



Experiential Learning & Reflective Teaching

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Kolb: Four Stages of Experiential Learning^{1,3}

"Experiential learning theory defines learning as the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience"²

Kolb's experiential learning theory is represented as a four stage cyclical process of learning. These stages are: concrete experience, reflective observation, abstract conceptualization and active experimentation.

Concrete Experience: This is the first step of the experiential learning process. Concrete Experience sees the learner involved in a new experience or situation. This also includes a reinterpretation of an existing experience.

Reflective Observation: The second step of Kolb's theory, reflective observation, involves systematic reflection on the new experience. This is an analytical step in which the learner consciously thinks about what they have just experienced. A particularly important aspect of this step is the realization of inconsistencies between experience and understanding.

Abstract Conceptualization: The learner delves deeper into their thinking about the subject. In this step, the learner constructs a new idea, or modifies an existing concept to explain their observations.

Active Experimentation: The final step of the process involves using these new theories to solve problems and make decisions. By applying their newly-conceived understanding of the world around them, they are demonstrating their newfound knowledge. The process enters a new cycle when the learner uses this experimentation to create a new Concrete Experience.

¹ Kolb, D.A., Boyatzis, R.E., Mainemelis, C. (1999). *Experiential Learning Theory: Previous Research and New Directions*. Case Western Reserve University

² Kolb, D.A. (1984). *Experiential Learning: Experience as the Source of Learning and Development*, Englewood Cliffs, NJ: Prentice Hall

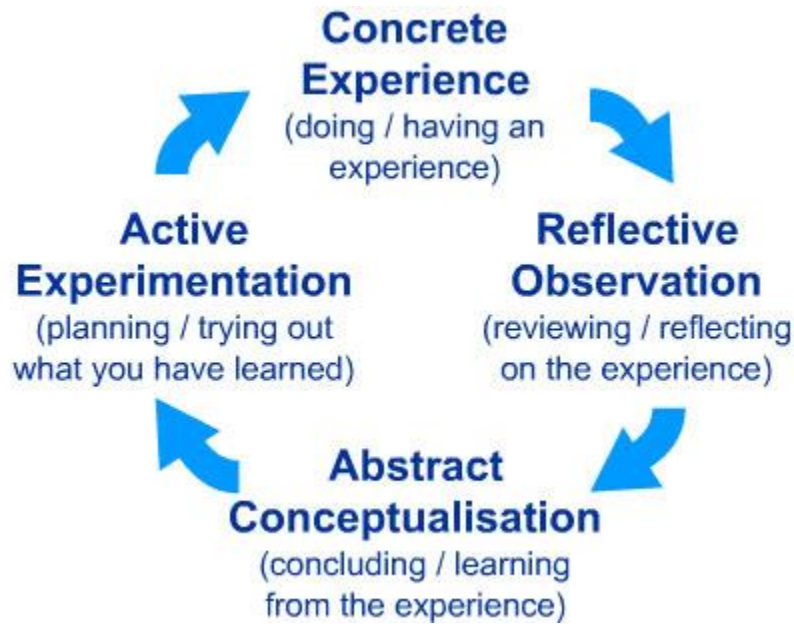


Figure 1: Kolb Learning Cycle³

In essence, effective experiential learning occurs when:

- 1) The learner has a concrete experience
- 2) The learner reflects upon their new experience
- 3) The learner analyzes their reflections and observations and creates their own conclusions
- 4) The learner uses these conclusions to test future situations

After the fourth step, the process repeats itself on new experiences. For effective experiential learning to take place, the whole cycle must be completed, in the order described. (McLeod, 2010)

³ McLeod, S. A. (2010). Kolb - Learning Styles. Retrieved from: [<http://www.simplypsychology.org/learning-kolb.html>]

Reflective Teaching^{4,5,6}

Reflective teaching is a form of self-assessment. It is a method of improving teaching skills by means of metacognitive awareness. Through reflection and making conscious efforts to evaluate one's current abilities, continuous improvements can be made in honing one's teaching abilities.

There are many reflective teaching strategies with parallels to Kolb's Four Stages of Experiential Learning Theory. Many of them can be conceptually split into four sections similar to Kolb's four stages of Concrete Experience, Reflective Observation, Abstract Conceptualization and Active Experimentation.

For example, common strategies of reflective teaching include:

- Keeping a teaching journal
- Peer Observation
- Recording lessons
- Student feedback

Teaching Journal/Portfolio

This is one of the easier (but most effective) forms of reflective teaching. After each class write down a few notes on what was taught, how you chose to teach it and how the students responded. Include any other significant occurrences during the class. Return to your notes later in the day and reflect on what you could do differently and improve, or on what worked well. After identifying a problem area and coming up with a solution or improvement, try it out next class. Just like in Kolb's Experiential Learning, repetition and experimentation are key to the success of this technique.

Some topics to consider in your teaching journal/portfolio could be:

- **Lesson objectives;** Were they met?
- **Activities and materials;** What was used and were they effective?
- **Students;** Did they understand? How did they react? During what part of the lesson?
- **Classroom management issues;** Student behaviour and pacing of the lesson

Peer Observation

Peer observation can be done in two ways. You can invite a colleague to sit in during one of your classes and take down some notes on your general teaching style or on any specific area about which you have concerns, and then discuss observations. Or, you can ask to sit in on one of your

⁴ Brookfield, S. D. (1995). *Becoming a critically reflective teacher*. San Francisco, CA: Jossey-Bass.

⁵ Gore, J. M., & Zeichner, K. M. (1991). Action research and reflective teaching in preservice teacher education: A case study from the United States. *Teaching and teacher education*, 7(2), 119-136.

⁶ Kuit et al. (2001). Experiences of Reflective Teaching. *Active Learning in Higher Education* 2(2): 128-142.

colleague's lectures and take notes on their teaching style. Afterwards, use your notes to compare their class to your own to reflect on some of your concerns.

Recording Lessons

Recording your lessons can be an especially interesting technique since it will give you an opportunity to see and hear yourself from another perspective. You may do things or have certain tendencies in class that you not aware of. Recording your lesson is a good way to critically analyze your teaching performance and class presence. You can make either a video an audio recording.

Audio recording is easier and is less distracting. It is also sufficient if you're only concerned about your speech tendencies. You may want to consider analyzing an audio recording if you want to answer some of the following questions:

- How much do I talk?
- How quickly do I talk?
- How loudly do I talk?
- Do I speak clearly?
- How much do students talk?

Video recording may be distracting to both you and your students, but it is useful for showing you your behavioural tendencies while teaching. You may want to consider analyzing a video recording if you want to answer the following questions:

- How do I come across to my students while I teach?
- Where do I face when I teach?
- Do I focus too much on one area of the class or on certain students?
- Do I have any nervous tendencies or habits?

You may think you know the answer to all these questions, but people are often surprised when they hear or see a recording of themselves.

Student Feedback

McMaster currently conducts student course evaluations at the end of each term. It is important, however, to consider seeking student feedback throughout the term in order to determine the students' levels of learning, learning processes and achievements. Formative assessment activities overlap with learning activities in class – serving as pre-or-post-test during instructional sessions. An example of how this can be achieved could be through short answer questions.

Students' opinions and perspectives add valuable information, and may raise concerns that would otherwise go completely unnoticed. It is better to address a problem right away than to wait for the course to end. After a lesson or activity, ask students to provide you with some

feedback. Let students know that their feedback will be kept anonymous; this is to ensure honest feedback. You can guide them with a list of questions you want them to answer, or give them a more open-ended option for giving feedback on whatever they think is important. The difference between this technique and the others is that the first and second stages of Kolb's Experiential Learning Theory are led by the students (concrete experience, reflective observation), and the third and fourth stages are the responsibility of the instructor (abstract conceptualization, active experimentation).

Successful and effective reflection demands a willingness to participate in the process and acknowledge it as a means to improve and develop. The reflection process can assist in identifying areas of success – a strong motivator – but it can also identify challenge areas and this, in itself, can be intimidating.

McMaster's Teaching Portfolio

At McMaster, every faculty member is required to maintain a Teaching Portfolio under the *McMaster University Revised Policy and Regulations with Respect to Academic Appointment, Tenure And Promotion (2012)* supplementary policy, SPS B2. SPS B2 states that "A teaching portfolio is a record of a faculty member's teaching methods, accomplishments and goals. One purpose of a teaching portfolio is to represent the faculty member's involvement in teaching to potential reviewers."

The teaching portfolio can act as an excellent vehicle for recording general accounts of lectures, labs, and more importantly identifying critical events which can form the basis for learning and continuing professional development. Gibbs' diagram below highlights six important steps that can assist in facilitating reflection. The steps outlined in Gibb's diagram can assist in organizing thoughts and outcomes in the teaching portfolio.

Gibbs Diagram

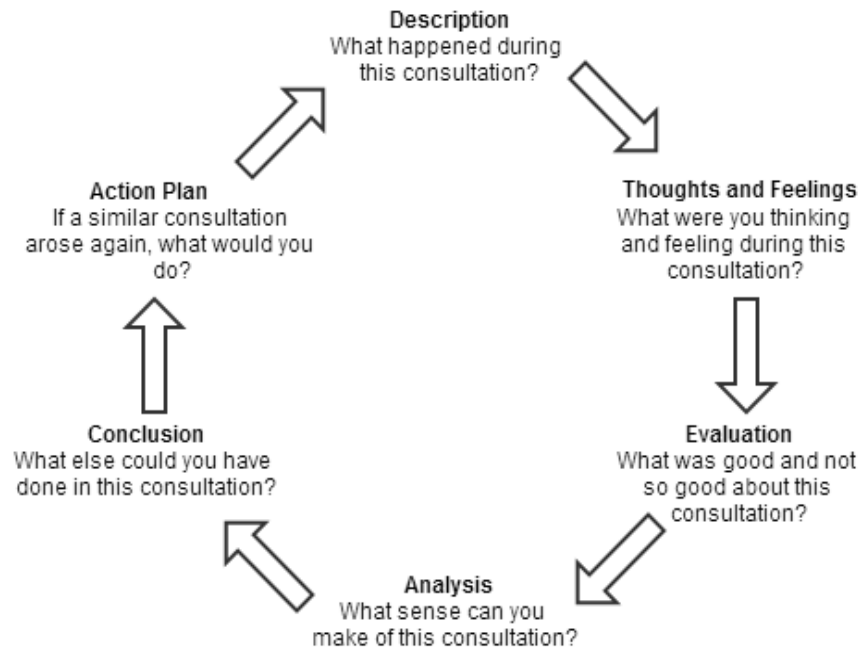


Figure 2: 6-staged model of reflection (adapted from Gibbs, 1988).⁷

⁷ Anderson, A.G., Knowles, Z., Gilbourne, D. (2004). Reflective Practice for Sport Psychologists: Concepts, Models, Practical Implications, and Thoughts on Dissemination. *The Sport Psychologist* 18(2): 188-203

Engineering Students and Reflection

Co-op work terms and internships offer students an intense learning environment in which technical engineering skills and knowledge are put to the test in unfamiliar and open-ended environments, and in which students' social and personal skills are critical to their well-being and success. Students typically feel overwhelmed for the first few months: one of the most powerful tools that can help them gain control, make sense of their work, and structure their learning, is reflection.

Guided reflection in the workplace helps students to:

- Develop an understanding of the all-important context in which they work: a means to systematically understand the environmental factors which influence the work and the workplace
- Separate the emotional baggage that inevitably accumulates when things go wrong, from a plan for improvement. Reflection at its best is a systematic analysis of occurrences, actions and events: this systematic approach helps to tame the emotions that can make self-assessment and evaluation challenging and unproductive. Systematic critical reflection can turn a frustrating and emotionally draining experience into a constructive and powerful learning opportunity; being proactive and forward-thinking helps to build confidence, which can take a beating when things go wrong.
- Go beyond the “shot in the dark” approach to problem solving and personal and professional improvement. Applying sound analytical principles to reflection can enable greater understanding of what actually happened and what went wrong or right and why; it also helps in the development of an orderly and planned experiment for the next time.
- Become skilled observers of the world around them – which supports their growth as engineers as well as the development of their personal effectiveness skills.

Useful tools:

- The most important tool and powerful tool students have to support personal and professional growth in the workplace is the engineering log. In their logs, students (and working engineers), document their observations: the better and more comprehensive their documentation, the better their reflections, and the more successful they are at problem identification and problem solving.
- Students have also found it useful to have a set of questions that can guide and direct their initial reflections. Once they become more skilled and able to think more independently, they can add to and modify this initial list of questions.

⁸ Stewart, Lynn, Director, Outreach and Community Engagement, Faculty of Engineering, McMaster University, September 9, 2014.

In conclusion, incorporating the practice of reflective teaching can provide instructors a deeper understanding of their teaching style and ultimately provide the necessary feedback on their effectiveness as an instructor. Participation in this process can also help to identify appropriate and specific teaching goals which in turn can contribute to lesson plan development. It is important to focus on students and effective learning behaviours such as, giving presentations, working hands-on on a design projects, or writing a position paper. Finally, reflections should always lead instructors to consider how much students have achieved and what they have actually learned.

Case Studies

Case #1: Forgetful Fredrick

Fredrick has just completed a great class! His students were prepared, as was he, for their class together. Students were attentive during his introduction and fully engaged with the lab that followed. Some students even specifically mentioned how much they enjoyed class that day. Several months later, while working on his course outline for the following semester, Fredrick remembers that this class was particularly successful, though he cannot specifically recall why. Confident that this class will be a hit again this year, he schedules it earlier in the term. To his shock and surprise, the students are unengaged and appear disinterested in the topic this time, some students even specifically mention how disappointed they were with this class on his teaching evaluations at the end of the year.

Drawing on your own teaching experiences, what might have led to Fredrick's initial success with his class?

What might Fredrick have done differently to repeat his success from the previous year?

Case #2: Diligent Diana

Diana is frustrated! This is her first year teaching a large, required class for first year students. While she is a bit nervous teaching large classes, she is very confident with the course material. In her one-hour lectures, she uses approximately 60 PowerPoint slides. In addition to her PowerPoint slides, she writes detailed speaking notes. After each session she immediately writes down her reflections of the class. Although she is only a couple of weeks into the course, she notices that attendance has started to drop each class and that the students who do show up appear disinterested or unengaged with the material. She has noted her observations in her teaching reflection journal. Diana has begun to worry that students will not do well on the upcoming mid-term.

What might Diana be doing wrong?

How might she go about improving her and her students' learning experiences in this class?

⁹ Case studies developed by Amy Gullage, McMaster Institute for Innovation and Excellence in Teaching and Learning (MIETL), July 31, 2014.

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