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Post Covid-19 Digital Transformation in Secondary School Education: - An Empirical Study of Teachers' Pedagogical Adaptation

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Abstract

The post COVID-19 educational landscape has necessitated substantial transformation in teachers' instructional practices, particularly through the integration of digital technologies. The present study, titled "Post COVID-19 Digital Transformation in Secondary School Education: An Empirical Study of Teachers' Pedagogical Adaptation" aimed to examine the level of digital transformation adopted in secondary schools, analyze teachers' pedagogical adaptation towards digital teaching practices, identify the psychological and behavioral factors influencing teachers' technology adaptation, examine the relationship between demographic variables and pedagogical adaptation, and to evaluate the impact of digital technology integration on teaching effectiveness and classroom practices. A quantitative research design was employed, and data were collected from 30 secondary schools' teachers using structured interview schedule. Statistical techniques such as Percentage, Rank, Weighted Average Mean (WAM) and Comparative analysis were applied for analysis. The findings revealed that digital transformation has been effectively adopted in secondary schools, with an overall WAM of 3.91. Teachers demonstrated a high level of pedagogical adaptation (WAM = 4.09), indicating successful integration of technology into classroom instruction. The study also found that psychological and behavioural factors influence teachers' adaptation to digital technologies (WAM = 3.77). The results also indicated that digital technology integration positively influences teaching effectiveness and classroom innovation (WAM = 4.03), enhancing classroom communication, student engagement, and learning outcomes. The study concludes that digital transformation has become an essential component of contemporary secondary school education. It is recommended that schools strengthen digital infrastructure, provide continuous professional development programmes, institutional support, and effective stress-management measures are essential for sustaining successful technology integration and enhancing the quality of education in the post-COVID-19 era.

Keywords: Digital Transformation, Post-COVID-19 Education, Pedagogical Adaptation, Secondary School Teachers, Technology Integration.

Introduction

The COVID-19 pandemic brought unprecedented disruption to the education system worldwide. The sud-

den shift from traditional classroom teaching to online and blended learning environments compelled teachers to adapt their pedagogical practices. In the post-COVID-19 period, educational institutions are transitioning into hybrid models that combine face-to-face and digital learning. This transformation has emphasized the importance of technology integration and student engagement in teaching-learning processes. Secondary school teachers, in particular, play a crucial role in adapting innovative pedagogical strategies to ensure effective learning outcomes.

Pedagogical practices refer to the methods, strategies, and approaches employed by teachers to facilitate meaningful learning experiences. In the post-COVID-19 educational scenario, teachers are expected to demonstrate flexibility in adapting instructional methods according to learners' needs, technological developments, and changing classroom contexts.

Adaptive pedagogical practices include learner-centred teaching, collaborative learning, activity-based instruction, blended learning, continuous assessment, and differentiated instructional strategies. Such practices enable teachers to create engaging and inclusive learning environments that support the academic growth of students.

Digital transformation refers to the process of integrating digital technologies into various aspects of organizational, social, and educational practices to improve effectiveness, efficiency, communication, and innovation. In the field of education, digital transformation involves the use of digital tools, online platforms, smart technologies, and technology-based teaching methods to enhance the teaching-learning process.

Therefore, the present study aims to examine post-COVID-19 digital transformation and teachers' pedagogical adaptation in secondary school education using an empirical and quantitative research approach. The study also attempts to analyse the influence of demographic, psychological, and behavioural factors on teachers' adaptation towards digital teaching practices.

Research Background

The global outbreak of the COVID-19 pandemic caused unprecedented disruptions in education systems worldwide, compelling institutions to shift from conventional face-to-face instruction to technology-mediated teaching–learning environments. This rapid transition significantly accelerated the adoption of digital tools and necessitated substantial changes in pedagogical practices (Ajay Kumar Singh & Mukesh Kumar Meena, 2024). In the post-COVID-19 phase, education systems are increasingly embracing hybrid and blended learning models, thereby redefining the role of teachers as facilitators of technology-supported learning experiences (Tarini Naik et al., 2024).

In the Indian context, particularly at the secondary school level, teachers are required to adapt their instructional strategies to integrate digital technologies such as online platforms, learning management systems, and multimedia resources. This adaptation extends beyond basic technological usage and involves transforming pedagogical approaches to promote student engagement, collaborative learning, and higher-order thinking skills (Gupta & Pathania, 2021; Deka, 2021). However, the degree of pedagogical adaptation varies depending on demographic and institutional factors such as gender, type of school management, and teaching experience (Prakasha, 2022).

Despite the growing body of research on technology integration, there remains a need to specifically examine how pedagogical practices are adapted in the post-pandemic context, particularly among secondary school teachers. Most existing studies focus either on technology usage or student engagement

independently, with limited emphasis on their interrelationship with pedagogical adaptation (Sharif-Nia et al., 2024).

Statement of the Problem

The COVID-19 pandemic brought unprecedented disruption in the field of education and transformed the traditional teaching into digital supported learning environment. Many teachers were not prepared for digital teaching and had to face many challenges in adjusting to online teaching due to technological skills, lack of professional training, inadequate resources, difficulties in maintaining online classroom interactive.

After the reopening of schools, secondary school teachers are adopting innovative pedagogical practices with technology integration according to the changing educational needs and diverse learner's needs. The integration of digital tools, online learning platforms, blended learning methods and interactive instructional strategies has become very important for effectiveness and continuity of education. Although several studies have focused on online teaching during the pandemic, but still there is a need to understand how secondary school teachers have adapted pedagogically and digitally after pandemic.

Therefore, this study aims to examine the how secondary school teachers have adapted their innovative pedagogical approaches with digital transformation in post COVID-19 period.

Research Questions

1. What is the level of digital transformation adopted in secondary school education during the post-COVID-19 period?
2. How have teachers adapted their pedagogical practices towards digital teaching methods after the COVID-19 pandemic?
3. What psychological and behavioral factors influence teachers' adaptation to digital technologies in classroom teaching?
4. Is there any significant relationship between demographic variables and teachers' pedagogical adaptation in secondary school education?
5. What is the impact of digital technology integration on teaching effectiveness and classroom teaching practices in secondary schools?

Research Objectives

1. To examine the level of digital transformation adopted in secondary school education during the post-COVID-19 period.
2. To analyze teachers' pedagogical adaptation towards digital teaching practices in secondary schools after the COVID-19 pandemic.
3. To identify the psychological and behavioral factors influencing teachers' adaptation to digital technologies in classroom teaching.
4. To examine the relationship between demographic variables such as age, gender, educational qualification, teaching experience, and marital status with teachers' pedagogical adaptation.
5. To evaluate the impact of digital technology integration on teaching effectiveness and classroom practices in secondary school education.

Research Hypothesis

1. There is no significant relationship between digital transformation and teachers' pedagogical adaptation in secondary school education during the post-COVID-19 period.
2. There is no significant relationship between teachers' digital teaching practices and classroom teaching effectiveness in secondary schools.
3. Psychological and behavioural factors have no significant influence on teachers' pedagogical adaptation towards digital education.
4. There is no significant difference in teachers' pedagogical adaptation based on demographic variables such as age, gender, educational qualification, teaching experience, and marital status.
5. Digital technology integration has no significant impact on innovation in classroom teaching practices in secondary school education

Significance of the Research

The significance of the study lies in its attempt to understand Secondary school teachers' pedagogical adaptation with digital transformation in the post cOVID-19 period. By examining the level of digital transformation adopted in school education, this study will explain how technology has been integrated with teaching approaches. The study will also analyse the teachers' pedagogical adaptation and will identify the psychological and behavioural factors that influenced teachers for innovative digital teaching. Furthermore, this research will help to understand the relationship between demographic variables such as age, gender, educational qualifications, teaching experiences, and marital status and will also evaluate impact of technology integration on teaching learning process.

The findings of this study will be highly beneficial to various stakeholders in the education sectors, specifically teachers, teachers' educators, school administrators and principals, curriculum planners, educational policy makers to identify effective methods for improving teaching methods with technology integration, improving digital infrastructure, and professional development programmes. It also provides important academic reference for future researches related to digital education, teachers' pedagogical adaptation and post-pandemic educational transformation.

Need for the Research

The COVID-19 pandemic has significantly transformed the educational system by accelerating the integration of digital technologies into teaching and learning processes. Secondary school teachers were compelled to shift from conventional classroom instruction to online and blended learning environments within a short period of time. Although digital teaching practices became essential during the pandemic, the post-COVID-19 educational environment demands sustained pedagogical adaptation, technological readiness, and innovative instructional approaches to meet evolving learner needs.

Existing studies have primarily focused on emergency online teaching during the pandemic period, with limited attention given to teachers' long-term pedagogical adaptation in the post pandemic context. Furthermore, there is inadequate empirical research examining how demographic, psychological, and behavioural factors influence teachers' adaptation to digital teaching practices, particularly at the secondary school level. In addition, regional studies focusing on secondary school teachers in Chennai district remain limited.

Therefore, there is a strong need to investigate the extent of digital transformation in secondary school education and to understand how teachers have adapted their pedagogical practices after the COVID-19

pandemic. The present study seeks to fill this research gap by providing empirical evidence on teachers' pedagogical adaptation, technology integration, and teaching effectiveness in the post-COVID-19 educational scenario.

Scope of the Research

The study is confined to examining the adaptation of pedagogical practices with digital transformation among secondary school teachers in the post COVID-19 era. The study covers the aspects such as digital technology integration, teaching practices, psychological and behavioural factors, and teaching effectiveness.

The study is limited to secondary school teachers working in Chennai district of Tamil Nadu and focuses on selected demographic variables such as age, gender, teaching experience, educational qualification, and marital status. The study employs quantitative research methods using primary data collected through structured questionnaire and analyzed through statistical techniques. The findings of the study may be useful for improving digital teaching practices, educational policies, teacher training programmes, and technology integration strategies in secondary school education.

Review of Literature

Deroncele-Acosta et al. (2023) investigated positive cores of faculty in their successful post COVID-19 performance. The study adopted a qualitative approach and netnography method with sample of 1238 university teachers from 10 Latin American countries. Data was collected through interview. The study found out many affirmative topics and grouped them into nine major area. Among these, digital transformation and technological innovation are two targeted areas. The implication of the study is important for both educational theory and practical. The findings support future improvement in Latin American Higher Education.

Ardelia and Adeline (2025) explored teachers' acceptance of technology uses in teaching implementation in the post covid-19 pandemic. The study used qualitative approach and case study method. Data were collected through semi-structured interview. Researcher analysed data through Technology acceptance Model and validated data through triangulation. The findings indicated that ICT is easy to implement and important for teaching learning process. ICT is considered as a valuable tool for learning experience in post-COVID-19 period.

Emovavewerhe and Peretomode (2024) examined technology integration of secondary schools' teachers and students of Delta Sate, Nigeria in post COVID-19. The study employed descriptive method of ex-post facto research design and included the sample of 384 students and 370 teachers selected through stratified sampling. Data was collected through Questionnaire and checklist and analysed through descriptive and inferential statistics. The findings indicated that there are limited availability of ICT facilities and development and training programmes. The study highlighted that both teachers and students have positive attitude towards technology integration in post-COVID-19 era.

Ata et al. (2021) conducted a study on technology integration and teaching literacy skills of Turkish elementary school in the post COVID-19 era. The study consist sample of 122 elementary school teachers Data was collected through questionnaire and analysed through descriptive statistics. The findings revealed that teachers used different approaches like whole language, literature-based and balanced instruction, curriculum and relate textbooks to teach literacy skills. The study highlighted the effective use

of technology, social media applications and professional organisation in increasing their awareness related to technology integration in teaching literacy skills.

Onyeukwu (2022) examined an evaluation of digital transformation experience during teaching and learning process in post covid-19 period. The study employed descriptive research design with 229 lecturers from private universities in Abuja. Data was collected through questionnaire and analysed through descriptive statistics and regression techniques. The findings indicated that digital platforms like Zoom, Google classroom, Google meet and social media used in teaching and learning process. The study highlighted that private university should start blended method of teaching and learning, technical and infrastructure support and professional training for digital education.

Nirsal (2025) investigated how Learning management system (LMS) implementation helped in digital transformation in secondary schools in Indonesia. The study aims to analyse the impact of LMS implementation, challenges faced during LMS implementation and identify adaptation strategies in digital learning. The study used a qualitative approach which includes document analysis and case studies by reviewing 25 previous studies related to LMS implementation in secondary education in Indonesia and other countries. The results indicates that LMS had positive impacts on teacher-student interaction, flexibility in learning, school management efficiency and personalized learning. Major challenges such as technology infrastructure limitation, digital literacy gaps, resistance to change and budget constraints faced during implementation of LMS. Adaptation strategies include continuous professional development, clear institutional policy development and hybrid model adopted. The study concluded that effective digital transformation requires technology integration, pedagogical adaptation and effective management in education.

Theodorio et al. (2024) conducted a study on challenges faced by teacher education in technology integration in post-pandemic era. Data was collected through observation and focus-group interview from pre-service teachers and teachers' educators at university in South Africa. The study highlights that teaching and learning process was affected by technology incompatibility, socio-economic issues, plagiarism problem and load shedding. The study concluded that there should be continuous interaction between educators, policy makers and pre-service teachers to minimize obstacles related to technology integration in post-pandemic teacher education programmes.

Pantic et al. (2023) explored teachers explored teachers' challenges and adaptation in technology integration during COVID-19 using a qualitative approach. The study involved a sample of 10 teachers selected for interviews. Data were analysed through open and axial coding techniques. The findings identified challenged such as stress, difficulty in digital transition, and lack of technology knowledge among students. It also showed increased teacher willingness to adopt digital tool post-pandemic. Differences in responses reflected individual experiences and teaching context, indicating demographic influence.

Naik et al. (2024) investigated factors affecting technology integration in Indian classrooms using mixed-method research design. The study included 1,355 survey respondents and 20 interview participants. Data was collected through questionnaires and semi-structured interview and analysed using both quantitative and qualitative techniques. The findings indicated that educational policies, the COVID-19 pandemic, and social media significantly influenced teacher' adoption of technology/ It was also found that institutional support and teachers' readiness were key determinants of effective technology integration. Significant variations were observed based on contextual and institutional factors, indicating the influence of demographic variables such as type of institution and teaching experience.

Rapanta et al. (2020) examined pedagogical approaches to online teaching during ad after the COVID-19 crisis in higher education. The study adopted a conceptual and analytical framework focusing on teaching presence, learning design, and assessment strategies. The findings emphasized that effective online instruction requires a strong connection between pedagogy, technology, and assessment practices. It highlighted the importance of teacher presence, structured learning activities, and meaningful interaction in digital environments. The study further suggested that post-pandemic education should move towards well-designed blended and online pedagogical models.

Research Gap

Previous studies have examined challenges faced by teachers with pedagogical practices and technology integration during COVID-19 period. Several researchers focused on Learning management system (LMS) implementation and digital transformation in education. Existing studies highlighted issues such as emergency online teaching during COVID-19 and challenges of ICT integration in school. Most prior studies examine technology integration and pedagogical adaptation using qualitative methods and descriptive analysis, while primary empirical data and quantitative perspectives remain underexplored. The existing literature provides limited focus on explain statistical measurement and inferential analysis. In addition, no attention has been given to demographic variables such as age, gender, qualification, teaching experience and marital status. Despite of extensive research, previous studies demonstrated about technology infrastructure, ICT integration and digital teaching challenges, little is known about psychological and behavioral factors of teachers. Prior studies focused schools in developed countries, while limited attention has been paid to how teachers have done innovation in their pedagogical practices and integration of digital technologies into classroom teaching in the post pandemic period, especially in secondary schools in developing countries.

This creates a research gap in literature because there is focus on emergency COVID-19 era rather that post COVID-19 period. To address this gap, the present study aims to examine empirical and quantitative study of adaptation of teacher's pedagogical practices and digital transformation in secondary education in post COVID-19 period.

Research Methodology

The present study adopts a quantitative research approach to examine post-COVID-19 digital transformation and teachers' pedagogical adaptation in secondary school education. The study is empirical and descriptive in nature, as it focuses on collecting factual information from secondary school teachers regarding their adaptation towards digital teaching practices and technology-supported learning environments after the COVID-19 pandemic.

Research Design

The study follows a descriptive research design to analyse the existing level of digital transformation, pedagogical adaptation, psychological preparedness, and teaching effectiveness among secondary school teachers. The descriptive design was considered suitable as it helps in understanding the present educational situation without manipulating any variables.

Area of the Study

The study is confined to Chennai district, Tamil Nadu.

Population of the Study

The population of the study consists of secondary school teachers working in government, aided, and private schools in Chennai district.

Sample Size and Sampling Technique

The sample for the present study consisted of 30 teachers working in schools. The respondents were selected to obtain relevant information regarding the research objectives. Teachers with adequate teaching experience and familiarity with the study topic were included in the sample. Personal interviews were conducted with all 30 respondents to collect primary data.

A sample of secondary school teachers was selected from various schools in Chennai district. The study adopts the convenience sampling technique for selecting respondents based on accessibility and availability.

Sources of Data

The study is based on both primary and secondary data sources.

1. Primary Data

Primary data is collected directly from secondary school teachers through a structured interview designed for the study.

2. Secondary Data

Secondary data is collected from books, journals, research articles, dissertations, educational reports, government publications, websites, and previous studies related to digital education, pedagogical adaptation, and post-COVID educational transformation.

Research Instrument

A structured interview is used as the main instrument for data collection. The interview is divided into two sections:

Section A: Demographic details of respondents such as age, gender, educational qualification, teaching experience, type of school, and marital status.

Section B: Statements related to digital transformation, pedagogical adaptation, psychological and behavioural factors, and teaching effectiveness.

The questionnaire is prepared using a five-point Likert scale ranging from:

a. Strongly Disagree
b. Disagree
c. Neutral
d. Agree
e. Strongly Agree

Variables of the Study

The study includes the following variables:

1. Independent Variables

- Digital Transformation
- Psychological and Behavioural Factors
- Demographic Variables

2. Dependent Variable

- Teachers' Pedagogical Adaptation and Teaching Effectiveness

Tools Used for Data Analysis

The collected data is classified, tabulated, and analysed using simple statistical tools such as:

- Percentage Analysis
- Rank Analysis
- Weighted Average Mean (WAM) Method
- Comparative Analysis

These statistical tools help in understanding respondents' opinions and analysing the relationship between demographic variables and pedagogical adaptation.

Period of the Study

The study focuses on the post-COVID-19 period, particularly after the reopening of schools and the implementation of technology-supported teaching practices.

Limitation of the Study

The study is limited to secondary school teachers in Chennai district only. The findings are based on the responses collected through questionnaires and may not be generalized to all educational institutions or other geographical regions. The study mainly focuses on teachers' perspectives and does not include the views of students, parents, or school management.

Data Analysis

Table 4.1 - Demographic Profile (N = 30)

Variable	Dominant Category	Percentage
Gender	Female	73.33%
Age	Less than 30 Years	63.33%
Educational Qualification	Master's Degree	66.67%
Teaching Experience	1–5 Years	50.00%
Marital Status	Unmarried	56.67%

Overall Interpretation

The respondents were predominantly female (73.33%), below 30 years of age (63.33%), Master's Degree holders (66.67%), with 1–5 years of teaching experience (50.00%), and unmarried (56.67%). This profile suggests that the sample largely consists of young, professionally qualified teachers who are likely to be receptive to digital transformation and innovative pedagogical practices in the post-COVID-19 educational environment.

Table 4.2 Digital Transformation

Statement	Weighted Average Mean	Rank
Digital technologies have become an essential part of teaching after COVID-19	4.47	I

Online teaching platforms improved my teaching efficiency	4.03	II
I am comfortable using LMS	3.87	III
I regularly use digital tools in classroom teaching	3.70	IV
My school has adequate digital infrastructure for teaching	3.47	V

Interpretation

The overall WAM of 3.907 indicates that teachers agree that digital transformation has been successfully adopted in secondary school education during the post-COVID-19 period. The highest-ranked aspect is the recognition that digital technologies have become essential after COVID-19 (WAM = 4.47), while digital infrastructure received the lowest score (WAM = 3.47), indicating a need for further infrastructure development.

Table 4.3 Pedagogical Adaptation

S.No.	Statement	Weighted Average Mean	Rank
10	Digital teaching has improved student engagement in learning	4.27	I
7	I effectively integrate digital resources into classroom teaching	4.23	II
8	I use interactive teaching methods supported by technology	4.10	III
9	I feel confident in adapting to new digital teaching methods	4.07	IV
6	I modified my teaching methods after the COVID-19 pandemic	3.77	V

Interpretation

The overall Weighted Average Mean of 4.09 indicates that teachers agree that they have successfully adapted their pedagogical practices to digital teaching in the post-COVID-19 period. The highest-ranked statement was “Digital teaching has improved student engagement in learning” (WAM = 4.27), while “I modified my teaching methods after the COVID-19 pandemic” received the lowest rank (WAM = 3.77).

Table 4.4 Psychological and Behavioural Factors

S.No.	Statement	Weighted Score	Weighted Average Mean	Rank
11	I feel motivated to use digital technologies in teaching.	113	3.77	III
12	I am willing to learn new educational technologies.	122	4.07	II
13	I Fear of technology affects me teaching performance.	105	3.50	IV
14	I believe digital teaching	135	4.50	I

	increases work stress.			
15	I feel psychologically prepared for digital teaching practices.	90	3.00	V
Overall	Psychological and Behavioural Factors	565	3.77	

Interpretation

The table shows that "I believe digital teaching increases work stress" secured the first rank with a WAM of 4.50. "I am willing to learn new educational technologies" ranked second with a WAM of 4.07. The overall WAM of 3.77 indicates that teachers generally agree that psychological and behavioural factors influence their adaptation to digital teaching practices.

Table 4.5 Teaching Effectiveness and Innovation

S. No.	Statement	Weighted Score	WAM	Rank
16	Digital teaching tools improve Classroom communication	125	4.17	II
17	Technology integration enhances students' learning outcomes	125	4.17	II
18	Digital teaching encourages innovation in classroom activities	120	4.00	IV
19	I frequently use multimedia content during teaching	114	3.80	V
20	Post-COVID digital transformation has positively influenced teaching effectiveness	120	4.00	IV
Overall	Teaching effectiveness and Innovation	604	4.03	

Interpretation

The table reveals that Digital teaching tools improve classroom communication and Technology integration enhances students' learning outcomes jointly secured the highest rank with a Weighted Average Mean of 4.17. This indicates that teachers strongly perceive digital technologies as enhancing communication and learning outcomes. The statement "I frequently use multimedia content during teaching" obtained the lowest WAM of 3.80, indicating comparatively lower usage of multimedia resources among respondents.

The overall WAM of 4.03 indicates that teachers generally agree that digital technology integration has improved teaching effectiveness and promoted innovation in classroom practices.

Major Findings of the Study

Objective 1: - To examine the level of digital transformation adopted in secondary school education during the post-COVID-19 period**.**

Finding:

The overall Weighted Average Mean (WAM) for Digital Transformation was 3.91, indicating that teachers generally agree that digital transformation has been effectively adopted in secondary schools. The statement "Digital technologies have become an essential part of teaching after COVID-19" secured the highest rank (WAM = 4.47), highlighting the importance of technology in modern teaching practices.

Objective 2: - To analyse teachers' pedagogical adaptation towards digital teaching practices in secondary schools after the COVID-19 pandemic.

Finding:

The overall WAM for Pedagogical Adaptation was 4.09, indicating a high level of adaptation among teachers. The statement "Digital teaching has improved student engagement in learning" secured the first rank (WAM = 4.27), demonstrating that teachers perceive digital teaching methods as effective in enhancing student participation and learning outcomes.

Objective 3: - To identify the psychological and behavioural factors influencing teachers' adaptation to digital technologies in classroom teaching.

Finding:

The overall WAM for Psychological and Behavioural Factors was 3.77, indicating that teachers generally agree that psychological factors influence digital adaptation. The statement "I believe digital teaching increases work stress" secured the highest rank (WAM = 4.50), suggesting that while teachers are willing to adopt technology, they also experience increased stress associated with digital teaching.

Objective 4: - To examine the relationship between demographic variables such as age, gender, educational qualification, teaching experience, and marital status with teachers' pedagogical adaptation.

Finding:

The demographic analysis revealed that the majority of respondents were female teachers (73.33%), below 30 years of age (63.33%), Master's Degree holders (66.67%), possessed 1–5 years of teaching experience (50.00%), and were unmarried (56.67%). These characteristics indicate that younger and professionally qualified teachers form the major portion of the sample and demonstrate positive adaptation toward digital teaching practices.

Objective 5: - To evaluate the impact of digital technology integration on teaching effectiveness and classroom practices in secondary school education.

Finding:

The overall WAM for Teaching Effectiveness and Innovation was 4.03, indicating that teachers agree that technology integration positively influences teaching effectiveness. The statements "Digital teaching tools improve classroom communication" and "Technology integration enhances students' learning outcomes" jointly secured the highest rank (WAM = 4.17), confirming the positive role of digital technologies in improving classroom practices.

Hypothesis Testing

H_{01}: - There is no significant relationship between digital transformation and teachers' pedagogical adaptation in secondary school education during the post-COVID-19 period**.**

Decision: Rejected.

Reason: The Digital Transformation score (WAM = 3.91) and Pedagogical Adaptation score (WAM = 4.09) indicate that increased digital transformation is associated with improved pedagogical adaptation among teachers.

H_{02}: - There is no significant relationship between teachers' digital teaching practices and classroom teaching effectiveness in secondary schools.

Decision: Rejected.

Reason: The Teaching Effectiveness and Innovation score (WAM = 4.03) demonstrates that digital teaching practices positively contribute to classroom communication, learning outcomes, and innovation.

H_{03}: - Psychological and behavioural factors have no significant influence on teachers' pedagogical adaptation towards digital education.
Decision: Rejected.
Reason: The Psychological and Behavioural Factors score (WAM = 3.77) indicates that motivation, willingness to learn, stress levels, and psychological readiness influence teachers' adaptation to digital teaching.
H_{04}: - There is no significant difference in teachers' pedagogical adaptation based on demographic variables such as age, gender, educational qualification, teaching experience, and marital status.
Decision: Accepted for descriptive analysis.
Reason: The present study used percentage analysis and weighted average mean analysis only. Since no inferential statistical tests were applied, no significant difference can be statistically established based on demographic variables.
H_{05}: - Digital technology integration has no significant impact on innovation in classroom teaching practices in secondary school education.
Decision: Rejected.
Reason: Teachers agreed that digital technology integration encourages innovation in classroom activities and improves teaching effectiveness, as reflected by the overall WAM of 4.03.

Overall Conclusion

The study concludes that digital transformation has substantially influenced secondary school education in the post-COVID-19 period. Teachers have successfully adapted their pedagogical practices to digital environments and generally hold positive attitudes toward technology integration. Although digital teaching increases work stress for some teachers, the overall findings indicate that technology enhances classroom communication, student engagement, innovation, and teaching effectiveness. Therefore, digital transformation has become an integral component of contemporary secondary school education.

Findings of the Study

1. The study found that digital transformation has been successfully adopted in secondary school education during the post-COVID-19 period, with an overall WAM of 3.91. Teachers agreed that digital technologies have become an essential part of teaching and learning.
2. The study revealed that teachers have shown a high level of pedagogical adaptation towards digital teaching practices, with an overall WAM of 4.09. Teachers effectively integrated digital resources, interactive teaching methods, and technology-supported instructional practices into their classrooms.
3. The findings indicated that psychological and behavioural factors influence teachers' adaptation to digital technologies. While teachers expressed motivation and willingness to learn new technologies, many respondents also perceived digital teaching as increasing work stress. The overall WAM for this dimension was 3.77.
4. The demographic profile showed that the majority of respondents were female teachers (73.33%), below 30 years of age (63.33%), Master's Degree holders (66.67%), having 1–5 years of teaching experience (50.00%), and unmarried (56.67%).
5. The study found that digital technology integration positively influences teaching effectiveness and innovation, with an overall WAM of 4.03. Teachers agreed that technology improves classroom communication, student learning outcomes, and innovative teaching practices.

6. Teachers strongly agreed that digital technologies have become an essential component of education after COVID-19, indicating a permanent shift towards technology-enabled teaching and learning.
7. The study revealed that digital teaching practices contribute to improved student engagement, classroom interaction, and teaching effectiveness.

Suggestions

1. Schools should strengthen their digital infrastructure by providing adequate internet connectivity, smart classrooms, and updated technological resources.
2. Regular training programmes and workshops should be conducted to enhance teachers' digital competencies and confidence in using emerging educational technologies.
3. Educational institutions should provide technical support and guidance to help teachers effectively integrate digital tools into classroom teaching.
4. Measures should be taken to reduce the stress associated with digital teaching, including workload management, counselling support, and continuous professional development programmes.
5. Schools should encourage the use of interactive and innovative teaching methods supported by technology to improve student engagement and learning outcomes.
6. Teachers should be motivated to participate in continuous learning and skill development programmes to remain updated with technological advancements in education.
7. Educational policymakers should formulate strategies that promote sustainable digital transformation in schools and ensure equal access to technological resources.
8. Greater emphasis should be placed on the use of multimedia resources, Learning Management Systems (LMS), and digital learning platforms to improve teaching effectiveness.

Conclusion

The study concludes that digital transformation has significantly influenced secondary school education in the post-COVID-19 period. Teachers have successfully adapted their pedagogical practices to digital teaching environments and have demonstrated positive attitudes towards technology integration in education. The findings indicate that digital technologies have become an essential component of modern teaching and have contributed to improved classroom communication, student engagement, learning outcomes, and teaching effectiveness. Although teachers face certain psychological challenges, particularly increased work stress associated with digital teaching, they remain motivated and willing to learn new educational technologies. The study further highlights the importance of continuous training, institutional support, and adequate digital infrastructure in ensuring the successful implementation of technology-enabled education. Overall, the research confirms that digital transformation has positively contributed to teaching effectiveness and pedagogical innovation, making it an indispensable element of contemporary secondary school education in the post-COVID-19 era.

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