Digital Competencies of Secondary School Teachers- A Systematic Review

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Abstract- In today's educational context, digital competence has gained a strong prominence being one of the key competencies that teachers must master in today's society. Multiple opportunities are opened up for educators to achieve the continuity of learning throughout life through digital transformation, aligning with sustainable development, the fourth goal of UNESCO. Effective integration of technology goes beyond using it for one's own sake ; it involves using it to give a deeper learning experiences to the students. This digital transformation raises questions about the teachers' digital competence. The current study aims to uncover the digital competencies of secondary school teachers of U. P board in teaching and assessment procedures. This design involved a questionnaire which was administered to 50 teachers of 10 secondary schools of Meerut district of Uttar Pradesh. Furthermore, the results indicate that perceived usefulness and subjective norms directly influence digital competence. This study also identifies the benefits of digital technologies and the challenges that teachers encounter in implementing them in the educational environment. The benefits focus on enhancing students' motivation and assessing their learning experiences, communicating with the educational community, and the continuousness of e-learning. The challenges, however, include the acceptance of technology by the educational community; cognitive and skill-related challenges faced by teachers; administrative and teaching burdens; limited access to digital technologies and tools; and challenges related to student behaviours. As a result, a set of recommendations and implications are proposed for educational policymakers, curriculum and professional development program designers, researchers, and educational practitioners.

Keywords- Digital transformation; digital competence; digita technologies; Dig CompEdu; sustainable digit.

Introduction- Recently, our perception of the world has undergone a fundamental shift towards various transformations including the adoption of sustainability as a lifestyle. Such a transformation conforms to the global use of digital technologies in promoting creative approaches that tackle challenges and achieve sustainability in ecological, economic, social,

and educational aspects. Digital technologies are particularly important in facing global challenges and crises. Therefore, it is essential to adopt digital solutions across various fields to cultivate the potential of digitization in overcoming these challenges and crises.

In the field of education, digital transformation has created learning opportunities for both teachers and learners, with such opportunities being well-suited to the demands and challenges of the digital age Educational curricula have also developed to be more interactive and attractive, and the teaching practices of teachers have improved in a way that has reflected positively on learners' performance

Particularly, The EU defines digital competence as:

"the safe, critical and responsible use of and interaction with digital technologies for learning, at work and for participation in society. It includes information and data literacy, communication and collaboration, media literacy, digital content creation (including programming), security (including digital well-being and cybersecurity-related skills), intellectual property issues, problem solving and critical thinking." (Council of the European Union)

Despite this reality, there is now a growing interest, through different organizations and higher institutions, in knowing the state of digital competencies of university institutions and developing, based on this, training tools to improve them. The COVID-19 outbreak has even encouraged teachers to change their educational practice quickly and urgently in order to guarantee learning continuity for distance students. During this period, the pandemic showed that many teachers were virtually replicating face-to-face lessons, thus losing additional possibilities offered by technology for carrying out virtual activities and working with different types of resources (Cabero, 2020; Casado-Aranda et al., 2021; Usher et al., 2021). Along this line, the study by Trust and Whalen (2020) critically revealed that teachers felt overwhelmed and unprepared to use online or remote teaching strategies and methods and they found it challenging to adapt their pedagogy to problematics such as students' unreliable Internet access, changing personal needs, and unclear or shifting educational or governmental directives. When the teachers are developed by digital competency programs, they will be able to do so. Teachers will have the knowledge, abilities, skills, and attributes to become digital teachers. Competency refers to a teacher's understanding of the basics of work of computer informatics, learners and planning learning management using ICT, and teacher competence to use digital technology as a tool to access, manage, integrate, and evaluate create information and communicate so that learning management is effective. Teachers' need for the use of digital technology in a meaningful way that promotes and encourages the correct use of information and communication technology in terms of ethics.

Objectives of the Study

1. To analyse the awareness of teachers of digital literacy
2. To analyse whether teachers are trained in the use of digital tools and media .

Research Methodology

Method of the Study

The quantitative method has been used by the researcher in the study.

Population of the Study-The population of the study comprises of all the teachers of all the secondary schools of Meerut which are affiliated to Uttar Pradesh Madhyamik Shiksha Parishad.

Sample of the Study- The sample of the study comprises of 50 teachers of 10 secondary schools of Meerut which are affiliated to Uttar Pradesh Madhyamik Shiksha Parishad.

Tools of the Study

A self- constructed questionnaire has been prepared by the researcher for the study.

Findings of the study

The findings of the study are as

1.To analyse the awareness of teachers of digital literacy

Table -1 showing awareness of teachers of digital literacy

Sl.no.	Indicator	Yes (%)	No (%)
1.	Can digital technology be used in new ways to build knowledge and innovate	50	50
2.	Can programmes be used on internet for enhancing information	70	30
3.	Can technology be applied for the development of advanced thinking and creativity in learners	40	60

As per table-1 ,50% of the teachers agreed that digital technology can be used in new ways to build knowledge and to innovate. However 70% of the teachers agreed that programmes be used on internet for enhancing information. But only 40% of the teachers viewed that technology be applied for the development of advanced thinking and creativity in learners

2. To analyse whether teachers are trained in the use of digital tools and media

Table -2 showing whether teachers are trained in the use of digital tools and media

Sl.no.	Indicator	Yes (%)	No(%)
1.	Can digital tools be used to analyze problems	60	40
2.	Can digital tools be used to prevent problems	50	50
3.	Can digital tools be used to help evaluate solutions.	40	60

As per table-2 60% of the teachers viewed that digital tools can be used to analyze problems. But 50% of the teachers agreed that digital tools can be used to prevent problems. But only 40% of the teachers viewed that digital tools can be used to help evaluate solutions.

Suggestions

To improve the quality of secondary education, it is needed to take the full advantage of technology in the form of digital tools in education.To achieve these goals ther are some suggestions which can be helpful in the

promotion of digitalisation of education.

- Faculty members should feel that the use of these tools is expected for all the courses and at all the levels. There should be change in the attitude of management and it should make provisions for the application of digitalization.
- There should be support from the institutions as well as encouragement to use the model teaching that takes the advantage of ditalisation.
- Teachers should be adequately trained in the use of these digital tools and should be aware of their integration in the teaching- learning process.
- Parents and community members should motivate in the use of such digital tools.

Conclusion-

According to the overall result discussion, the twenty- first century age vof digitalization has created some major effects on teaching-learning process. But too much problems have occurred for the application of technology on teaching- learning system such as lack of proper updating software, availability of funds, time management, training of teachers etc. Yet the use of digital tools cannot be denied in the present era as the use of these tools has tremendously affected the system of education. The use of these digital tools has changed the role of teachers in the classroom. So it has become the responsibility of parents, community members, government organisations and all other sectors involved in education to promote the use of digitalization of education.

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