4.7 Technology Adoption towards Active Learning

Findings

✓ **Smartphones as clickers:** This scenario is part of what is called ‘mobile learning’, or ‘m-learning.’ The study addresses how this technology can benefit students’ learning and engagement and the effects of using Interactive Whiteboard (IWBs). Clickers are similar to mobile polling that follow the Just in Time Teaching (JiTT) (see section 4.2) strategy that helps to reduce anxiety in students and enhance performance. The study’s result suggested that students maintain higher performance through the academic year when it is used interactive technologies. Contrary to traditional methods, students only demonstrated higher performance before the end of the academic year (end-of-term test) (Remon, Sebastian, Romero, Arauzo, 2017).

  o **Socrative:** This free software was used to synchronize teacher tablet with students’ smartphones. It allowed the study to gather information to understand student engagement and teaching method.
  o **IWBs:** It has similar function as a tablet or computer connected to a projector.

✓ **Students’ reasons to engage in a clicker-based system (PLITAZ):** Pause Lecture, Instant Tutor-Tutee Match, and Attention Zone (PLITAZ) were designed in response to the need of giving the opportunity students to request to periods for pause in the lecture. Pausing the lecture is initially necessary because students’ attention tends to decrease throughout the lecture, and it is necessary for teachers to allow students to reflect on what it is learned. Technologies such as Instant Response Systems (IRS) were designed only for teachers to pause the lecture, time that probably is not convenient for students pacing. Using PLITAZ system, the study found that some of the factors for students to press the “pause” button are (Dong, Hwang, Shadiev, Chen, 2017):

  o Students are willing to pause the lecture when they find hard the content difficult to learn or to remember.
  o Students are willing to pause the lecture when they have lower levels of trust in their instructor, or if they are unable to follow the instructor.
  o Another factor is the level of the introversion in students.

✓ **Pre-Lecture Screencast in a Large Classrooms:** This study found that screencasts designed for students were highly viewed for a specifics topic in the lecture. Also, students used them more before the final module examinations. The students kept logging in to the screencast even before of relevant lectures. Additional, Multiple Choice Quiz (MCQ) added to the screencast was attempted more times than the actual submitted. However, the attempts of correct answers got better after revisiting pre-lecture screencast, the lecture and the revised material (Kinsella, Mahon, Lillis, 2017).

✓ **The students who actively use technology** perceive a more beneficial learning experience. Additionally, virtual learning environment can assist students’ learning significantly when the interaction between faculty-student is missing (Zhuang, & Xiao, 2018).
The Smart-Quiz System (SQS):

“The students have to join a collective pre-class reading session. This would take place few days before the class where they set in teams. Every team is given the same jigsaw reading exercise. Every member would have to read and thoroughly understand a small portion within a certain time, and then educate his/her fellow team members on this portion. Upon finishing the jigsaw exercise, the teacher would assess the successfulness of this exercise by asking some members of the team to recap what they were taught by their fellow teammates. If the answers are correct, then the exercise was successful. If not, the teacher would push in the right direction, through probing and motivation without giving the full answer yet, allowing the students try again to refine their jigsaw metal model, until they get the right answers.” (Salem, 2013, p. 373).

Instructional Recommendations

- Pausing the lecture can also be useful to inform the instructor that learning material is being delivered too fast or it is too difficult for students to comprehend. Working memory has limited capacity, and if no pauses are made at any point during the lecture, students may easily be cognitively overloaded (Hasler et al., 2007).