EVALUATION OF WEB – BASED TECHNIQUE USED FOR TEACHING AND LEARNING

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ABSTRACT

Teachers in schools and lecturers at higher education institutions now have access to a broad range of novel teaching experiences thanks to web-based teaching and learning approaches (WBTLA), which were previously unavailable due to the traditional classroom method. With the implementation of WBTLA, usability issues in technical, pedagogical, and contextual elements of teaching and learning surfaced. A survey was conducted to establish the factors of usability and the extent to which lecturers thought they liked teaching as well as the challenges they had in using WBTLA in their lectures. While lecturers agreed on technical and pedagogical usability, as well as the extent of obstacles they could overcome, their perceptions and views about contextual usability, as well as the extent of the challenges they could overcome, were less obvious. This depends a great deal on each institution's capabilities and desire to invest in technology and provide training to professors.

Keywords: Web-based instruction; online learning; communication; interaction;

I. INTRODUCTION

The Internet has altered how individuals communicate in both their professional and personal lives. The advantages of the Internet in facilitating communication and providing access to information are contributing to the rapid expansion of its applications in all professional fields, including language instruction, despite the fact that access to the Internet is not uniform in every country, let alone the entire world. Internet-based learning is also known as networked learning, online learning, or e-learning, as it is increasingly more commonly referred to.

Administrators at all levels of education are considering integrating Web-based curriculum applications to address a variety of issues, including a shortage of qualified teachers, particularly in rural areas or for less commonly taught languages, and a lack of resources for building new facilities and hiring new faculty. As a result, Web-based courses have taken off not only in traditional distant education institutions, but also in nearly every other educational setting.

As managers put more pressure on teachers to incorporate the Internet into their lessons, a new issue emerges in their already hectic schedules. Integration of the Internet has mostly entailed the utilization of available primary or secondary Web materials for many education practitioners.

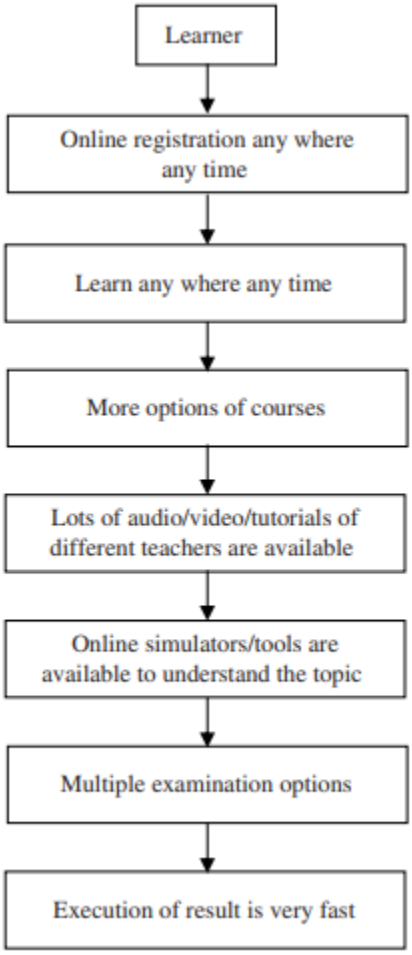

Figure 1: Web based Learning

II. POSITIVE IMPACT OF WEB-BASED LEARNING

Different beneficial benefits of web-based learning have been highlighted in this section based on the literature.

2.1. Distance Learning, Economies of Scale and Consistent Message

Large nations, such as India, have significant obstacles in educating people in rural locations. Web-based learning is an excellent way to overcome the issue of physical distance. Students, scholars, and even regular individuals may use the internet to learn about any topic from any part of the country. Even the instructor is a student at all times.

2.2. Time Flexibility

In today's world, learning while working is also important. People in many professions, such as researchers, teachers, developers, architects, engineers, and physicians, must keep up to date on a regular basis. Due to their duties, even illiterate persons who work are unable to attend school or college to further their education. They must labour to meet their basic requirements.

2.3. Online Discussions

Learners in conventional techniques were confined to a single location or group. They can, however, participate in online debates and discussions using web-based learning approaches.

2.4. Teaching Methodologies

Teachers have more alternatives than just chalk and board with the utilisation of web-based learning and teaching tools. Teachers may create and post videos, tutorials, and other materials to the internet. Learners may access these loaded videos, tutorials, and other learning materials from their teachers, experts, and other global educators.

2.5. Learning Resources

The Internet, online, and smart phone revolutions have altered people's daily life. It also had an influence on teaching and learning. Teachers and students were reliant on difficult learning material in previous techniques. And they must purchase or borrow books or materials from libraries in order to utilise them, and they must then transport these hefty books or materials. The WBLT, on the other hand, eliminates the requirement for teachers and pupils to carry this material. All of this information is available on the internet. Users only need to bring their smartphones. The National Digitized Library (NDL) is an online repository for digital literature. Online learning tools include Infonet, inflibnet, N-List, web sites, online research papers, digital books, online tutorials, Wikipedia, and others. With the aid of the Internet, people may obtain any information from any location at any time.

III. NEGATIVE IMPACT OF WEB BASED LEARNING

Learners' lives were impacted by web-based learning and teaching. Nonetheless, it has several negative consequences in one's life. Some of them are mentioned farther down.

3.1. Dependency on Internet

In nations like India, Internet connectivity is still a major issue due to geographical constraints. Web learners, on the other hand, are always reliant on the Internet.

3.2. Harmful for Health

Individuals are in a very difficult situation as a result of their excessive usage of the Internet. It causes people to become disorganized, which has a negative impact on their physical and mental health. They are so reliant on the Internet that it has become a horrible addiction for them. Human memory is deteriorating at an alarming rate. No one wants to recall knowledge these days. Everyone is reliant on Google, which is reducing the human body's memory capacity.

3.3. Quality of Learning Material

The learning material gained via the Internet is so powerful that it has become a foundation for long-term growth. When the material isn't up to par, it reflects on the company's overall quality. There is no universally accepted standard for information on the internet. People can offer their information on the same issue in a variety of ways.

3.4. Wastage of Time

Everything is so quick and easy to find on the Internet. The youthful generation, in particular, is addicted to the Internet and wastes a lot of time on it. They are going on and seeking that site more and more since they do not have sufficient information about it. This behaviour has an impact on classroom teaching strategies as well. During a normal classroom hour, instructors face a slew of issues.

3.5. Lack of Equipment

For their trials, the web-based education experts employ the most up-to-date equipment. In addition, the students attempted to implement the algorithms/programs using the tools or equipment they had on hand. In many cases, they did not receive the desired outcomes. In addition, without graphics, photographs, or video clips, learners are unable to comprehend the experimental issue; yet, many times the experts do not utilise them, and many times learners are unable to access owing to bad tools or Internet connections.

IV. METHOD

This research was conducted as a survey with a questionnaire as the data gathering tool. The sample included 157 lecturers from 15 purposefully selected public and private schools of higher learning in four disciplines of study: social science and business, science and mathematics, art and design, and languages.

The subjects were conveniently sampled, with 62 males and 95 females working as instructors at various undergraduate levels from first to fourth year. The first objective's analysis is quantitative, whereas the second objective's analysis is qualitative. A questionnaire was used to collect data for the first objective, which was completed by 157 lecturers from four fields of study. Science and mathematics had 30 students, social science and business had 55, art and design had 32, and languages had 40. The professors were given the questionnaire at the end of

the second semester. The questionnaire has 25 five-point Likert scale items, with 5 denoting "Strongly agree," 4 denoting "Agree," 3 denoting "Neither Agree nor Disagree," 2 denoting "Disagree," and 1 denoting "Strongly Disagree." The questionnaire was developed from Hadjerrout's study and face validity was confirmed by four specialists in the field of instructional technology. However, in the main study, factor analysis revealed the existence of four factors accounting for 72 percent of the variance in technical usability, twelve factors accounting for 65 percent of the variance in pedagogical usability, and nine factors accounting for 62 percent of the variance in contextual usability. The questionnaire's Cronbach alpha reliability was 0.88.

The lecturers were requested to react to two open-ended questions as well as offer feedback on what they like and hate about the WBTLA, as well as any suggestions for changes. The open ended questions, like the questionnaire, were subjected to verification by the same instructional technology specialists. They all agreed that the questions had the power to elicit the replies that the lecturers needed. The questionnaire was examined using descriptive statistics, and the interviews were qualitatively reviewed, revealing highlights of the opinions on the WBTLA's strengths and flaws, as well as ideas for development.

V. RESULTS

The three areas studied were lecturers' perceptions of WBLTA's technical, pedagogical, and situational applicability in their respective institutions of higher learning. The median score on technical usability for all of the participants was 2.11, which was utilised as a cut-off point for positive and negative evaluations. In terms of technical usability of WBTLA, the mean score for page design was 3.88, with a standard deviation of .550, as shown in Table 1. These results suggest that respondents thought page design for WBTLA to be rather simple. The mean score for content design was 3.02, with a standard deviation of .611, suggesting that designing content was not too difficult for them, implying that they could grasp and utilise symbols, logos, figures, drawings, and illustrations. The mean score for site design was 3.86, with a standard deviation of .718, suggesting that using menus, screenshots, and navigating across screens is rather simple.

Table 1: Means and Standard Deviations for the Technical Usability Criteria

	Mean	**Std. Deviation**
Page design	3.88	.650
Content design	3.02	.611
Site design	3.86	.718

The overall median score for pedagogical usefulness was 3.45. This was used as the cut-off point for deciding whether an item's pedagogical usability was high or low. The following are lecturers' perspectives on the pedagogical usability of WBTLTAs, as shown in Table 2: The mean score for understandability was 3.52, with a standard deviation of.775 indicating that the lecturers agreed that the use of WBTLA aided the students' understanding of the subject content. Furthermore, the mean score for the item on added value was 3.08, with a standard deviation of.660, indicating that these lecturers agreed that using WBTLA in teaching their subjects was preferable to using textbooks or relying on the lecturers themselves.

The mean score for goal-orientation was 2.77, with a standard deviation of.865, indicating that these lecturers disagreed that they could solely rely on the WBTLA in their teaching because students prefer to learn in a variety of ways. In terms of time, the mean score was 3.67 and the standard deviation was.984, indicating that these lecturers agreed that WBTLA made it easier for students to learn the subject matter than other learning methods that relied on books and other learning materials. The mean score for task-

based activities was 3.73, with a standard deviation of.720, indicating that the lecturers agreed that the students found the tasks to be interactive, instructive, informative, and exciting. Regarding the use of multimedia, the lecturers unanimously agreed that animations, graphics, and pictures aid their students' comprehension of the material. The mean score of 4.22 and standard deviation of.586 demonstrate this. The mean score for motivation was 3.35, with a standard deviation of.906, indicating that the lecturers agreed that the WBTLAs were.

The mean score for WBTLA flexibility in catering to the needs of students from various backgrounds was 4.18, with a standard deviation of.966, indicating that the lecturers agreed that WBTLAs are adaptable to a variety of student backgrounds, including age, development, and interest. The mean score for learning autonomy was 3.85, with a standard deviation of.741, indicating that the lecturers discovered that students were much more independent in their learning and less reliant on the lecturers. The mean score for collaboration was 4.11, with a standard deviation of.815, indicating that WBTLA encouraged students to collaborate, according to the lecturers. Finally, in terms of WBTLA's ability to provide variation in learning, lecturers indicated that in their teaching and student learning, WBTLA proved to be a little difficult to combine with other modes of teaching and learning, as evidenced by the mean score of 2.24 and standard deviation of.713.

Table 2: Means and Standard Deviations for the Pedagogical Usability Criteria

	Mean	**Std. Deviation**
Understandability	3.52	.775
Added value	3.08	.660
Goal-orientation	2.77	.865
Time	3.47	.904
Activity	3.73	.720
Multimedia	4.12	.586
Motivation	3.35	.916
Flexibility	4.18	.966
Autonomy	3.85	.741
Collaboration	4.11	.815
Variation	2.24	.713

The issues posed for contextual usability are divided into two categories: material milieu and non-material milieu. The total median score of 3.15 served as the mean cut-off point for determining whether a score was positive or negative. When it came to combining books and journals with web-based learning materials, the lecturers agreed that WBTLA would need to use other resources and materials, such as books and journals. The response to the IT infrastructure's ability to support the WBTLA was positive, but there was a lot of variation among the lecturers' responses, as shown by the standard deviation. The response to whether WBTLA could meet the curriculum requirement was overwhelmingly positive, but there was a wide range of opinions among the lecturers. The responses to whether it can cope with the needs of all subject matter were overwhelmingly positive, with a mean of

4.26, but there was a lot of variation in the lecturers' responses, as evidenced by the standard deviation of 1.121. The lecturers' responses to students' attitudes toward the WBTLA were that the students' attitudes were generally positive, with a mean score of 3.54, but that there was significant variation among these attitudes, as indicated by the standard deviation of 1.312. The lecturers' attitudes toward using WBTLA in their teaching were mostly positive, as evidenced by the mean of 3.33, but there was a lot of variation in the responses, as evidenced by the standard deviation of.957. Finally, when it came to institutional policy in terms of providing support for the use of the WBTLA, the lecturers' responses were generally positive, with little variation among the institutions.

Table 3: Means and Standard Deviations of Context Usability

Material Milieu	**Mean**	**Std. Deviation**
Books/journals	4.52	.820
IT Infrastructure	3.88	.911
Curriculum	4.26	1.121
Subject Matter	4.12	1.024
Non-Material Milieu		
Students	3.54	1.312
Lecturers and Instructors	3.33	.957
Institution policy	4.32	.645

The lecturers were asked to share their thoughts on what they like and dislike about WBTLA's usability, as well as how they would go about improving it. Although there was some disagreement among the lecturers in this study about what they liked about WBTLA, more than 70% of them agreed that WBTLA is technically and pedagogically usable in many ways. Lesson presentations may be made effective and fascinating depending on the lecturers' originality and expertise. Many of them stated that using audio-video and animations to present content can be very engaging, making it not only more informative but also assisting in capturing the attention of students who were previously found to be less motivated to learn. As a result, the lecturers agreed that the majority of students will find WBTLA to be far more engaging than traditional classroom learning. Because learning is made easier than before, students will be more motivated to learn, which will help them improve their grades.

However, a number of lecturers mentioned difficulties in aligning the WBTLA with the curriculum content and requirements, particularly with learning outcomes related to skills such as scientific skills and a variety of soft skills.

Lecturers also mentioned that their job of providing and prescribing extra learning materials will be much easier because they only need to provide a few guides to where they can find relevant materials online. Students are much more independent and resourceful as a result of this than they were in the traditional classroom. Students were found to be able to obtain information about the subjects from a variety of sources, which aided in the enrichment of materials discussed in class. Furthermore, the lecturers stated that the WBTLA enabled them to plan and implement a wider range of activities. The amount of text and figures, for example, can be uploaded, and students can use that information to complete required activities on their own, with friends, or with others who are interested in the subject. Some lecturers

discovered that they could assign students to work in groups because of the potential for collaborative teaching and learning. They could also collaborate with other lecturers to prepare their lessons, both in terms of materials and techniques. WBTLA enriched their teaching experience for them. Students benefit from collaborative learning that is not limited to class hours since it allows them to accomplish assignments and other work in the time allotted.

VI. CONCLUSION

In today's world, the Internet is extremely useful in almost every facet of life. It has also had an influence on teaching and learning methods. A country like India faces several hurdles in terms of educating its vast population and diverse ethnic groups. One of the ways to improve their efficacy is to use web-based technologies. In today's world, Internet use has a huge influence on the young generation, and India has the world's biggest youth population. Fortunately, if the path is on the proper track, a successful completion is possible. It is impossible to accomplish success without it. The international expansion of Web-based teaching and learning offers a variety of chances for knowledge and information advancement. Educators play a huge role in the lives of students. Despite the importance of digital tools, there are several roadblocks in the way that can quickly derail a learner's path to success. The latest technological advancements have opened up new possibilities for their growth. The term is compressed by the web-based learning and teaching system. Teachers and students have higher expectations for new ideas and research as a result of these.

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