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A Study of Students' Views on the Web-based Learning Structure

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Abstract - Web-based learning programs have shown to be interesting and interactive environment for learners which are practically distinct from traditional classroom practices. Although the use of web-based learning has since been practiced in most institutions globally, there is a need to assess students' learning experiences using web-based learning systems. Technological change, which not only permits new activities but makes those new activities superior in many important ways over the previous method of operation, creates long lasting innovations in society. Web-based learning is one of those innovations and the study in which discussed about Education and Technology, Models of Web-Based Education, The Difference between the Pre-test and the Post-test of the Science Achievement Test (SAT) Scores of the 6th Grade Students.

Keyword - Web, education

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INTRODUCTION

Since it comprises material from an online course, virtual education, often known as e-learning, is also known as Web-based education. There are options for online discussion groups using email, video conferencing, and live (streaming) courses. Websites that are static, such as textual course materials, may also be a part of web-based programmes. The prospect of linkages to other parts of the web, which would provide access to a broad variety of online-based information, is one benefit of utilizing the site to access course material. A virtual learning environment (VLE) or managed learning environment is a computer application that combines learning and teaching (MLE). A VLE often includes functions like discussion boards, chat rooms, online testing, site monitoring, and course administration. Like in any other learning environment, the VLE functions in a manner that distributes knowledge to learners. For instance, VLEs may let students collaborate and share project information. Web-based applications must still focus on the user since technology is neither the issue nor the solution. [16] "The use of modern technologies, such as computers and video conferencing, for training or education is neither better nor worse than the use of earlier technologies. They are just unique. They are just unique. Technology should be chosen based on student requirements and the environment we live in, not on its innovative features."

Education and Technology

The word 'technology' means research being applied to the sciences. In recent years, the concept of technology has evolved. It is a modern sector of education discipline. Two terms of education and technology are educational technology. We develop technology while applying the science of teaching and communicating. The relation between education and technology is highlighted by three major factors. [17]

Educational innovations aim to create, implement and validate technologies, strategies, and aids for developing human learning processes. Educational technology It can be conceived as a science of procedures, strategies, and advertising that can achieve instructional objectives. 'Technology of Education' can be described as the systemic application of scientific expertise to specific education tasks. It is a form of communication that results from the application of the scientific method of teaching/learning cognitive knowledge. The technology of education is used as both a means and a service for integrating and promoting improved and more efficient learning processes. In the educational philosophy, it can be described as a separate area in the creation and usage of educational resources.[18]

Models of Web-Based Education

There are several ways for developing and delivering web-based training. It can be considered a spectrum. "pure" distance education at one end (in which course material, assessment, and support are

all delivered online, with no face-to-face contact between students and teachers). [18]On the other hand, is an organizational intranet that replicates published web resources to facilitate what is a conventional course from one side to another. However, websites that are just content archives, without any connection to instruction, collaboration, and evaluation exercises do not focus on learners and cannot be called genuine web-based education courses.[19]

LITERATURE REVIEW

Liu (2017) It has been said that in distance education and similar fields, web-based learning started to emerge more and more. In an interactive classroom, the researcher studied an English teaching model utilizing web-based learning. Our web-based learning programs have been graded as web-supported, which publishes materials or distributes them face-to-face, web-enriched and helps to strengthen a face-to-face course through internet tools, web-enabled, which provides full online help for face-to-face teaching programs and web-based courses.[1]

Iniesto et al. (2017) It was stressed that more and more disabled students are favoring distance learning. The researchers then examined the viewpoint on the usability of massive Open Online Courses for students and providers (MOOCs). Open MOOCs are alleged to provide a portable format for learning. One opinion that interviewees have been popular among providers was that disability requirements are not identified as material for MOOCs has been created. Autistic students are more involved in MOOCs relative to other students to figure out how they can handle higher education online. However, the preferences of disabled students should be recognized. [2]

Giannoumi et al. (2017) Analyzed was the connection between online usability and TPM, which is led by multilevel governance and social regulations. Academic research has been examined in the areas of Internet connectivity and copyright legislation, including developing and learning disorders for people with neurological impairments and traumatic intellectual harm, dyslexia, and autism. The researchers also confirmed that online usability tests are mostly performed by people with sensory and physical difficulties. However, socioeconomic, cultural, and political expectations influence the interaction between individuals with cognitive impairments and the challenges they encounter. It was decided that the legislation and regulations protecting TPM do not hinder the use of their site privileges by persons with cognitive disabilities. The legislation should guarantee that everybody can develop, use and distribute open formats with specific legal rights. [3]

Rodriguez et al. (2017) Initially, the Open Educational Resources (OER) and Open Course Ware (OCW) offered some details about the ease of access anytime and wherever. Both the universal awareness was emphasized by UNESCO, and the course materials were shared online by MIT. Researchers subsequently submitted a framework to improve OCW pages usability through the reference to ISO/IEC 13407 regulations and the Web Content Accessibility Guidelines 2.0 (WCAG). Three standards of usability success requirements are: all non-text material has the corresponding alternative text; the visual text and the text pictures have a contrast ratio of 7:1, except for large by-products and logos. [4]

Aizpurua, Harper, and Vigo (2016) The connection between online accessibility and usability concerning user experience has been investigated. Four websites for open inspections were named by researchers, namely AChecker, Eval Access, TAW, and WAVE. The research was undertaken by 11 participants who were lawfully blind for the intention of utilizing screen readers to use the Internet by answering questions about their site familiarity, frequency of accessing the Web, and the participants' demographics. It is worth noting that the website's menu design and hyperlinks influence the website view. If the website is more available, the more motivated people can search and revisit the website. [5]

Ekici and Delen (2016) The goal of the research is to review, during their training, the diaries exchanged by preservation teachers in the branches of research and mathematics in the sense of 'professional development.' To ensure that preservation teachers communicate their insights, two websites were created. This means that the participants' thoughts are available to the researchers to consider the participants. The authors examined the 195 postings posted by the 65 teachers on the platform surrounding the three events. As study results were evaluated, more precise knowledge was determined; teaching strategies were evaluated and prepared before the course was highlighted in the diaries of teachers of preservation mathematics. Based on the study findings for zel and ok learners, too, web-based environments have several benefits such as simplicity, saving time, economic performance, fast sharing, visual use, readable writing, and reducing the issue of writing and punctuation and page layout. [6]

El-Seoud et al. (2013) In the study of cloud infrastructure web-based schooling, our attention was drawn to the training activities of asynchronous web-based e-learning courses. A study involved learning events, such as quizzes, interviews, websites, and voting sessions according to their relevance, 85 postgraduate students from three separate departments participated. Researchers also said students and teachers work together, share bookmarks that students think are cool and web-based assessments that make it possible for learners to get immediate input, add suggestions, and active learning. [7]

Coiro and Fogleman (2011) Suggested they will enhance comprehension and promote learning if websites are being used wisely. This website, as suggested, provides ideas for particular areas using text, video, and images in web-based knowledge reading systems, which is one of three categories of web-based environments. The student uses these websites to read and display the content. Classroom teaching certain websites to conduct their assignments and activities, such as reading a story on the net. As students read the material, the instructor asks them to write their emotions and opinions or to describe information details as to how students use those websites to know themselves. The researchers have proposed that teachers should pick such websites of importance to students. Students were able to read informative texts at their level with the use of the selected websites. [8]

Choi and Bakken's (2010) Study shows the usefulness of its platform to empower parents with little health education utilizing a range of graphics, such as photographs and clip art. These graphic elements facilitated user interpretation of the text. The website was developed following multimedia learning cognitive philosophy and the participants thus expressed their positive comments on the usefulness of the platform. In addition, utilizing restricted text, color, text size, and pop-ups, researchers conclude the topics with simplicity in terms of architecture, material, and technological features. [9]

Chen, Chang, and Wang (2008) Created an all-around learning experience with help from a platform for learning. The website is built for tools and learning performance to be improved. The web-based learning framework often includes knowledge of learning status, scheduling reminders, and mentoring arrangements. The online-based learning framework sponsored by a platform has carried out work on the webserver of Microsoft Internet Services to facilitate readings, quizzes, talks, assignments, and exams. A total of 54 students attended the course and the results showed that the omnipresent online site improves university success, the rate of completion of learning objectives. [10]

Chiu and Wang (2008) Seen from a particular point of view – continuity, web-based learning. The researchers collected data from 286 participants in a survey to explore explanations for continuing the use of web-based instruction. Further information indicated that while the purpose to consistently utilize Web-based learning at the same level influenced the assumption of success and usefulness benefit, social alienation, delay reaction, and the possibility of arbitrary learning had little effect. The study reveals that expectation of effort, machine performance, the achievability of value and the intrinsic value had also essential consequences but the consistency was impacted by anxiety. [11]

Wall (2007), An immersive web-based substance misuse awareness software was analyzed. The researcher analyzed the gaps between the web-enabled participants (20,150 persons) and the non-participants. The assessment found that immersive web-based health education services that are structured according to the curiosity and learning needs of the learners are useful. The distribution format of the software influenced results the most. Another significant finding was that. [12]

Woo and Reeves (2007) Researcher Studied "interaction" with social constructivism in web-based research. It is claimed that maintaining connectivity in continuous form is more difficult because of time and space variations in the Web-based learning environment than in a face-to-face setting. The thesis focused on the engagement online to ensure effective learning and argued that the analysis of this interaction may find areas in which web-based learning environments would enhance their content. The researchers noted that Web-based learning systems can concentrate on human-to-human contact rather than human-to-context interaction since genuine tasks are more likely to be involved. [13]

Nguyen, Hsieh, and Allen (2006) Research was carried out by qualitative and quantitative approaches to investigate whether the web-based evaluation had a significant impact on teaching and learning mathematics. This evaluation will include training, improve understanding, provide students with adequate input and also increase the mathematical aptitude of the students, according to the report. The research shows immediate input and computer scores that help students manage their learning easier. Train and gain reviews directly in a web-based learning system enable students to devote more time to practice and do well. It also helps students to have more trust in the solution of problems and to study mathematics. [14]

McKimm, Jollie, and Cantillon (2003) Researcher discussed the funding and assistance of educators and their students in medical education for online-focused education. It is claimed that using hyperlinks that host websites, it is much simpler to get access to a huge amount of data on the Internet (e.g., online libraries). The researchers showed some of the benefits of web-based learning: allowing learners to link to a wide range of resources; offering a simple means of delivering content; making autonomous and constructive learning feasible if appropriate. The researchers also discussed the advantages of this type of learning that message boards put together alienated individuals and receive immediate input. [15]

METHODOLOGY

The case study was considered a technique for triangular analysis. Researchers have claimed that triangulation of records, researchers, theories, and even methodologies were occurring. It is claimed that triangulation is known as the protocol which was

used to maintain consistency and alternate explanations. Triangulation is essential because of the legal requirement to ensure that the procedures are correct. In the case of studies, various data sets would be used. In the case of studies, the challenge was determining significance and not position. Descriptive and inferential statistics was used to perform quantitative analysis. SPSS© 11 package application was used for statistical analysis. The SAT and attitude scale data obtained was correlated with paired t-tests. By simply r correlating, the association was established between user logs, attitude, and SAT scores. In quality methods, the data collected from interviews was analyzed. The answers of the students were have been translated and divided into dimensions. For each interview outcome, data reduction, show, and conclusion were performed. The findings was classified and condensed concerning the reduction of details. Results were then being arranged in the data show for conclusion drawing. Finally, findings on data were having been collected.

DATA ANALYSIS

Quantitative Results

This section is divided into four sub-sections. In the first sub-section, missing data analysis will be presented. In the second, assumptions of the tests used will be presented. Then, the inferential statistics results will be discussed. In the last part, the findings of the quantitative results of the study will be presented.

1. Assumptions of the t-test and Correlations

For the normality assumption, skewness and kurtosis values of the scores should be checked, the values between -2 and +2 can be assumed as approximately normal for skewness and kurtosis . In the study, skewness and kurtosis values were in the acceptable range for a normal distribution.

- **The Difference between the Pre-test and the Post-test of the Science Achievement Test (SAT) Scores of the 6th Grade Students**

To test the first sub-question, a t-test was carried out on the pre-test and the post-test achievement scores in the SAT scores of the 6th grade science course students at the end of the study. Mean scores on the pre-test and the post-test were compared using a t-test at a significance level of .05. As shown in Table 4.1, the post-test mean score on achievement (M=56.55) was slightly higher than that of the pre-test (M=42.85). The t-test result showed that this difference in the mean score is statistically significant at a significance level of .05. There was a significant difference between the pre-test and the post-test achievement scores in the SAT score of the 6th grade science course at the end of the study. These results also indicated that a significant correlation existed between these two variables (r = .610, p<.05), indicating that those who scored high on the pre-test tend to score high on the post-test.

Table 1: Comparison of the Pre-test and the Post-test of the ScienceAchievement Test (SAT) Scores of the 6th Grade Students

Test	N	Mean	SD	T value	df	2-tail prob
Pre-SAT	13	42.85	10.67	6.02	12	.00
Post-SAT	13	56.55	13.85			
Paired Samples Correlations N			Correlation	Sig.		
Post-SAT & Pre-SAT 13			,610	,027		

- **The Difference between the Pre-test and the Post-test of the Science Achievement Test (SAT) Scores of the 7th Grade Students**

To test the second sub-question, a t-test was carried out on the pre-test and the post-test achievement scores in the SAT scores of the 7th grade science course at the end of the experiment. Mean scores on the pre-test and the post- test were compared using a t-test at a significance level of .05. As shown in Table 4.2, the post-test mean score on achievement (M=58.38) was slightly higher than that of the pre-test (M=46.81). The t-test result showed that this difference in the mean score is statistically significant. There was a significant difference between the pre-test and the post-test achievement scores in the SAT score of the 7th grade science course at the end of the study at a significance level of .05. These results also indicated that a significant correlation exists between these two variables (r = .807, p<.05) indicating that those who scored high on the pre-test tend to score high on the post-test.

Table 2: Comparison of the Pre-test and the Post-test of the Science ,Achievement Test (SAT) Scores of the 7th Grade Students

Test	N	Mean	SD	T value	df	2-tail prob
Pre-SAT	21	46.81	11.24	5.30	20	.00
Post-SAT	21	58.38	16.56			
Paired Samples Correlations N			Correlation	Sig.		
Post-SAT & Pre-SAT 21			,807	,000		

- **The Difference between the Pre-test and the Post-test of the Science Achievement Test (SAT) Scores of the 8th Grade Students**

To test the third sub-question, a t-test was carried out on the pre-test and the post-test achievement scores in the SAT scores of the 8th grade science course at the end of the experiment. Mean scores on the pre-test and the post- test were compared using a t-test at a significance level of .05. As shown in Table 4.3, the post-test mean score on achievement (M=47.65) was slightly higher than that of the pre-test (M=37.24). The t-test result showed that this difference in the mean score is statistically significant at a significance level of .05. This result indicated that there was a significant difference between the pre-test and the post-test achievement scores in the SAT score of the 8th grade science course at the end of the study. These results also indicated that a significant correlation exists between these two variables (r = .499, p<.05) indicating that those who scored high on the pre-test tend to score high on the post-test.

Table 3: Comparison of the Pre-test and the Post-test of the ScienceAchievement Test (SAT) Scores of the 8th Grade Students

Test	N	Mean	SD	T value	df	2-tail prob
Pre-SAT	17	37.24	9.01	3.09	16	.007
Post-SAT	17	47.65	16.00			
Paired Samples Correlations N			Correlation	Sig.		
Post-SAT & Pre-SAT 15			,499	,042		

CONCLUSION

The quantitative findings of the research will show that the pre-test and the post-testing scores of the 6th, 7th and 8th grade children will vary significantly at the completion of the study. These findings also show that these two factors have a strong connection. This important connection showed that individuals who have achieved good results on the pre-test likely to get high points on the post-test. The effects of web-based learning may be studied by comparing conventional and/or other kinds of media in research.

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