

Digital Literacy for Science Teacher's at Secondary School Level: A Need Assessment Analysis

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Abstract

Literacy has different meanings in different contexts. If you can grasp and use digital technology successfully, you have digital literacy. Throughout the educational process, this applies. A wide range of applications includes civic engagement, pastoral care, and e-safety, among others. To be digitally literate implies knowing how to use the internet, social media, and mobile devices to communicate, study, and work in today's digitally-dependent world. In the digital age, digital literacy refers to a person's capacity to discover, assess, engage, and effectively transmit information through typing and other media on different digital platforms. The study intended to determine how teachers' digital literacy was assessed; to find out science teachers' understanding of information presentation and arrangement. The tool for this research was a questionnaire, and it was quantitative. There were 996 science teachers in all, all of them were secondary school teachers from the district of Muzaffargarh. A questionnaire was used to gather the quantitative data. The acquired data was analyzed by dividing the demographics of the respondents into percentages. Expert opinion and the Cronbach Alpha score were used to verify the questionnaire's validity and reliability during the test's pilot phase in Muzaffargarh district.

Keywords: Digital tools of teachers, digital literacy, organization of information, presentation of information, teacher training, communication, learning digital tools, digital tools literacy

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Introduction

Two-way communication between teacher and trainee master in training sessions is a key component of Digital Literacy, in which the teacher learns from his or her trainee master and then imparts that information to pupils. Thus, the student is able to study in accordance with his or her academic level. Learning Management System (LMS) is an organized system to assist provides education with management of every academic structure; it comprises numerous applications through which learning is effectively accomplished. The newest digital equipment is included in the digital literacy. Visual and audio communications are the primary focus of these apps. Google Classroom, Google Meeting (Aslan, 2016).

Edom the most effective tool for processing back and forth between students and teachers in this process. Internet, social media, and mobile devices are all part of today's digitally connected world, and being digitally literate involves knowing how to use these tools effectively. Having digital literacy is being able to utilize the internet, smartphones, tablets, and other electronic devices to gather and share information with others and being a teacher with students (Susan, 2019). It upgrades the knowledge of teaching learning process (Curran. & Ribble, 2017).

Variety of applications, including word processing, presentation, and web-based resources..

Technology's remarkable advancements have altered how people communicate, engage, and work, but it isn't all they've done to society. The way children are educated has also been impacted by technological advancements. It is possible that digital literacy, also known as virtual learning and e-learning, might enhance lifelong education. Computing, the internet, and/or remote access are just some of the tools students may use to accomplish their educational goals using this method (Frau., Neill, .Soriani, & Tomé,. 2019).

This fact is stated by Harari, (2015) that students become digitally literate through developing technical abilities, learning copyright and plagiarism restrictions, and learning how to access online material. They also acquire social responsibility by communicating on social networks and by participating in online communities. With the rapid expansion of digital learning, it is imperative that K-12 curricula include new technology. One of the most important aspects of schooling nowadays is digital literacy. Students' future success is directly tied to their ability to use technology effectively.

This includes having the ability to securely navigate and discern all types of digital technology.. Traditional disciplines may be taught using educational courseware and internet resources if students have the necessary IT capabilities. A primary and secondary school's digital literacy programme is all about teaching students how to think critically, analyse their work, and participate in a global community using a wide range of digital tools.(Susan, 2019).

Education technology. businesses may learn a lot from teachers when it comes to designing new tools for kids to study. Educators who have mastered digital literacy in the classroom may join forces with their colleagues to exchange resources and work together to improve student learning. Digital Literacy's definition has changed throughout time. If including "Proficient at Microsoft Word" on a resume was once suggested, it is now regarded a routine requirement for most jobs (Ribble, 2015).

There has been an equal change in the classroom in favour of students who are more familiar with technology. To presume that instructors who are more technologically literate in the classroom would use these abilities more often in the classroom is a reasonable assumption. There is much more to digital literacy than this core principle, though. In light of the increasing emphasis on information technology and globalisation, as well as the digitalization of many major departments in the classroom, instructors have a significant obligation to learn and teach digital literacy. There are several benefits to this for both students and instructors, including ensuring that teachers are up to speed on the newest and most relevant information in order to keep them up to date on current trends in the globe. This may help instructors educate pupils about the most recent developments in science and technology (Curran, & Ribble. 2017).

Objectives of The Study

Ongoing research was aimed to:

- 1- Determine the teachers' understanding of the use of digital technologies, and their ability to organize material in a way that is understandable to students.
- 2- Assess their ability to use and communicate with pupils using digital technology.

Review of Literature

Critical thinking, challenging anything's legitimacy, and interacting with others are only a few of the abilities needed to be proficient in digital literacy. To do these kinds of activities, digital tools are very needed. Today's most popular and widely used digital tool is Smartphone, provides the end user with direct access to digital content. We may expect teachers to take on a pivotal role in this new technology age (Ribble, 2015).

Maintaining a lively classroom environment is critical, but it may be tough to pull off. New teaching approaches and tools may help instructors make their lessons more dynamic, interesting, and educational at the same time, therefore teachers should pay attention to them. A wide range of benefits may be gained through the use of these tools by both instructors and students. We've rounded together some helpful resources for instructors who are seeking new ways to enhance their classrooms and offer value to their students. (Park & Kim, 2014).

E-learning platform A learning management system (or LMS) is a piece of software that facilitates the whole learning process. It's where you store, present, and monitor all of your training materials. In addition to the term "LMS," other terms that could be used to describe it include "training management system," "learning activity management system," and "learning experience platform" (LXP). The terms "learning management system" (LMS) and "learning content management system" (LCMS) are often used interchangeably. Learning content authoring and management software (LCMS) is a kind of software. Complementary but not the same (Rahim, 2021). Quoted by Rahim (2021) that LMS is meant to make life simpler for individuals in charge of training and development, such as setting and analyzing individual and organizational learning objectives, monitoring progress toward fulfilling those goals, and collecting and presenting data for overseeing the learning process. With an LMS, on-boarding, compliance, and skills gap analysis can all be taken care of.

In order to properly teach and connect with pupils, numerous applications and equipment are needed. In other cases, the programmes are futuristic and provide a wealth of information that may be used to help children learn. As a contrast, others are employed in a more hands-on way to assist pupils retain the material they are learning. Effective use of these tools requires familiarity with their operation and execution.

- a. Teachers and students may collaborate on Edom do, a social network-integrated instructional platform. Teachers may use this one

to build online collaborative groups, administrate and distribute instructional resources, monitor student performance, and interact with parents, among other features. With more than 34 million active users, Edmodo provides a learning experience that is more individualized and matched with the potential that technology and digital environments provide.

- b.** A wide variety of educational issues are covered by B.Ed, from educational policy and history to curriculum design and teaching methods. Take a look at real-world examples of how technology is expanding the number of people who have access to high-quality education. It is possible to follow along with pre-recorded videos from previous weeks or to do so at your speed in most B.Ed courses. Readings and discussion forums are available for students to use outside of class, as well as homework assignments and evaluations including short quizzes and examinations.
- c.** It's a place for educators, students, and animators to come together to share ideas and information via the TED-Ed educational platform. Educators and students may now have equal access to resources because to this web site's open design. As a result, here, individuals may take a more active role in the education of other to study in accordance with their academic level. Learning
- d.** In addition to managing their classes and communicating with their students, instructors may use this Google service to grade assignments, monitor their students' progress, and much more. Google Classroom allows teachers and students to be more flexible since it can be accessed from any smart device and just needs a Google account. It is as easy as the instructor creating a class and issuing an invitation to students through Gmail. Following their enrollment, students may access all of the resources provided by their instructor. In addition, teachers may construct quizzes, essays, examinations, and even a class calendar with crucial dates to keep students up to date, etc. Insightful comments may be provided to pupils since the instructor has access to their work. In a nutshell, this is a virtual classroom that is constantly accessible.

An organizational sense-making process makes sense of context and situational meaning for the group. A field of study called information organization is all about providing systems for representing and organizing data and knowledge objects. These tasks include things like document description, indexing, and categorization, which are all part of the field. The mind uses information as raw material to build skills,

knowledge, and, if it's possible, wisdom out of it. Every business needs to have information to do their job, so to put it simply. (Yuan, Wang & Eagle, 2019).

Research Methodology

Data were gathered using a survey in this descriptive research.

Population of the Study

The population the study has consisted of 996 science teachers of district Muzaffargarh.

Sample of the study

The sample for data collection has consisted of 200 teachers which were selected through a random sampling technique.

Instrumentation

The questionnaire was used to obtain the data. The researchers used a questionnaire they created themselves. Experts and a sample of respondents evaluated the model's validity and reliability. The goal of the test was to gauge how well the instructors understood and used the latest in digital technology in the classroom. Cronbach's Alpha Scores were used to guarantee that the survey is reliable and valid. Teachers were asked to rate their preferences on a five-point Likert scale from 1 to 5 as part of the survey (1 being Strongly agreed; and 5 being Strongly disagreed). The measure has two dimensions: one assessing instructors' understanding of digital technologies and one measuring teachers' knowledge of information organisation. For the self-reported scale, each item had a rating of one to five, with one being strongly agreed with and five being strongly disagreed with. Teachers were asked to rate their choice between one and five, with one being strongly disagreed with and five being strongly disagreed with. In all domains, the percentage of instructors who were proficient in digital literacy was measured. The differences between the tehsils may be clearly seen in the following findings.

Table 1.

Teachers' Knowledge about the Use of Digital Tools

	Kot Addu	Ali Pur	Jatoi	Chowk Munda
Male	12.62%	15.18%	11.09%	11.44%
Female	8.32%	9.65%	10.76%	20.97%
Total	20.94%	24.83%	21.84%	32.39%

It reveals that males in Kot Addu Tehsil have performed 12.62% while females perform 8.32% in total, they performed 20.94% whereas in Ali Pur Tehsil males have performed 15.18% and female have performed 9.65% in total they performed 24.83% as well as in Tehsil Jatoi male have performed 11.09% and female have performed 10.76% in total they performed 21.84% similarly in Tehsil Chowk Munda male have performed 11.44% and female have performed 20.97% in total they performed 32.39%.

According to this collected data Females in Tehsil Chowk Munda performed more 20.97% which is more than in Tehsil Ali Pur 15.18%. So, in Tehsil Chowk Munda the females performed better than males in Tehsil Ali Pur in this skill.

Table 2.

Teachers' Knowledge about the Organization of Information

	Kot Addu	Ali Pur	Jatoi	Chowk Munda
Male	12.44%	15.13%	11.59%	11.24%
Female	9.30%	9.96%	11.00%	19.31%
Total	21.74%	25.07%	22.59%	30.57%

It reveals that males in Kot Addu Tehsil have performed 12.44% while females perform 9.30% in total, they performed 21.74% whereas in Ali Pur Tehsil male have performed 15.13% and female have performed 9.96% in total they performed 25.07% as well as in Tehsil Jatoi male have performed 11.59% and female have performed 11.00% in total they performed 22.59% similarly in Tehsil Chowk Munda male have performed 11.24% and female have performed 19.31% in total they performed 30.57%.

According to this collected data Female in Tehsil Chowk Munda performed more 19.31% which is more in Tehsil Ali Pur 15.13%. So, in Tehsil Chowk Munda the females performed better than male in Tehsil Ali Pur in this skill.

Data Analysis

Percentage results showed how well instructors in four districts performed. A complete examination of instructors' understanding of digital technologies and information structure is included in this report.

Table 3.
Analysis of Teachers' Knowledge about Digital literacy

Sr.no	Tehsil	Performance by Percentage %
1.	Chowk Munda	31.39
2.	Ali Pur	25.09
3.	Jatoi	22.06
4.	Kot Addu	21.47

In an overall performance of total Four Tehsils in Tehsil Chowk Munda teachers performed 31.39% and in Tehsil Ali Pur teachers performed 25.09% and in Tehsil Jatoi teachers performed 22.06% whereas in Tehsil Kot Addu teachers performed 21.47%. Because in Tehsil Kot Addu teachers performed low rather than others Tehsils of District Muzaffargarh so there is need training of digital literacy for teachers of this Tehsil.

Discussion

The results of this survey show that the majority of respondents had a favourable attitude toward digital literacy, the use of digital technologies, and information organization. The majority of educators are familiar with digital resources to some degree. While there is a lack of knowledge and a lack of up-to-date criteria for digital literacy. According to these respondents, instructors' digital literacy was not up to snuff. Whereas, a person's degree of digital literacy is determined by their knowledge and awareness of various digital technologies.

Research conducted by Rahim (2021) have little resemblance to the outcomes of this study. The researcher of this study examined the relationship between instructors of both sexes and the respondents' favourable attitudes about understanding of digital literacy, information presentation, assessment, and digital technologies.

The researchers in this study also explored how instructors benefit from having digital access to help them reach their objectives in terms of their knowledge and activities linked to teaching and learning. Using digital tools to collaborate with individuals across the globe in real-time, the researchers found that students who were more digitally literate scored higher on tests of 21st-century educational abilities.

According to Susan (2019) nothing in common with the conclusions of this study. There have been several studies conducted in nations such

as the U.S., the Netherlands, and Turkey, all of which examined students' understanding of digital literacy at the secondary school level.

Recommendations

There is a sheer need to educate teachers with the latest and upgraded knowledge of digital literacy, so they pass on the knowledge to the students in an efficient manner. It is also important that teachers should be keen use to educational websites, blogs, and applications to boost their knowledge and learning activities. The teachers must be sure about their use of digital tools such as handling LMS applications, upload notes, and videos to the portal for the students. The teachers play a key role in increasing awareness about any matters in the world. Therefore, it is imperative to the teacher that they gain knowledge of digital literacy and educate students to promote the usage of digital tools by encouraging them to learn and organize the information.

It is also imperative for teachers to acquaint the students with online seminars (webinars) held across the schools and colleges in the world to learn the culture and customs of other countries and create a friendly environment between each other to promote globalization. Teachers must take care during online demonstrating lecture that they want to demonstrate the lecture according to the curriculum demand as well as contemporary standards to make sure that the student is learning the recent knowledge and is gaining worthy information.

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