

Tablet PCs as a catalyst to pedagogical innovation: a case study in microbiology

Abstract:

Technology has the ability to act as a catalyst for redesigning traditional teaching practice. Tablet PC technology combined with screen casts of the annotated work is particularly useful in addressing student learning styles, especially when learners require both visual and auditory mechanisms in order to process information (Radosevich and Kahn, 2006). Integrating this type of technology into the educator's pedagogy can enhance the learning environment positively and there have been a number of examples in various disciplines where a more dynamic, student-centred learning atmosphere has been promoted (Loch and Donovan, 2006; Rogers and Cox, 2008).

Over the last four years I have used Tablet PC technology predominately in teaching chemistry and biochemistry. This has proven to be a very valuable tool in these disciplines, particularly where the teaching is a dynamic process (eg illustrating chemical equations and metabolic pathways). I also utilised the Tablet PC in teaching microbiology albeit to a lesser extent and was inclined only to highlight main points.

Concepts maps and flow charts are a key feature in my teaching approach in microbiology, and, although I had used these two visual strategies for a number of years using the whiteboard, it wasn't until I had used Tablet PC technology in other disciplines that I started to reflect on how best I could use the technology in microbiology. According to Sandholtz, Ringstaff and Dwyer (1997) there is an evolution of thought and practice during the process of change that educators undergo with integration of technology. Tablet PC incorporates elements of traditional white-board teaching and PowerPoint presentation where tools of both old (pen and paper) and new (computer software) are combined. Therefore, incorporating Tablet PC in the instruction of concept maps and flowcharts in microbiology was a natural progression and exemplified how technology can be an impetus for new teaching practices. The ability to annotate and produce screen casts enabled me to promote the use of flow charts and concept maps amongst students by providing the support in terms of visual display and consequently gave students more confidence in constructing them.

This paper documents how my pedagogical approaches in teaching an introductory microbiology class has evolved and how the use of Tablet PC has been the mechanism by which innovative practice has emerged over time. It outlines the progressive change in the use of concept maps from teacher-centred 'chalk and talk' generated concept maps and flow charts to a more constructivist approach where students now generate their own maps through the aid of Tablet PC instruction. The combination of live audio and screen recordings using Camtasia recording software has produced a more dynamic approach to the construction of concepts maps and gives students another dimension to the interrelatedness of concepts which is not as easily afforded by traditional static concept maps on power point slides. This presentation will detail the role that Tablet PCs have played in designing innovative

approaches, highlighting how pedagogical methods have evolved from previously taught concept map and flow chart exercises in an introductory microbiology class.

References

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