

Interactive Teaching Techniques - With and Without Technology

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SUMMARY

As universities grow in size, faculty struggles with the concept of incorporating interactive strategies for large groups of students while still covering the required content. This workshop covered a range of topics and strategies useful to faculty such as:

- 1) Determining faculty learning styles and how that relates to teaching styles;
- 2) Developing a creative teaching slant using a variety of interactive teaching strategies;
- 3) Using technology to enhance student understanding and application of concepts.

This workshop took a range of known teaching techniques commonly used in the small classroom setting and, through audience participation, demonstrated how to manage them in a large class setting.

KEYWORDS: workshop, teaching strategies, learning styles, interactivity, large groups

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This report details a workshop that involved faculty actively learning interactive teaching strategies. The participants were involved in the learning process by experiencing it from both the faculty and student perspective. It was important to have faculty participation in these activities rather than simply talk about the effectiveness of the strategies.

Initially, participants determined their own learning style using a simple 30-statement profile, developed by the author. The learning style profile was completed in 5 minutes and the results analyzed by the participant into three categories: auditory, visual & kinesthetic learning. Discussion ensued as to the simplicity of the analysis of the instrument and how it could be used to help students develop good study habits and note-taking skills. The instrument also had been used by the author to help students see the relevance of different types of teaching strategies used in the classroom (discussion, writing assignments, etc) to their learning. Of the 28 participants in the workshop, 64% used all three learning modalities while 36% used 1 or 2 of the modalities to learn. This reflected data collected from classes of 250 non-biology students in a general biology course facilitated by the author (n=2300).

The audience then participated in interactive strategies that reflected the different learning and teaching styles. Most of the following strategies are to be found in "Teaching Tips" by McKeachie ¹. The one-minute paper (muddiest point paper) was the first strategy to be demonstrated ¹. To do this participants were given a 4 _ X 5 _ piece of paper (8 _ inch by 11 inch paper cut into 4). This is a cheap version of an index card and can be color-coded depending on the type of assessment. Participants were given one minute to write an answer to a question given by the facilitator. When asked what they thought about the assignment common comments were:

- 1) Pressure to complete in 1 minute
- 2) Needed more time to reflect
- 3) Had to be concise
- 4) Helped focus
- 5) Anxiety
- 6) Didn't like it at all because it wasn't conducive to their style

¹ McKeachie, Wilbert J. *Teaching Tips: Strategies, Research, and Theory for College and University Teachers*. Boston: Houghton Mifflin Co. 1999.

These are common statements from students also, but when students were routinely asked to do this type of exercise they became more proficient, concise and focused, and anxiety levels were reduced. Possible adaptations for this strategy were suggested by the workshop participants; give the question early on in the class and allow time for reflection; increase/decrease the time allocated for the exercise depending on the complexity of the question; make it a course expectation and repeat the process often (1 time per week or more) to help students who needed to write material down to understand/conceptualize material. Participants suggested other uses of this strategy: 1. Ask students to read (paper, chapter, newspaper article) before class and then give 1-3 minutes of writing in class to summarize main points; 2. Write 1-3 sentences on a topic then share with 1 neighbor in a think- pair – share format (1), followed by sharing with a third person the thoughts of both of the previous two students (this allows many ideas to be shared very quickly through peer to peer interaction); have a class discussion then ask each student to write the ideas from the class on their papers so that an accumulation of student generated ideas be shared with the whole class. Other possible uses – summarize readings; write questions about unclear points in the class/reading, problem solving, critical analysis, and case study analysis.

Workshop participants were then given 3 minutes to think of a concept that was hard to explain to students and draw a diagram, flow chart or concept map that might help the student understand better ¹. They were then asked to share it with a colleague. The atmosphere in the room became more relaxed and the discussions that resulted from the exercise were focused and in some cases intense. It was noted by one of the participants that because it was their subject they knew a lot about the particular problem but that explaining it in diagram form was difficult. Comments from participants at the end of this time indicated that they thought that they had a simple and clear diagram but that the clarity really came with the explaining. This method helped them focus on the main issue in question; students would be able to see what they don't know, or see the connections they had missed. This method is useful for faculty to do as well as for students, often cutting down the amount of lecture time needed to cover a concept. It also helps students make connections (important for visual and kinesthetic learners). Possible adaptations: connect concepts; reveal to faculty difficulties students are having with understanding; help student process material and see relevance and application; and may help faculty simplify lectures.

Participants were shown the use of pictures to initiate classroom discussion ¹. A picture of twins delivered from the same mother but of different gender and ethnic makeup (Caucasian/black) was shown to the participants and they were asked the question "how did this happen?" Five minutes were given to discuss possible solutions with their neighbors. There was a great deal of interaction among the participants even though they were not biology majors. At the end of the 5 minutes, the group was brought together and asked their opinions of the exercise from a faculty point of view. Main reactions were; bring real life example to the students; some could identify having read or seen something about the twins on the news; most commented on

the different types of responses collected in the short time period. When asked for possible answers most participants thought it was easy to come up with idea during the discussion time (some thought that there was only one answer – typical response of students also) and so used the rest of the time to talk about other issues of education. Each participant came up with an idea and was asked to explain their idea to the class. Within a short time frame 12 different ideas were written up on the board. The most often stated comments to this strategy were: participants were exposed to a range of ideas some of which they had not thought of; the intensity of the interaction was evident; there were experts (those that knew possible answers) and novices and the experts had to explain their ideas to the novices; there was a huge amount of learning going on while the facilitator did very little. This highly collaborative strategy used peer-peer learning. Participants thought that using this method to apply concepts would help the students with problem solving skills, increase their confidence and consolidate a variety of concepts discussed in class. The facilitator related this type of learning to success in test situations. More students who were involved in this type of learning were successful with similar questions in the test. Students take responsibility for the information and ownership for solving the problem, so the content is more likely to stay with them long term. Most participants noticed the change in the room atmosphere and found it relaxed, comfortable, noticed that everyone was involved, that there was a reduction in anxiety, and that participants believed that they contributed and were successful with the assignment.

Participants were asked to think about how they would use videos or animations in their classes. Ideas that emerged were: show the video but not to completion and then allow the students to come up with possible endings; find videos that covered a number of concepts, bring them together to show application and relevance of the concepts; show a video and give the students questions to answer during the video. The questions would then be used to start discussion; use a variety of images to encourage discussion that connects concepts, shows relevance and application of ideas. Most participants agreed that following up this exercise with another real life example would help students connect concepts and apply the information they had gained to a new problem.

Workshop participants were asked to share their ideas on how determine if the students were understanding material or concepts as the class was progressing. Two methods of student understanding were demonstrated and discussed: 1) Choral response, and 2) Pass the pen (soft toy, chalk). In the choral response method participants were asked to shout out the answer to a simple question (usually one word answer). The level of response gave the facilitator a method of determining student understanding on an immediate basis. This was thought to be a useful method for a review session or periodically during the class before moving on to another concept. The important point discussed for this method was that the facilitator had to give the correct answer to ensure that all students heard the correct answer. Also, it was realized that this method was also only suitable for short answer and 'right/wrong' questions. An example of this

exercise was: at the start of the session the facilitator said "Good afternoon" to the group with little response. The facilitator repeated the greeting until each participant replied in union. This initiated the choral response, suggesting to the participants that this type of response was an expectation in the class. The facilitator does this in a class of 200+ students up to 30 times per session. Volume of noise is the indicator of understanding and the instructor may repeat a section of the course before proceeding if the student response indicated that they did not understand. The effectiveness of this method was demonstrated in the workshop, where a question was asked, not understood, and so choral response was weak. Further clarification of the concept was given, followed by asking a similar question and a strong choral response resulted. Participants comments to this method were: helps shy students participate; gives instant feed back to facilitator as to student comprehension; and, needs to be only one or two word answers. Once students do this exercise several times it becomes a class expectation.

"Pass the Pen" is a method ¹ where one person in the group is given a pen and as such is identified as the next person to answer a question. Rules: student are not allowed to pass the pen unless they cannot answer the question but are aware that at any time the facilitator may bring the pen back to them. Participants agreed that this would help each student in the class to participate and that they would be more focused on the discussion to ensure that they were able to answer the question. It was considered a good method of helping shy students participate although it was recognized that it might be hard for these students initially. It was also stated that it was a good learning experience for the student, helping them become more involved in the class. Another suggestion was that questions might also come from the student holding the pen rather than solely from the instructor.

During the workshop the participants were actively involved in their own learning of different teaching strategies. They were able suggest ways in which they could adapt these strategies to their own teaching styles. Participants also believed that at the end of the workshop they were more aware of the different learning styles of their students and how their teaching affected those students with different learning styles to their own teaching style. It was agreed that doing the exercises rather than reading about them was highly beneficial to the participants.

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