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Awareness Of Secondary School Teachers On Teaching Learning Technology - A Study.

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Abstract

Present study investigates secondary school teachers' awareness and use of teaching-learning technology (TLT) in secondary education. Today's quickly changing educational scene, technology integration is no longer optional, but rather required for successful teaching and meaningful learning. This research studies secondary school teachers' familiarity with various teaching learning technology tools and their perceived usefulness in the classroom. It assesses instructors' familiarity with various technology tools, including as interactive whiteboards and projectors, learning management systems (LMS) and educational applications, and online platforms for collaboration and resource sharing. The study also examines teachers' perceptions of teaching learning technology's pedagogical uses, such as employing technology to differentiate instruction, engage students in active learning, and assess student progress.

Present research objectives are to study the component of different types of teaching learning technology, to study the awareness of secondary school teacher's different types of teaching learning technology and to give suggestions to the concern on the basis of study. It focus on Madha taluka in Solapur district, Maharashtra, and surveys 66 randomly selected secondary school teachers with a structured questionnaire. The study investigates the factors that influence teachers' acceptance and effective use of teaching learning technology. This involves investigating the availability of technology resources in schools, the quality of technical assistance provided to teachers, and the opportunity for professional development associated with teaching learning technology integration. By investigating these aspects, the study uncover potential hurdles to teaching learning technology adoption and propose ways for fostering effective integration in secondary school classrooms.

Key words: Teaching Learning Technology, Components, Secondary School Teachers.

Introduction

Teaching and learning are intrinsically dynamic and reciprocal processes in which educators and students exchange knowledge, skills, and perspectives on a constant basis. Teaching, at its core, is the deliberate facilitation of learning using a variety of ways such as instruction, demonstration, and direction. It is more than just transmitting information; it is also about creating an atmosphere that promotes intellectual growth and development **(Biggs & Tang, 2011)**. Effective teaching includes a thorough understanding of pedagogical concepts, subject matter competence, and the capacity to adapt to changing learner demands. This adaptation frequently entails adopting individualized instruction, including diverse learning styles, and building a supportive and inclusive classroom environment.

By contrast, learning is an active and constructive process in which people acquire new knowledge, modify existing understandings, and develop abilities through experience, study, or instruction (**Schunk, 2016**). It goes beyond simply memorizing facts to include critical thinking, problem solving, and knowledge

application in real-world circumstances. Learners are not passive consumers of information, but rather active participants in creating their own understanding. This construction is influenced by prior knowledge, motivation, and the social and cultural context in which learning takes place. As a result, effective learning practices frequently include active participation, self-reflection, and cooperation with peers. **Mishra, P., & Koehler, M. J. (2006).**

Teaching-learning technology is the integration of digital technologies and resources into educational processes to increase student learning and instructional delivery. This discipline is dynamic, growing in response to technological improvements, with the goal of creating more interesting, accessible, and effective learning experiences. Educational technology is more than just employing devices; it's about strategically harnessing technology to achieve certain pedagogical objectives. As stated in the Wikipedia (2020) entry, "Educational technology encompasses e-learning, instructional technology, information and communication technology (ICT) in education, edtech, learning technology, multimedia learning, technology-enhanced learning (TEL)"**Educational technology-Wikipedia. (2021).** This demonstrates the broad scope of what the term encompasses.

The concept of awareness regarding teaching and learning technology comprises a broad understanding of the tools, applications, and implications of technology within educational settings. It goes beyond mere familiarity, demanding a comprehension of how these technologies can effectively enhance pedagogical practices and student learning outcomes. This awareness is crucial for educators to navigate the rapidly evolving digital landscape and integrate technology meaningfully into their classrooms. Therefore researchers undertaken present study with the three objectives these are:

Objectives:

The specific objectives of this research are:

1. To study the component of different types of teaching learning technology.
2. To study the awareness of secondary school teachers on different types of teaching learning technology.
3. To give suggestions to the concern on the basis of the study.

For fulfilment of these objectives following research procedures have been adopted by the researchers.

Research Procedure:

Research Method: Survey is undertaken with the help of Questionnaire for studying the awareness of teaching learning technology among secondary school teachers and also literature review is undertaken to study the components of different types of teaching learning technology useful in education.

Collection of the Data: For present study data is collected through the survey of secondary school teachers for studying the awareness about teaching learning technology in secondary education.

Sample: Sample is undertaken of Sixty Six in-service teachers who are randomly selected by using lottery method from Madha taluka, of Solapur district (Maharashtra), and those responded on the researcher prepaid questionnaire.

Objective wise Procedure of the study:

The first objective of the research is to study the component of different type of teaching learning technology. Hence for fulfilling this objective Literature survey is undertaken as: Dede, C. (2022), Hrastinski,

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S. (2019), Luckin, R., Holmes, W., et.al. (2020), Mayer, R. E. (2021). From this review of literature. Component of different type of teaching learning technology Identified and those are described in fig.No.1.

Sr.No.	Components	Description
1	Traditional Teaching-Learning Technology	Traditional teaching-learning technology includes well-established approaches such as lectures, textbooks, and blackboards, with an emphasis on direct teacher-student interaction. These techniques promote disciplined learning, emphasise core information, and encourage social interaction in a physical classroom. Their application focuses on teacher-led instruction, which encourages discipline and focused attention. While current technology provides a variety of learning experiences, traditional methods remain effective for establishing key concepts and developing interpersonal connections.
2	Audio-Visual Technology	Audio-visual technology in education uses visual and audible aids to improve learning. It includes tools such as projectors, films, and podcasts designed to engage multiple senses and promote retention of learning. The concept is around delivering knowledge in dynamic, multi-modal formats that cater to various learning styles. Uses include presenting complex topics, offering real-world examples, and promoting interactive learning experiences. Effective implementation requires careful selection of materials and integration with pedagogical goals, ensuring that technology complements and reinforces learning objectives.
3	Digital and Online Technology	Digital and online education technology makes use of internet-based applications and resources to assist students learning. This idea incorporates online learning platforms, digital textbooks, and interactive simulations, allowing for flexible and personalized instruction. Its applications include remote training, collaborative learning through internet forums, and access to huge amounts of information. Digital tools improve engagement by providing interactive information and real-time feedback. Effective implementation necessitates meticulous planning, digital literacy, and equal access to technology.
4	Adaptive and A.I. Based Technology	Adaptive and AI-based technology personalizes learning by analysing data and adapting material and pace to individual requirements. AI-powered solutions give personalized feedback, automated grading, and predictive analytics. This increases engagement and improves learning results by catering to a variety of student capacities.
5	Assistive Technology	Assistive technology (AT) in education provides to reduce learning impediments for students with disabilities. It includes tools such as screen readers, speech-to-text software, and adapted keyboards. Assistive Technology promotes inclusive learning by providing equitable access to educational materials and engagement.

Thus Fig. No. 1 illustrates multiple elements of teaching and learning technology, each with its own set of principles and applications. **Traditional teaching-learning technology** includes time-honoured approaches such as lectures, textbooks, and blackboards, with an emphasis on direct teacher-student interaction. These approaches establish a controlled learning environment, emphasize core knowledge, and encourage social interaction in the physical classroom. While current technology provide a variety of learning

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experiences, conventional approaches are still useful for establishing fundamental concepts and forming interpersonal ties. **Audio-visual technology** improves learning by using visual and audio aids such as projectors, films, and podcasts. This multi-sensory method accommodates different learning styles, making complex topics more accessible and enjoyable. Effective implementation necessitates careful material selection and alignment with educational objectives. **Digital and online technology** use internet-based tools such as online learning platforms, digital textbooks, and interactive simulations to deliver flexible and individualized education. It allows for remote instruction, collaborative learning via internet forums, and access to large information archives. Digital tools improve engagement by providing interactive content and real-time feedback; nevertheless, careful design, digital knowledge, and equal access are required. **Adaptive and AI-based technology** personalizes learning by accessing data and tailoring information to specific requirements. AI-powered solutions optimize learning outcomes through individualized feedback, automated grading, and predictive analytics. Finally, **Assistive technology** which includes tools such as screen readers and speech-to-text software, seeks to remove learning barriers for students with impairments, fostering inclusive learning by enabling fair access to educational materials and participation. On the basis of these described components researchers prepaid a questionnaire for collecting the data.

Thus the first objective of the study is completed and the second objective of the study is to study the awareness of secondary school teachers on different types of teaching learning technology particularly for the development of teaching learning materials. For fulfilling this objective survey method is adopted and data is collected from Sixty Six in-service teachers from Madha taluka, of Solapur district (Maharashtra).

2. Analysis of secondary school Teachers responses on the use of teaching learning technology

Sr. No.	Responses on Item	Respondent	Respondents for 'Yes' Option		Respondents for 'No' Option	
			No. of Respondent	Percentage (%)	No. of Respondent	Percentage (%)
1	Teachers response's on use of multimedia for teaching	66	18	27.27	48	72.70
	Teachers response's on use of visual technology for teaching		19	28.78	47	71.21
	Teachers response's on use of Digital technology for teaching		48	72.70	18	27.27
	Teachers response's on use of Audio-Visual technology for teaching		20	30.29	46	69.67
	Teachers response's on use of Virtual labs/ Online		22	33.33	44	66.65

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	technology for teaching					
	Teachers response's on use of A.I. based technology for teaching		24	36.30	42	63.60
	Teachers response's on use of Traditional technology for teaching		44	66.65	22	33.30
	Teachers response's on use of Adaptive technology for teaching		25	37.87	41	62.21

Fig.No.2 Analysis of Secondary School Teachers Responses on the Use of Teaching Learning Technology

From Fig. No. 2 it seems that 18 teachers among 66 means 27.27% secondary school teachers responded that they use multimedia for teaching, and 48 teachers responses means 72.70% responded that they don't use multimedia for teaching. Followed by 19 teachers' responses means 28.28% responded that they use visual technology for teaching and 47 teachers responses means 71.21% responded that they don't use visual technology for teaching. Then according to 48 responses means 72.70% responded that they use Digital technology for teaching and 18 teacher's response's means 27.27% responded that they don't use Digital technology in teaching. Then according to 20 responses means 30.29% responded that they use Audio-Visual method for teaching and 42 teachers responses means 69.67% responded that they don't use Audio-Visual method for teaching. Followed by 22 teacher's responses means 33.33% responded that they use virtual labs/ Online technology in teaching and 44 teachers responses means 66.65% responded that they don't use virtual labs/ Online technology in teaching. As per 24 responses out of 66 means 36.20% responded that they use A.I. based technology in teaching and as per 42 responses out of 66 means 63.60% responded that they don't use A.I. based technology in teaching. Then according to 44 responses means 66.65% responded that they use Traditional technology in teaching and As per 22 responses out of 66 means 33.30% responded that they don't use Traditional technology in teaching. Then according to 25 responses means 37.87% responded that they use Adaptive technology as a teaching aid and 41 teachers response's means 62.21% responded that they don't use Adaptive technology in teaching.

Conclusion:

From Fig. No.2 it seems that according to responses of secondary school teachers that more number of secondary school teachers don't use any type of Teaching Learning Technology for teaching. Thus from it is clear that secondary school teachers are unaware on the use of Teaching Learning Technology.

The Third Objective of the study is, to give suggestions to the concern on the basis of study. Thus for fulfilling this objective following suggestions are given:

Based on the study "Awareness of secondary school Teachers on teaching learning technology." suggestions are provided those are:

1. Implement regular teacher training workshops to help them comprehend and apply various teaching and learning technology. This may include workshops on interactive whiteboards, learning management systems (LMS), and educational applications.
2. Ensure that schools have adequate technology resources. This involves giving access to computers, projectors, and reliable internet connections, all of which are required for effective teaching and learning.
3. Create a specialized technical support team to help teachers for identifying the troubleshoot and efficiently utilize technology in the classroom. This assistance can reduce frustration and encourage teachers for more frequent usage of TLT.
4. Encourage the teachers for incorporation of technology into the curriculum by creating lesson plans that include TLT. This can help teachers realize the practical benefits of technology in improving student engagement and learning results.
5. Encourage teachers to collaborate and share their experiences and techniques for effectively using technology. This can be aided by holding frequent meetings or online forums.
6. Create up opportunity for instructors to share feedback on the technology tools they utilize. Understanding their experiences can assist to improve the tools and training supplied, ensuring that they fit the teachers' needs.
7. Initiate awareness campaigns for teachers to emphasize the advantages of employing teaching and learning technologies. This can help to change views and increase teachers' readiness to use new technologies.

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