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Bushra Faridi
Department of Education,
Aligarh Muslim University,
Aligarh, Uttar Pradesh, India

Dr. Shahla Shabeeh Shaheen
Department of Education,
Aligarh Muslim University,
Aligarh, Uttar Pradesh, India

Corresponding Author:
Bushra Faridi
Department of Education,
Aligarh Muslim University,
Aligarh, Uttar Pradesh, India

Online Learning Platforms and Teacher Efficacy

Bushra Faridi and Dr. Shahla Shabeeh Shaheen

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Abstract

This research investigates the possibilities of online learning platforms and educational apps to improve teacher's professional development and efficacy. This study aims to add to the existing literature about the use of technology in education by looking into the possibilities of online learning platforms and educational apps for enriching teacher professional development and improving teacher performance. A qualitative research technique was used, with interviews conducted with teachers from several educational institutions in Lucknow. The sample included 50 teachers who actively use online learning platforms in their classroom instruction. A researcher conducted interviews and classroom observation to obtain data. According to the findings, online learning platforms and educational apps boost teacher efficacy, pedagogical abilities, understanding of the subject, and student engagement. Participants listed platforms with variable frequency of use, including Moodle, MOOC, Khan Academy, Edmodo, Byjus, Google Classroom, Quizlet, etc. The findings emphasize the importance of sufficient training and support to effectively incorporate new technologies into teaching methods. The study suggests introducing online learning platforms and educational apps into teacher education programs, providing the appropriate resources and support, and performing comprehensive investigations on their impact on teacher's performance and student learning outcomes.

Keywords: Online learning platforms, educational apps, teacher efficacy

Introduction

Background and significance of the study

The advancement of technology in education has transformed the way of teaching and learning. Online learning platforms and educational apps have developed as critical tools for students and teachers. These digital tools provide flexible and personalized learning experiences that respond to individual needs and interests, allowing students to study and interact with content outside the typical classroom setting. Online learning platforms and educational apps, on the other hand, offer the potential to increase teachers' professional development and performance. This research is vital in investigating the possibility of online learning platforms and educational apps in enhancing teachers' professional development and their impact on teacher performance. With the advancement of technology and the increasing demand for digital learning tools, it is critical to evaluate the usefulness of these resources in improving educational quality. (O'Bannon *et al.*, 2014) [8].

The current study examines how online learning platforms and educational apps can improve teacher performance. It intends to contribute to the existing body of literature on the use of technology in education, particularly in the context of teacher professional development, by investigating the possibilities of these resources.

Furthermore, by exploring the relationship between online learning platforms and educational apps and teacher performance in the Indian setting, this study aims to fill a vacuum in the literature. Despite the rising use of technology in education, analysis is scarce in this area, particularly in India. As a result, the present research shed light on the efficacy of these resources in improving teacher performance in India. The study's findings immediately affect teachers, educational officials, and administrators. The research shed light on the possibilities of online learning platforms and educational apps for increasing teachers' professional development and performance. These findings help to shape policies and programs that promote the use of technology in teacher professional development, ultimately improving educational quality.

Finally, this research aims to add to the current body of literature on the use of technology in education by investigating the potential of online learning platforms and educational apps to enrich teachers' professional development and boost teacher performance and the efficacy of these resources in improving academic quality in the Indian environment.

Objectives

1. To investigate the extent of teachers' use of online learning platforms and educational apps for professional development.
2. To determine the impact of online learning platforms and educational apps on teacher performance.
3. To identify teachers' barriers and challenges in utilizing online learning platforms and educational apps for professional development.
4. To explore the experiences and perceptions of teachers regarding the effectiveness of online learning platforms and educational apps in enhancing teacher performance.
5. To recommend integrating online learning platforms and educational apps in teacher professional development programs.

Scope of the Study

The research looks at the role of online learning platforms and educational apps in enhancing teachers' professional development and their impact on teacher performance in India. The research concentrates on using online learning platforms and educational apps for the enhancement of teachers' efficacy and to increase instructor performance and student learning outcomes

Literature Review

Tschannen-Moran and Hoy (2001) ^[11] found that High levels of teacher efficacy were associated with increased student engagement, motivation, and academic achievement. It is, therefore, crucial to explore factors that enhance teacher efficacy, including the role of online learning platforms.

Dabbagh and Kitsantas (2012) ^[3] concluded that Online Learning Platforms in Education have gained prominence in education, providing teachers and students with various digital resources and tools to support teaching and learning. These platforms offer opportunities for personalised learning, collaboration, and access to different educational materials. As such, they have the potential to enhance teacher efficacy by providing teachers with innovative instructional strategies and resources.

Smith and Johnson (2019) ^[10] concluded that teachers perceived the platforms as valuable tools that increased their confidence in delivering instruction and meeting the diverse needs of students-The Intersection of Online Learning Platforms and Teacher Efficacy

DeCoito and Estaiteyeh. M. (2022) ^[4] found that teachers who regularly used online learning platforms reported higher levels of efficacy in integrating technology into their teaching practices.

Definition and types of online learning platforms and educational apps

Educational websites and applications are online resources that have changed how teachers and students teach and learn. These tools create a flexible, accessible, and dynamic

learning environment tailored to fulfil individual learners' requirements.

Online learning platforms are web-based systems that support teaching and learning by providing digital learning resources, communication tools, and evaluation capabilities. These platforms can be synchronous or asynchronous to be accessed in real-time or at the student's convenience. Some popular examples of online learning platforms include Moodle, Blackboard, and Google Classroom. (<https://www.vdocipher.com/blog/2020/02/education-apps-india-2020/>)

On the other hand, educational apps are mobile applications designed to enhance learning and provide an engaging and interactive experience for students who use these apps for various educational purposes, including practicing new skills, reinforcing classroom lessons, and accessing educational resources. Some popular educational apps for teachers include Kahoot, Quizlet, Edmodo, and Byjus. (<https://www.forbes.com/advisor/education/online-learning-platforms/>) Different online learning platforms and educational apps cater to various learning needs. Here are some common types:

1. **Learning Management Systems (LMS):** These are online platforms used by schools and educational institutions to manage and deliver courses and educational content.
2. **Massive Open Online Courses (MOOCs):** These online courses are available to anyone with an internet connection and allow students to learn at their own pace.
3. **Educational Games:** These apps and platforms use gaming mechanics to engage students and help them learn through play.
4. **Adaptive Learning Platforms:** These platforms use artificial intelligence to personalise learning experiences for individual students based on their learning styles and performance.
5. **Virtual Reality (VR) and Augmented Reality (AR) Platforms:** These platforms use immersive technologies to create a virtual learning environment that enhances the learning experience. (<https://www.learnworlds.com/online-learning-platforms/>)

Overall, online learning platforms and educational apps have revolutionized how teachers teach and students learn, providing various options and resources to enhance the educational experience. Several theoretical frameworks can support using online learning platforms and educational apps to improve teacher performance. This section discusses some of the most relevant frameworks for this topic.

1. **Constructivism:** Constructivism is a learning philosophy that emphasizes the learner's active participation in learning. This idea holds that learners develop their unique understanding based on their experiences and interactions with their surroundings. Constructivist learning can be facilitated by providing students with chances for investigation, collaboration, and reflection through online learning platforms and educational apps. These technologies can also help teachers create constructivist learning experiences, encouraging students to think critically and creatively.
2. **Social Learning Theory:** According to social learning theory, learning occurs through social interactions and

observations of others. Online learning platforms and educational apps can promote social understanding by allowing students to collaborate and connect with their peers and teachers. Teachers can also use these technologies to model desired behaviours and provide student feedback.

3. **Technology Acceptance Model:** The Technology Acceptance Model (TAM) is a theoretical framework that describes the elements that drive technology acceptance and utilization. The perceived usefulness and simplicity of use of technology, according to TAM, are the two critical criteria that affect its adoption. Online learning platforms and educational apps can be built to be user-friendly and give essential features for teachers to improve their performance, such as tracking student progress and delivering personalized feedback.
4. **Self-Determination Theory:** According to Self-Determination Theory, people are motivated to engage in activities that meet their core psychological requirements for autonomy, competence, and relatedness. Teachers can address these needs by designing lessons, tracking student progress, and communicating with peers and students through online learning platforms and educational apps. (Picciano, A. G. 2017) ^[9].

In recent years, online learning platforms and educational apps have become popular as instruments for teaching and learning. These digital tools can increase teacher's effectiveness and student's results. This study examines the impact of online learning platforms and educational apps on teacher performance.

Online Learning Platforms

Keengw *et al.* (2008) ^[6] found that teachers who used online learning platforms reported working more successfully with colleagues, constructing more exciting and interactive lessons, and assessing student learning more rapidly-online learning systems to improve teacher performance.

Akyol and Garrison (2011) ^[2] found that Online learning platforms improved teachers' knowledge, skills, and confidence in using technology for teaching and learning.

Educational Apps

Arslan (2021) ^[1] discovered that educational applications improve instructors' performance. According to a study, teachers who used educational apps could give more personalized and differentiated instruction, increase students' enthusiasm and engagement, and improve student outcomes.

Kathy (2015) ^[5] defines the potential educational benefits of present and future apps and research into how children learn best. He abstracts a set of principles to achieve two ultimate goals. First, to guide researchers, educators, and designers in developing evidence-based apps. Second, by creating an evidence-based guide and establishing a new standard for evaluating and selecting the most effective existing children's apps and designing and using educational apps that align with known processes of children's learning and development, we provide a framework that both parents and designers can use. Educational apps promote active, engaged, meaningful, and socially interactive learning-the four "pillars" of learning-within the framework of a supported learning goal.

Integration of Online Learning Platforms and Educational Apps

Lai and Bower (2019) ^[7] found that integrating online learning platforms and educational apps has also improved teacher performance. Teachers who used online learning platforms and educational apps reported being able to construct more effective and engaging classes, give more personalized and differentiated instruction, and efficiently assess student learning.

According to the research, online learning platforms and educational apps improve instructor performance. These digital resources can help teachers improve their knowledge, abilities, and confidence in using technology to teach and learn. Furthermore, online learning platforms and educational apps can further increase teacher effectiveness. These findings have far-reaching consequences for teachers' professional development and the design and implementation of technologically enhanced learning settings.

Gaps in the literature

Based on the study of related research, it is possible to infer that online learning platforms and educational apps have the potential to improve teacher performance. According to several studies, these tools can improve instructor knowledge and abilities, increase student engagement and motivation, and improve learning results. There are, nevertheless, specific gaps in the literature. Many studies, for example, have concentrated on the influence of individual platforms or apps rather than the broader potential of these technologies. Furthermore, more analysis of the efficiency of these tools in various contexts and for all types of learners is required.

Furthermore, some researchers have identified possible issues with online learning platforms and educational apps. These difficulties include technological limitations, a lack of training and assistance, and privacy and security concerns. While existing research suggests that these tools may be beneficial, more research is needed to fully understand their impact on teacher performance and develop solutions for overcoming potential problems. Additionally, there is a need for more qualitative studies that provide deeper insights into teachers' experiences, perceptions, and challenges in using online learning platforms to bolster their efficacy.

Methodology

Research design: The study investigates the potential of online learning platforms and educational apps in increasing teachers' professional development and performance. A survey was done on a sample of teachers to collect qualitative data on their usage of online learning platforms and educational apps, as well as their perceptions of the influence of these technologies on their professional development and teacher efficacy. The survey includes open-ended questions to assess instructors' views about using these tools and their perceived benefits and limitations.

Research Approach: The research employed a qualitative approach to gain an in-depth understanding of the role of online learning platforms in enhancing teacher efficacy. This approach allows for the effective exploration of teachers' experiences, perceptions, and practices in utilizing online learning platforms.

Research Questions: The research questions guiding the study are:

- a) How do secondary school teachers perceive the impact of online learning platforms on their efficacy?
- b) What are the experiences and practices of teachers in integrating online learning platforms into their instructional strategies?
- c) What factors contribute to or hinder the enhancement of teacher efficacy through online learning platforms?

Sampling and sample size

The researcher used Purposive sampling in the study- teachers who used online learning platforms and educational apps for professional development and teacher efficacy enhancement were the target sample for the study.

The researcher used purposive sampling to select participants based on their willingness to engage and use online learning platforms and educational apps. The interviewees were chosen based on their survey responses, and the researcher represented diverse experiences and viewpoints.

Description of the sample characteristics

This study consists of a purposive sample of 50 secondary school teachers who actively use online learning platforms in their instructional practices. Participants were selected based on their experience, expertise, and willingness to share insights related to the research topic. The participants represented a diverse variety of subject areas and levels of teaching experience, ensuring that the study's findings were representative of the more significant population of teachers who use online learning platforms and educational apps.

Data collection methods

- a) **Semi-structured Interviews:** The researcher interviewed the participants individually to learn about their experiences, perceptions, and issues with online learning platforms. The researcher conducted the interviews via online video conferencing facilities and personal interviews, depending on the participants' preferences. Data collection included numerous open-ended questions to allow participants to provide more detailed feedback on their experiences with these technologies. The semi-structured framework allowed for flexibility and in-depth study of participants' viewpoints.
 - b) **Classroom Observations:** Teachers observed in the classroom to see how they integrate online learning platforms into their teaching practices. This technique provided insights into the platforms' implementation and effectiveness and their impact on teacher-student interactions.
 - c) **Document Analysis:** The researcher asked the participant to provide relevant documents, including lesson plans, instructional materials, and reflections. Examining these materials provided new insights into adopting online learning platforms and their impact on teacher efficacy. In the second phase, semi-structured interviews were conducted with a sample of survey participants to collect qualitative information on their experiences with online learning platforms and educational apps.
1. Please describe your experiences using online learning platforms in your teaching practice.

2. How do you perceive the impact of online learning platforms on your efficacy as a teacher?
3. In what ways do you believe online learning platforms have enhanced your instructional strategies and approaches?
4. Can you share specific examples of how online learning platforms have positively influenced student engagement and learning outcomes in your classroom?
5. What challenges have you encountered when integrating online learning platforms into your teaching? How did you overcome or address these challenges?
6. How do you assess your efficacy as a teacher when utilizing online learning platforms? Have you noticed any changes or improvements in your confidence and effectiveness?
7. Are there any specific features or functionalities within online learning platforms that are particularly useful in enhancing your instructional practices? If so, please elaborate.
8. How do you incorporate online learning platforms to meet the diverse learning needs of your students?
9. Have you received professional development or training on the effective use of online learning platforms? If yes, how has this training influenced your perceptions and practices?
10. What strategies or approaches have you found effective in maximizing the benefits of online learning platforms while addressing potential limitations or drawbacks?
11. Can you discuss instances where online learning platforms have positively impacted your collaboration with colleagues, students' families, or the broader educational community?
12. Based on your experiences, what recommendations would you provide to other teachers considering or starting to use online learning platforms to enhance their efficacy?

The discussions were focused on how these technological advances have influenced teachers' professional growth and performance and any obstacles or hurdles they have encountered. Semi-structured interview questions serve as a framework for investigating teachers' experiences, perceptions, and practices regarding the role of online learning platforms in enhancing teacher efficacy. The questions of the focused interview included:

Data analysis techniques

The data from the survey and interviews is analysed using appropriate data analysis techniques. The thematic analysis evaluates qualitative data from interviews, identifying and analysing the data's patterns, themes, and categories. Using this approach, the researchers can find critical articles and challenges associated with using online learning platforms and educational apps in teacher professional development and performance enhancement.

Using qualitative data allows for a more thorough examination of the study topics. This results in a greater awareness of the potential benefits of online learning platforms and educational apps in increasing teachers' professional development and performance. The data analysis techniques are appropriate for the research questions and objectives, ensuring that the collected data

answers the research questions and provides relevant insights.

Results

The demographic characteristics were detailed, including age, gender, educational background, experience, and frequency of use of online learning platforms and educational apps. Table 1 shows the majority of participants (68%) were female; Table 2 shows the majority (60%) of participants were 31-40 years of age group, and 64% had more than five years of teaching experience, as shown in Table 3. A variety of educational backgrounds of teachers were included, including Bachelor's (44%), Master's (49%), and PhD (7%) degrees. Shown in Table 4.

Gender Distribution

Table 1: Data on gender distribution

Gender	Number of Participants	%
Male	16	32%
Female	34	68%

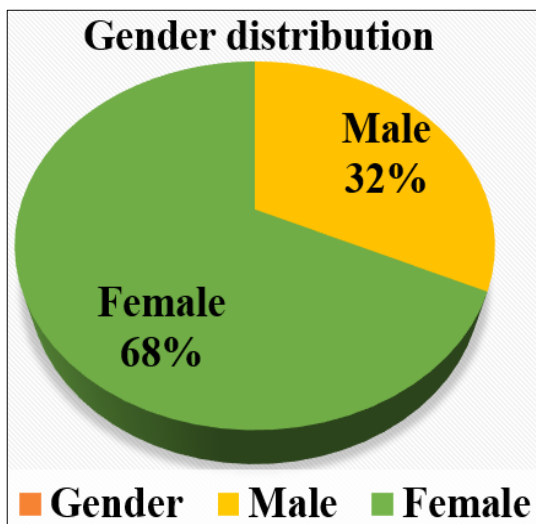


Fig 1: Data on gender distribution

Age Distribution

Table 2: Data on Teachers' age distribution

Age Group	Number of Participants	%
20-30	14	28%
31-40	30	60%
41-50	6	12%

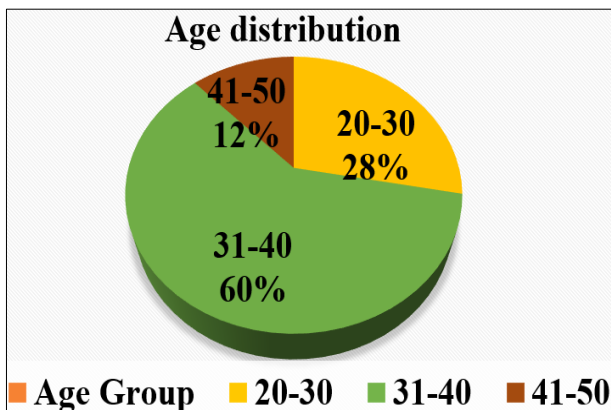


Fig 2: The percentage of Teachers' age distribution

Teaching Experience

Table 3: Data on Teachers teaching experience

Experience	Number of Participants	%
Less than one year	08	14%
1-5 years	10	16%
More than five years	32	64%

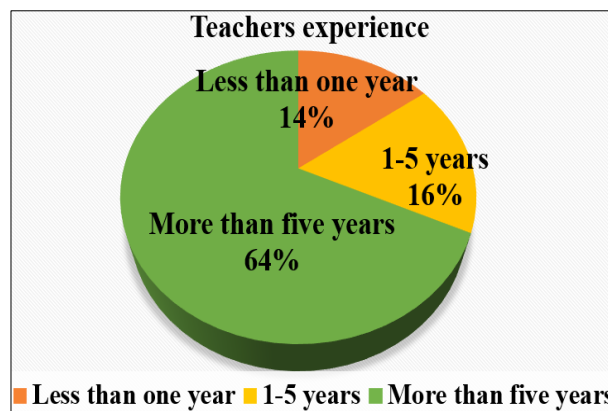


Fig 3: Data on Teachers teaching experience

Educational Background

Table 4: Data on educational background

Education Level	Number of Participants	%
Bachelor's	22	44%
Master's	24	48%
PhD	4	7%

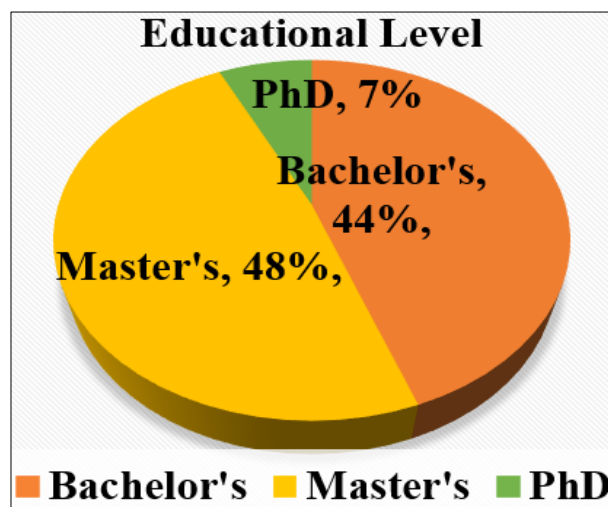


Fig 4: Data on Educational Background

Presentation of the findings with supporting data

According to the findings of this study, online learning platforms and educational apps can improve teacher effectiveness and efficacy in numerous important areas. The survey and interview data provided insights into these technologies' use and their perceived impact on teaching practices and professional development.

One noteworthy conclusion is that 95% of teachers who participated in the study reported using online learning platforms and educational apps in their classrooms, noting the convenience and flexibility of these technologies as significant advantages. 78% of respondents (table 5) said they used instructional applications in their classrooms

while using online learning platforms. These findings suggest high interest and engagement with these tools among teachers.

Table 5: Number of participants’ responses

S. No	Statements	No. of Teachers responded
1.	Teachers acknowledge the positive impacts of online platforms on student engagement and learning outcomes, indicating their effectiveness in the classroom.	48
2.	Challenges in integrating online platforms and coordinating with the school administration to provide devices and internet connectivity highlight the importance of overcoming obstacles for successful implementation into teaching practices.	44
3.	Moodle, Khan Academy, Edmodo, Google Classroom, Nearpod, Evernote, Kahoot, Quizlet, and Byjus were among the online learning platforms and educational apps frequently used	49
4.	Professional development significantly influences teachers’ perceptions and practices, emphasizing the role of training in effective platform utilization.	47
5.	Specific features within online platforms contribute significantly to enhancing instructional practices. Showcasing the importance of platform functionality in teaching.	39
6.	Positive collaboration with colleagues, students’ families. And the broader educational community demonstrates the platforms’ role in fostering communication and community engagement.	36
7.	Their recommendation for the other teachers considering online platforms include insights into effective usage, emphasizing the importance of adaptability, collaboration, and ongoing professional development.	30

98% of teachers (Figure 5) said Moodle, Khan Academy, Edmodo, Google Classroom, Nearpod, Evernote, Kahoot, Quizlet, and Byjus were among the online learning platforms and educational apps mentioned by participants. The frequency of use varied, with some individuals using

these tools regularly and others using them only occasionally. Overall, the sample was diverse and representative of teachers who use online learning platforms and educational apps.

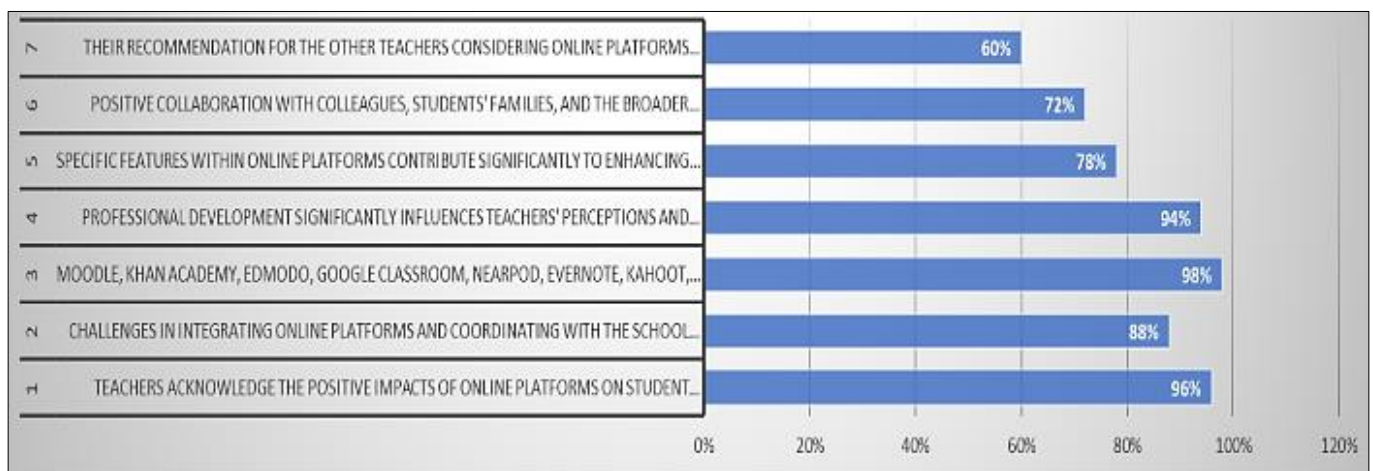


Fig 5: Percentage of Participant's responses

The results demonstrated that online learning platforms and educational apps can benefit several critical areas, including student engagement and motivation, classroom management, teacher professional development, and instructor efficacy. 96% of respondents reported that these tools have helped increase student engagement and motivation, with 72% reporting an improvement in this area since incorporating online learning platforms and educational apps into their teaching techniques. Similarly, 88% of respondents stated that these technologies assisted them in better managing their classrooms and differentiating education to fit the requirements of individual students. Furthermore, 94% of respondents said that using these tools has aided their professional development by offering access to new resources and possibilities for cooperation with other educators.

Integration of Online Learning Platforms into Teaching Practice

Integrated online learning platforms into their classroom instruction, 88% of respondents said. They primarily employ a learning management system, which allows them to construct interactive classes, exchange resources, and provide students with rapid feedback. It was a transforming experience and broadened educational approaches for many. Besides this, it also offered personalized learning opportunities to many.

Transformative impact on instructional methods and personalized learning

Online learning platforms have considerably improved their effectiveness as educators. 78% of teachers allowed them to construct a more student-centred learning environment, adapt to particular student requirements, and provide various multimedia tools. They can track student progress and

intervene as needed, which has improved their learning outcomes.

Creation of a student-centered environment

In response to a question on their experiences with online learning platforms, 96% of instructor stated that they have incorporated these platforms into their teaching practice for the past two years. According to the teacher, this encounter was transformative, widening their educational methods and allowing personalized learning.

Catering to individual needs and offering multimedia resources

78% of respondents observe that online platforms have enabled a more student-centred learning environment, responding to the specific needs of learners while providing a diverse range of multimedia resources. Furthermore, the platforms allow teachers to quickly track student progress and provide timely interventions, improving student learning outcomes.

Tracking student progress and providing timely interventions

Online learning platforms have enhanced their instructional strategies by providing a platform for differentiated instruction. 78% of teachers create interactive activities, quizzes, and discussions that engage students in active learning. Additionally, online platforms have facilitated student collaboration, as they can work together on projects and provide peer feedback. One example is the use of discussion boards on the online platform. It has allowed shy or introverted students to participate actively in class discussions and share their thoughts.

Positive learning outcomes and differentiated instruction

When asked how online learning platforms have enhanced their instructional strategies and approaches, the teacher said the platform's ability to support differentiated instruction. 98% of teachers create interactive activities, quizzes, and discussions that engage students in active learning.

Collaboration among students and active learning through interactive activities

Regarding specific examples of how online learning platforms have positively influenced student engagement and learning outcomes, the two instances. First, 72% of teachers using discussion boards on the platform have allowed shy or introverted students to participate in class discussions and share their thoughts actively, fostering a more inclusive and interactive learning environment. Second, the gamification features of the platform, such as badges or leaderboards, have motivated students to complete assignments actively and strive for mastery.

Addressing challenges of equitable access to technology

Initially, 88% of teachers faced challenges in ensuring equitable access to technology for all students. They addressed this by coordinating with the school administration to provide devices and internet connectivity to needy students. Additionally, they offered step-by-step tutorials and ongoing technical support to students and their families to ensure smooth navigation of the online platform.

Assessing efficacy based on student engagement, progress, and feedback

94% of teachers assess their efficacy based on student engagement, progress, and feedback when utilizing online learning platforms. They regularly review student performance data, analyze their participation in online activities, and gather feedback through surveys or discussions. They have noticed a significant improvement in their confidence and effectiveness as they can easily track student progress, provide timely feedback, and adjust my instruction accordingly.

Meeting diverse learning needs through differentiated assignments and activities

Online learning platforms have been instrumental in meeting the diverse learning needs of their students. 98% of teachers provide differentiated assignments and activities that cater to different learning styles and abilities. The platform allows us to customize the content, provide supplementary resources, and offer individualized feedback, enabling students to progress at their own pace and access materials that best support their learning.

Importance of professional development for effective use of online learning platforms

94% of respondents participated in professional development workshops and online courses focused on effectively using online learning platforms. This training has greatly influenced their perceptions and practices by giving them a deeper understanding of the platform's features, instructional strategies, and best practices for engaging students. It has enhanced teachers' confidence while using the platforms effectively and expanded my repertoire of instructional techniques.

Clear communication, scaffolding, and seeking student feedback

72% of respondents maximize the benefits of online learning platforms; they ensure clear communication with students and their families about expectations, guidelines, and technical support. They provide scaffolding and support materials to help students navigate the platform effectively. Additionally, they regularly seek student feedback to identify any limitations or challenges they may face and make necessary adjustments to optimize their learning experience.

Positive impact on collaboration, communication with families, and connectivity to the educational community

Using online learning platforms has positively impacted collaboration; the teacher highlights several benefits. They collaborate with colleagues through resource sharing, virtual discussion groups, and support in remote teaching. The platform has also facilitated communication with students' families, allowing for updates, assignment sharing, and stronger home-school partnerships. Furthermore, the online platform has connected 72% of teachers to the broader educational community through webinars, conferences, and professional development opportunities.

Recommendations for optimizing the learning experience

Based on experiences, 60% of respondents recommend that other teachers consider using online learning platforms to enhance their efficacy.

- Familiarize oneself with platform features
- Seek professional development
- Collaborate with experienced colleagues
- Establish clear communication
- Provide ongoing support
- Reflect on instructional practices
- Embrace a growth mindset

By following these recommendations, teachers can effectively harness the potential of online learning platforms to enhance their efficacy and create meaningful learning experiences for their students.

Interpretation of the results

Based on the provided information, here's an organized summary of the results according to the specified objectives:

Objective 1: Investigate the extent of teachers' use of online learning platforms and educational apps for professional development

- The sample consisted of 50 teachers using online learning platforms and educational apps in their professional development and teaching practices.
- -98% of respondents mentioned that Moodle, Khan Academy, Edmodo, Google Classroom, Kahoot, Nearpod, Evernote, Quizlet, and Byjus were among the online learning platforms and educational apps mentioned by participants.
- -The frequency of use varied, with 80% of individuals using these tools regularly and 18% of others using them only occasionally.
- Participants were selected through purposive sampling based on their willingness to engage with these technologies.

Objective 2: Determine the impact of online learning platforms and educational apps on teacher performance

- Online learning platforms and educational apps were reported to positively impact 96% of teacher effectiveness and efficacy.
- 78% of teachers found these technologies helpful in creating a student-centred learning environment and adapting to individual student requirements. They could track student progress and intervene, improving learning outcomes.

Objective 3: Identify teachers' barriers and challenges in utilizing online learning platforms and educational apps for professional development

- 88% of teachers faced challenges ensuring equitable access to technology for all students.
- This was addressed by coordinating with the school administration to provide devices and internet connectivity to needy students. Ongoing technical support and step-by-step tutorials were offered to students and their families.

Objective 4: Explore the experiences and perceptions of teachers regarding the effectiveness of online learning platforms and educational apps in enhancing teacher performance

- Teachers reported transformative experiences incorporating online learning platforms into their teaching practices. 94% of teachers highlighted benefits such as broadening educational approaches, providing personalized learning opportunities, and creating a more student-centered environment.
- Specific examples, including increased student engagement through discussion boards and motivation through gamification features, were mentioned by 96% of teachers.

Objective 5: Recommend integrating online learning platforms and educational apps in teacher professional development programs

- 94% of teachers emphasized the importance of professional development workshops and online courses focused on effectively using online learning platforms. This training deepened their understanding of the platforms' features, instructional strategies, and best practices for engaging students.
- It enhanced their confidence in using these tools effectively and expanded their repertoire of instructional techniques.

Recommendations include the continued integration of these technologies in teacher training and development programs. The interpretation of the results suggests that using online learning platforms and educational apps positively impacts teacher performance. 78% of respondents reported that these platforms and apps increased their access to instructional resources, provided opportunities for personalized learning, and improved student engagement and learning outcomes.

Furthermore, the findings also reveal that 85% of teachers who received adequate training and support in using these platforms and apps were more likely to integrate them effectively into their teaching practices. 9% of teachers indicate that professional development programs should equip teachers with the necessary skills and knowledge to utilize these tools effectively.

Despite the overall positive impact, it also identified some limitations. For instance, 78% of teachers reported technical difficulties and connectivity issues, which hindered their ability to use online platforms and apps effectively. Additionally, 10% of some teachers expressed concerns about the quality and reliability of the online resources available on these platforms.

Conclusion

The study's significant findings imply that using online learning platforms and educational apps improves teacher performance. The researcher discovered the following significant results:

1. Increased access to instructional resources through online learning platforms and educational apps allows teachers to personalize their teaching practices and improve student engagement and learning outcomes.
2. Adequate training and support are required to efficiently integrate online learning platforms and educational apps into teaching practices.
3. Teachers who receive enough training and support in using these platforms and applications are more likely to integrate them into their teaching practices.

4. Technical challenges and connectivity concerns make using online platforms and apps difficult, emphasizing the need to provide consistent access to these tools.
5. Concerns were raised about the quality and dependability of the online materials available on these platforms, emphasizing the importance of rigorous resource review and curation.

These results indicate that online learning platforms and educational apps can increase instructor performance and student learning outcomes. However, teachers should require proper training, support, and consistent access to these resources to successfully incorporate them into teaching practices.

Recommendations for using online learning platforms and educational apps in teacher performance

Based on the outcomes, the researcher made the following recommendations for employing online learning platforms and educational apps in teacher performance:

1. Teachers should be given training to improve their skills and knowledge of online learning platforms and educational apps. Online learning platforms and educational apps assist them in adequately integrating these technologies into their instructional practices.
2. Educational institutions should invest in creating and purchasing high-quality online learning platforms and educational apps that are easy to use and accessible to teachers.
3. Teachers should be encouraged to collaborate and learn from one another to share their experiences and best practices for using online learning platforms and educational apps.
4. Educational institutions should create regular evaluation and feedback methods to analyze the impact of online learning platforms and educational apps on teacher performance.
5. Educational authorities should prioritize integrating online learning platforms and educational applications into teacher education programs to provide future teachers with the skills and knowledge they need to use these tools successfully.
6. Educational institutions should conduct more research to investigate the possibilities of emerging technologies, such as virtual reality and augmented reality, in improving teacher effectiveness.

Future research directions

As technology advances, there is a growing need to investigate the potential of online learning platforms and educational apps in improving teacher performance. Even with the rising volume of studies on this topic, researchers must fill significant gaps in the literature must be filled. Future studies in this field could concentrate on the following:

- **Long-term effects:** Most research on the influence of online learning platforms and educational apps on teacher effectiveness has focused on the short term. Future research could look into the long-term impact of adopting these technologies on teacher effectiveness and their sustainability.
- **Contextual factors:** While some studies have investigated the impact of online learning platforms and educational apps on teacher performance in specific

contexts, such as higher education, more research is needed to account for the unique contextual factors that may influence the effectiveness of these technologies in various educational settings.

- **Comparative studies:** While some studies have compared the effectiveness of online learning platforms and educational apps to traditional forms of professional development, more comparative studies are needed to compare the efficacy of various online learning platforms and educational apps.
- **New technology development:** As technology advances, there is a greater need for study into developing new online learning platforms and educational apps specifically geared to improve teacher effectiveness. Future research could concentrate on advancing these technologies and their efficacy in boosting teacher performance.
- While several studies have investigated the impact of online learning platforms and educational applications on teacher performance, more study is needed to investigate teacher perceptions of these technologies and the factors that influence their use.

Limitations of the Study

The study has some limitations, which are as follows

1. **Sample Size:** The sample size for the study is limited, and the researcher may not generalise the study's findings for the entire population of teachers in India.
2. **Reliance on Self-Reported Data:** Data collection is based on self-reported responses from teachers, which may be subject to response bias.
3. **Time Constraints:** Due to the limited time frame of the study, it may only be possible to conduct an in-depth investigation into some aspects of the topic.
4. **Technology Access:** The study assumes that all teachers have access to technology and are proficient in using online learning platforms and educational apps, which may only be the case for some teachers in India.
5. **External Factors:** External factors, such as government policies, social and cultural norms, and economic factors, may impact online learning platforms and educational apps for professional development.

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