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RESEARCH ARTICLE

STUDY ON THE USES OF BRUSHES APPLICATION IN VISUAL EDUCATION

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ABSTRACT

Aim: To study the uses of BRUSHES App in visual education.
Objective: To observe and compare the educational results between visual learning methods and standard textbook learning techniques.
Materials and Methods: A video was made on a topic by using BRUSHES App. A sample size of 100 students was chosen. 50 students answered an MCQ quiz after reading the topic and 50 answered the same quiz after watching the video made on it by using the BRUSHES App and the results were compared.
Results: The mean rank of the correct answers by textbook learning method is 1.90 and by video it is 3.10. Hence the results show a significant increase in the number of correct answers by the video based learning method.
Conclusion: The results of the study suggest that video based teaching method is more effective.
Aim: To study the uses of BRUSHES Application in visual education and compare the educational results between visual learning methods and standard textbook learning techniques.

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INTRODUCTION

Education plays a major role in the life of a student and quality education is very essential. Current advances in technology have spurred the need to incorporate higher standards of teaching in university classrooms based on the new profound resources. In many studies, students found accelerated video recorded lectures equally or more valuable than live lectures (Copley, 2007; Cardall *et al*., 2008; Nikopoulou-Smyrni, 2010; Murthykumar, 2015; Patruja; Veeraiyan, 2013). Although educators may be uncomfortable with the fundamental change in the learning process represented by video-recorded lecture use, students' responses indicate that their decisions to attend lectures or view recorded lectures are motivated primarily by a desire to satisfy their professional goals (Cardall, 2008). Brushes Redux is a painting application designed exclusively for IOS. It is an artistic tool that is user friendly. It provides a platform for students to learn to express themselves better through art in the field of education. The BRUSHES App has multiple layers that can be used simultaneously or separately with or without a stylus. The Brushes application for the iPhone and iPad allows artists to create sophisticated paintings simply by swiping their fingers across the screen.

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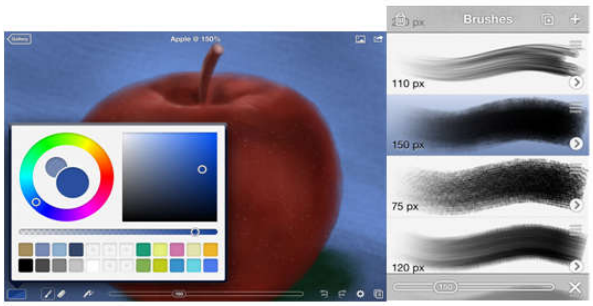
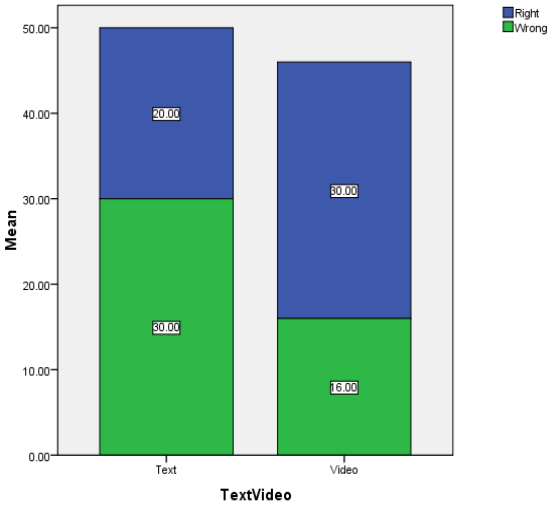
Brushes became available for the iPhone in 2008. The iPad version of the app, allows users to take advantage of the spacious screen and a variety of additional brush settings and layers, and the ability to play back creations stroke-by-stroke right on the screen. The iPad edition offers several features such as 19 brush options and six layers of paint. Multitouch support makes it easy to zoom and rotate images by pinching, spreading, and twisting fingers. Brushstroke options include polka dots, stripes, and thick daubs. A new setting allows the user to vary the thickness or opacity of a brushstroke based on speed, if swiped faster, the line would thin out, giving the illusion of flinging paint on a canvas. The iPad edition also offers empty color swatches on the paint palette and the brush and eraser tools have dedicated buttons on the device. The app records each step taken in a drawing, so it can be undone and redone as required. The automated playback feature, shows the drawings coming into fruition step-by-step and can be played in a sequence in the form of a short video. It is also easy to import photos or other images as a separate layer and then paint on top of them (Creating Art on the iPad data-module-name="article.app/ lib/module/ article Headline" article Body16u By JONNELLE MARTE Updated May 7, 2010 12:01 a.m. ET). Educators use technological advances as powerful pedagogical tools not only to present a plethora of information on a specific topic, but also to incorporate material that is not available in print or that require synthesis from multiple resources (Marshall, 2002).



MATERIALS AND METHODS

Using the BRUSHES App a video was made on 'Inflammatory mediators' by drawing and labeling the respective diagrams in an animated fashion. A sample size of 100 students were taken and divided equally into two groups. The first 50 students were given a topic to study for 15 minutes and were then asked to answer a Multiple Choice based quiz on that topic. The remaining 50 students were required to watch the prepared video made using the BRUSHES App and then answer the same Multiple Choice Questions on that topic. The results of the quiz were then calculated and compared.

RESULTS



Graph 1. Stacked graph between text learning and video learning method

From the above diagram, the respondent who answered correctly with text learning method mean rank is 20% and the respondent who answered correctly with video learning method mean rank is 30%. The respondent answered wrongly in text learning mean rank is 30%and only 16% are from video learning method. There is difference in learning with text and video method. Friedman test is a test for comparing three or more related samples and which makes no assumptions about the underlying distribution of the data. The data is set out in a table comparing rows and columns.

H_0: There is no significance different between the learning with text and learning with video.

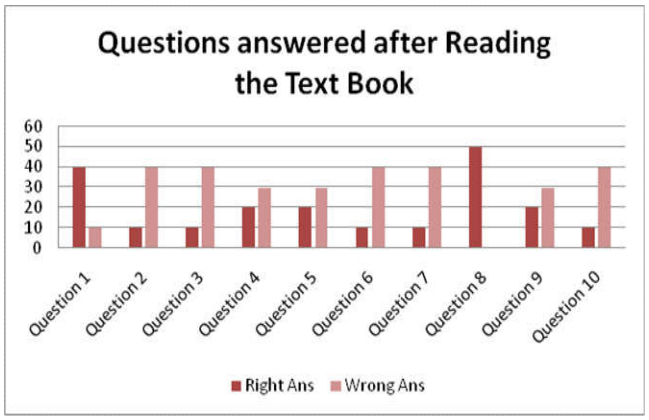
H_1: There is significance different between the learning with text and learning with video.

Ranks	
	Mean Rank
Right text	1.90
Wrong text	3.10
Right video	3.10
Wrong video	1.90

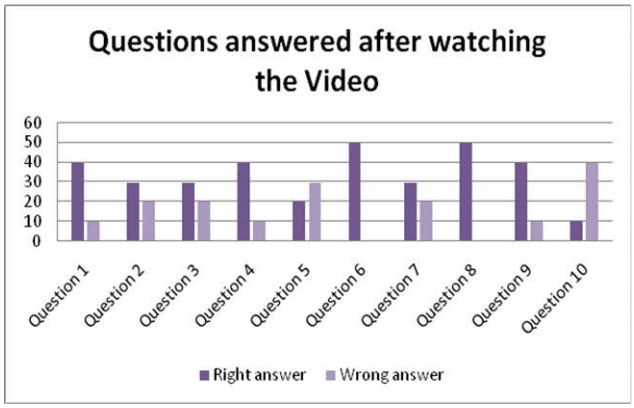
The Friedman test compares the mean ranks between the related groups and indicates how the groups differed. From the above mean rank table, number of correct answers in learning with text method is 1.90 and number of correct answers in learning with video method is 3.10. So, there is difference in the learning methods.

Test Statistics	
N	10
Chi-Square	11.077
df	3
Asymp. Sig.	.011

The Friedman test, which evaluated differences in medians among two learning method, is a significant $\chi^2(3, N= 10) = 11.077$, $p=0.011$ which indicates that there is significant difference between the two methods. Video learning method is better than standard textbook learning method.



Graph 2.



Graph 3.

DISCUSSION

The results of this study show that there is an increase in the mean performance of students who watched the video of the particular topic made on the BRUSHES App and then answered the Multiple Choice Questions compared to the students who learned the topic from the text book. Virtual learning environments, such as Blackboard, are used extensively, to provide repositories for learning materials, which may be enhanced by interactive discussion boards and chat systems. "Images can be worth 1000 words", and moving images, as video, can add authenticity to the portrayal of theoretical material. Video can enable improved communication of lecture material (Janice Whatley and Amrey Ahmad University of Salford, 2007). Research suggests that learning requires visual as well as auditory stimulus, particularly when technology is being used, in order to promote cognitive processing. Using visual information as an additional channel can aid the retention of verbal information, according to Mayer and Anderson.

The students in this study had also reported that the videos were useful for quick revision during their examination preparation. This could be attributed to change in the trends and technology; where in today's students are more digitally fluent managing numerous electronic devices including iPods, iPads, cell phones, internet and television (His, 2007). Including video within the online support material for a module can help students gain an understanding of the material and prepare for assessments. Short clips of video, up to 30 seconds, can often convey a lot of information, and when these are accompanied by textual information and short learning activities, can be a valuable learning tool.In other researches conducted on the efficiency of video based learning, students were asked for their opinion. They enjoyed watching the lectures again, to remind themselves of the main points covered. Some students, who missed the lecture the first time around, said that it was an excellent resource, providing more detail than in the handout of PowerPoint slides (Janice Whatley and Amrey Ahmad University of Salford, Manchester, 2007).
With respect to Dentistry, Brittan *et al*., has reported that video podcasts helped the students in revision more effectively than the textbook (Brittain *et al*., 2006). All the students in this study had no previous exposure or knowledge on the topic and were given ten minutes to learn it from their text book or watch the video composed and hence, it could not have affected the results of this study.

However, as this is still a developing area in the field of research, there is a mixed response on the acceptability of this mode of teaching. Deal and Lazzari found no significant improvement on student grades (Deal; Lazzari, 2009) whereas McKinney found that students only benefitted from podcasts when they took notes and listened to the podcast many times (McKinney *et al*., 2009).

Conclusion

The results of this study have shown us that the video based learning seem to significantly improve the student performance when compared with standard text book based learning techniques.

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