

The role of today's mobile tablet technology in the classroom



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BACKGROUND

Studies have disclosed multi-touch technology as collaborative learning tools. However, studies on how multi-touch tablet computers like the Apple iPad have been used as learning tools for students are rare. Concept maps are great graphical tools for organizing knowledge and concepts. They can provide tremendous amount of information for learning, assessing or evaluating information, and for the development of complex thoughts. This study compared the student learning outcomes in the context of concept map creation when the students either used an Apple iPad or a personal laptop computer in a classroom.

METHODS

-36 students who took the AHLT Research and Occupational Therapy course at Indiana University, Indianapolis, were offered voluntary consent.

-Students were divided into two groups, an iPad group (using iBrainstorm concept mapping software) and a laptop computer group (using Microsoft PowerPoint for mapping).

-Concept maps were created during the student's regular class time.

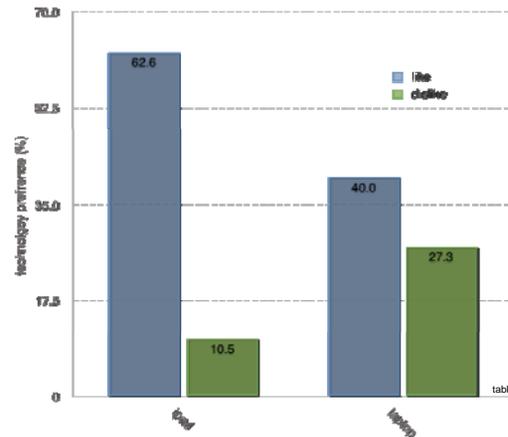
-A short online survey was administered at the end of the study that gave descriptive data of the outcome of the two week experiment.

- A Likert scale was used to rate the student preference of using the iPad or laptop. Because a 1-5 Likert scale included a neutral answer, and the scale was ranged from strongly disagree to strongly agree, numbers 4,5 were combined to represent liked (agree) and 1,2 were combined for disliked (disagree).

Preliminary RESULTS

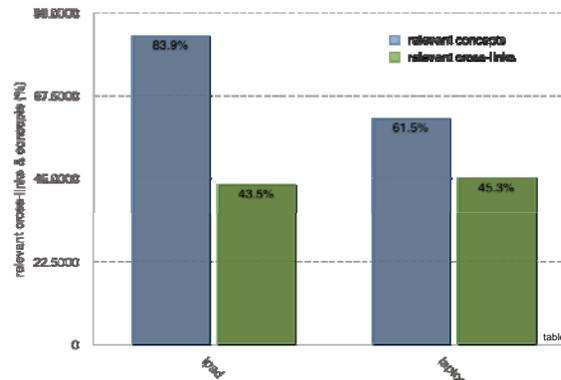
Which group shows more positive preference for their technology for creating concept maps?

The results showed 62.6% of the iPad group preferred using their technology to create concept maps and 40% of the laptop group preferred to use their technology. See table I



Does the iPad group have more relevant cross links and concepts than the laptop group?

Each faculty evaluated the concept maps based on a rubric approved by the instructor before the experiment was performed. The student group concept maps were first graded on the number of concepts they created to represent relevant information for their research topic. The faculty member graded each concept created with either: 0 for no relevance, 1 for some relevance, or 2 most relevant. The faculty then graded the student groups cross-links connecting the concepts and evaluated the cross-links with an 'X' for no connection or a check for connection. There was no significance in the amount of relevant cross-links created by the iPad group which had 43.5% relevant cross-links compared to 45.3% from the laptop group. The iPad group though did have higher relevant concepts created with 83.9% than the laptop group of 61.5%. See table II

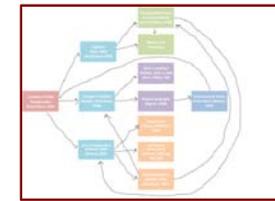


Do the users of the Apple iPad construct more complex maps than the laptop users?

The final online survey asked each student to evaluate and compare each concept map created by each group according to the structures explained in their reading "Making learning visible: the role of concept mapping in higher education." The students evaluated the concept maps based on the structures they closely represented which were a spoke, a chain, or a network. The results showed the iPad group having a slightly higher percentage (82%) of their concept maps representing network structures compared to the laptop group that had 78% of their concept maps representing network structures.



iPad



Laptop

CONCLUSIONS

This study has piloted further research on the use of the Apple iPad as a learning tool for enhancing the student-learning outcome. Further data analysis is in progress to finalize the overall results to completely evaluate how effective the iPad was on the student learning. Based on the reported results, the Apple iPad has some influence in the student-learning outcome but overall may not be a more effective tool for learning overall. Studies have identified touch screen as viable technologies to be used in learning, but no obvious advantage of using the iPad was identified in this study. Further investigation should identify if touch screen is the single factor in the students' learning also future studies should use a larger sample size for data collection.

References

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