classroom” and “Learning by doing”... These are some of the definitions of active learning I collected from other participants of our “Scavenger Hunt” game at the beginning of the workshop.

What can possibly be a better way of introducing a concept by simply applying the concept itself in the introduction? I can confidently say that I learned “active learning” actively. This may sound strange at first, but it is the truth; and precisely because of that, I now possess invaluable information about active learning: different definitions, passive learning, layers of

cone of learning, how active learning fits into the big picture, different strategies, benefits and challenges of active learning to name a few.

In addition, it is through this active learning experience that I have discovered linkages between the concept of active learning and different subjects of Industrial Engineering. My recent brainstorming on the issue revealed how lucky I was to be in this particular area of study since there are vast opportunities to apply active learning strategies in my class, even right now!

One quote at the beginning of the workshop has really stimulated my thinking about the issue of active learning: "Learning is not a spectator sport." I never thought one quote could add so much to my perception of teaching. Think about this quote for a minute. If you thought of yourself as an actor in front of your class and your students simply there to watch your performance for 75 minutes and learn the material you presented, then you are sadly mistaken. Even if you watch football games for years, you are not going to be a quarterback. Only if you play football, exercise and test your abilities on the field will you become a successful player. Similarly, students should do more than just simply listen to a lecture. They should actually DO something: read, write and engage in defining and solving problems.

Sounds intriguing at first, right? But why should I DO something to learn it better? Despite challenges of applying active learning techniques in your class such as loss of control, issues with time management, implementation problems with big classes, amount of creativity and preparation involved, benefits of active learning are too substantial to overlook. Consider the study by Edgar Dale in 1969 that introduces the concept of "cone of learning". According to Dale's work, we only remember 10% of what we read, 20% of what we hear, 30% of what we see, 50% of what we see and hear, 70% of what we say, and 90% of what we say and do. Finding examples in my life to support these findings was not too hard: I don't remember details of much of what I read on the newspaper yesterday. I remember the article about hunger in Africa that had a photo of a woman attached to it. On the other hand, I remember much more about the news I saw on TV with video recordings of the news themselves. What I remember the most, however, is the particular news that I explained to my friend on the phone. As evidenced by this study, the more you can involve your students in the act of learning, the more they're going to retain and actually digest. It's not hard to see that active learning also helps improve motivation of your students, provides interpersonal communication, acts as icebreaker, reduces fear against the subject, incorporates fun in the class, provides opportunities for continued learning for the teacher – keeps it "new".

Barbi listed several active learning strategies, along with some she actually applied during the workshop to prove us her point. Scavenger Hunt game was a perfect example of information sharing, brainstorming, and ice breaking activity. We also filled in empty powerpoint slides, played a Role playing game, came up with our examples for each layer of cone of learning and had thought provoking discussions on quotes and pictures provided on the slides. The ideas and concepts I was presented during those activities are the ones I clearly understand and can retain much better. Other strategies for active learning include case studies, explain to your neighbor, surveys, voting, concept map, name cards, stump your partner, students write exam questions and letter to next semester.

I was so intrigued by the workshop that I immediately started thinking of ways to implement what I learned to my area of expertise. As an industrial engineer, I believe there exists relatively more opportunities to incorporate active learning to my classes compared to other

more theoretic engineering programs such as electrical or mechanical engineering. Industrial engineering is more about decision making and management. So, it is more suitable for techniques such as group discussions, open ended questions and case studies. For instance it's easy to incorporate real life examples and questions to many problems in supply chain management and logistics since we are exposed to building blocks of those systems in our everyday lives. Systems simulation and computer aided manufacturing are subjects very suitable for group work and cooperative learning. Production planning and control, Quality control and Facilities design subjects are always best candidates to have case studies and group discussions in class.

In particular, the senior level class I'm teaching this semester is probably the class that active learning is most suitable in my department. I already use group projects, in class assignments, study guides, external sources of information, and give out study guides for my students to work on. In addition to these tangible products, after this workshop I also augmented my teaching towards "pointing to the direction to solve a particular problem" and let my student go there themselves. So, I continuously ask questions to my students, let them discuss about possible answers, use name cards, play small games and prompt what if scenarios to keep them actively involved in the class. Although it is a lot of work to keep up with the materials I need to prepare and develop lesson plans to effectively utilize my classroom time, I'm very excited about the whole process. My students seem to like it better too. They are more attentive, more motivated and less afraid to say something wrong or ask questions.

Overall, this workshop has provided me a necessary formal background on active learning and helped me to realize once more how crucial active learning is to a healthy education, especially industrial engineering. It has also equipped me with some new strategies that I am highly motivated and very enthusiastic to use in my class.