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The role of e-learning platforms in enhancing teaching effectiveness in Fijian schools: Challenges and strategies for improvement

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E-learning platforms are revolutionising education by enhancing the efficacy of instruction; however, they can only achieve their full potential if significant challenges are addressed and effective improvement strategies, such as professional development, infrastructure enhancement and technical support, are implemented. This study aimed to investigate the readiness of teachers in Fijian schools to adopt e-learning platforms. It also sought to identify the necessity for e-learning platforms in schools, the factors that impede their implementation and strategies to improve teaching and learning through these platforms. Data were collected from 100 participants, including 20 school principals, 40 teachers and 40 students, through questionnaires and interviews. Qualitative data were analysed in accordance with the research questions, and quantitative data were analysed using descriptive statistics. The study found that e-learning platforms enhance education by fostering 21st-century skills and improving teaching methodologies. However, challenges such as inadequate resources, insufficient teacher training and unreliable Internet and electricity hinder its full implementation. The study suggests that targeted solutions, including professional development for teachers, investment in reliable infrastructure and continuous support, should be provided to enable schools to maximise e-learning's benefits and create a more innovative educational environment.

Keywords: *e-learning; teaching effectiveness; e-learning platforms; 21st-century skills; Fiji*

INTRODUCTION

In the digital era, it has become essential to integrate e-learning platforms into educational settings, which has fundamentally transformed traditional teaching practices. Assessing teachers' preparedness to utilise these platforms is crucial for successfully implementing and enhancing students' learning experiences. Although there is a global push for the adoption of

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e-learning, it is necessary to establish the need for such platforms in the Fijian context, considering the unique educational challenges of this region.

E-learning, also referred to as electronic learning or web-based training, constitutes instruction accessible at any time and from any location via the Internet or a corporate Intranet, delivered to students and other learners through a browser (Lutkevich, 2020). An e-learning platform serves as a virtual learning environment that employs information and communication technologies to enhance the teaching and learning process. It comprises various tools that enable users to interact, communicate and collaborate online. These tools may encompass discussion forums, live chat, video conferencing, online quizzes, interactive learning materials and digital assessments, among others (Pérez, 2023). The adoption of e-learning platforms enables quality education to be provided to all students, making teaching and learning more engaging for teachers and students.

Providing teachers with the necessary training to use e-learning platforms effectively is essential to foster an effective teaching and learning process in all schools, regardless of their geographical location. Effectiveness is the degree to which e-learning platforms improve student learning outcomes, increase engagement and facilitate efficient teaching strategies (Anderson, 2008; Clark & Mayer, 2016). Numerous studies have assessed teachers' readiness to adopt e-learning platforms, revealing that varying levels of preparedness are influenced by factors such as technological competence, access to training, attitudes toward technology and online collaborative learning (Çınar et al., 2021; El Alfy et al., 2016; Kaushik & Agrawal, 2021; Shaikh et al., 2023; Shaikh et al., 2024). These studies highlight the impact of e-learning platforms on student academic achievement because they provide access to detailed information and learning resources. However, the reluctance of some teachers to adopt e-learning platforms due to a lack of knowledge and skills or comfort with traditional teaching methods poses a challenge.

E-learning platforms have been shown to improve academic performance by providing students with extensive information about their studies (Mothibi, 2015). However, it is crucial for teachers to fully understand the functionalities and daily use of these platforms in classrooms to motivate their students. Despite this, some teachers who prefer traditional teaching methods resist using e-learning tools due to a lack of knowledge and skills.

This study contributes to the body of knowledge by addressing the limited research on the adoption of e-learning in the Fijian context, particularly in rural and urban school settings. This study addresses the gap in the literature regarding e-learning adoption in Fiji, particularly by examining the perspectives of principals, teachers and students together, which has been limited in prior research. Unlike previous studies, which often focus on developed countries, this research provides a comprehensive understanding of Fiji's unique challenges and opportunities for implementing e-learning platforms. By incorporating qualitative and quantitative data, this study offers nuanced insights into teachers' readiness, infrastructure gaps and potential strategies for effectively integrating technology into education. It expands existing research by contextualising global findings within the Fijian setting, thus offering implications for other developing regions facing similar educational and infrastructural limitations. This is one of the few studies to examine the perspectives of principals, teachers, and students collectively, thereby ensuring a holistic view of Fiji's e-learning landscape. The following research questions guided this study:

1. Why do teachers use e-learning platforms in Fijian schools?

2. What are the specific context-related factors that hinder the promotion of quality e-learning platforms in Fijian schools?
3. How can teachers deliver effective teaching and learning through e-learning platforms in Fijian schools?

LITERATURE REVIEW

E-learning platforms significantly influence the teaching and learning processes. The 21st-century educational system is designed to prepare children for future employment opportunities by fostering their complete development. E-learning uses electronic technology to access educational programs beyond traditional classrooms. E-learning has replaced traditional methods of instruction and learning due to its convenience and use. According to Abdelaziz et al. (2014), e-learning is a means of communication and information exchange in education, allowing teachers and students to connect using electronic devices. Kong and Song (2015) explain that e-learning is needed in the school system to foster the development of skills and knowledge among students so that they can use e-learning devices meaningfully when employed. It is important to understand that e-learning platforms drive our education system forward as children prepare for the future. Furthermore, Al-Emran and Teo (2019) assert that e-learning provides solutions and opportunities to disseminate knowledge and information, facilitate learning and enhance the performance of students and teachers through the development of new knowledge and skills.

Furthermore, most 21st-century children do not want to learn the traditional blackboard and chalk methods. Today, education needs to be changed drastically so that the education system is on par with the rapidly growing society of the 21st century. Leow et al. (2016) advocate for integrating the technological advancement of e-learning devices and other online software applications into the school system to transform them into 21st-century digital learning classrooms. E-learning platforms in schools eliminate teacher-centred classrooms and move to learner-centred classrooms, where learners can have self-directed learning and become problem solvers (Yesil & Aras, 2024). Therefore, we also need to train our teachers to become ambassadors for e-learning in our schools so that they can teach children confidently.

Teachers need to use e-learning platforms in schools.

E-learning platforms have become integral to modern education by offering various tools for enhancing teaching and learning. E-learning accommodates diverse learning approaches by using the extensive interactive content available on the Internet (Songkram, 2015). Teachers must continuously enhance their knowledge and abilities to effectively use e-learning platforms so that teaching and learning in their schools are relevant and responsive. Implementing e-learning platforms in schools enhances the delivery of high-quality education by allowing learners and teachers to access a wealth of information related to their teaching and learning. According to Rawashdeh (2021) and Gameil and Al-Abdullatif (2023), e-learning platforms foster interactive learning environments that allow teachers to provide accessible content at any time and location. El-Sabagh (2021) highlighted that e-learning supports personalised learning, catering to students' individual needs through adaptive content delivery.

E-learning provides much-needed effectiveness for teachers, allowing them to maximise the potential for individual learning curves and styles within the classroom. Wargadinata et al. (2020) note that e-learning is very effective for teaching and learning because it provides opportunities for students to learn about various electronic gadgets and applications,

which are useful for their schoolwork and future employment opportunities. Similarly, Aboderin (2015) and Ferriere and Ailincai (2022) suggest that e-learning is needed in the education system because it motivates teachers to integrate and use e-learning tools to positively boost the teaching and learning process towards a 21st-century knowledge-based society. Students learn better when their teachers use innovative and creative methods. Technology must be integrated into the classroom to ensure that students are fully engaged in the lesson.

The flexibility of e-learning allows for a blended learning approach that combines online resources with traditional classroom instruction. This approach ensures continuity of education, particularly during crises such as the COVID-19 pandemic when remote learning becomes essential (Ibrahim et al., 2023; World Bank, 2021). Furthermore, Adeshola and Agoyi (2022) argued that integrating e-learning platforms improves student engagement and motivation because these platforms often include multimedia content and interactive assessments.

Principals must emphasise the importance of e-learning platforms in developing skills of the 21st century, improving lesson delivery and fostering technological literacy among students in schools (Kalyani, 2024). According to Encarnacion et al. (2021), e-learning platforms help teachers improve classroom learning efficiency by providing quick and easy access to information that helps students keep up with modern educational strategies.

Successful implementation of e-learning in schools requires adequate infrastructure and training. Teachers must develop the digital literacy skills necessary to effectively use these platforms (Maphosa & Bhebhe, 2019). Additionally, Liu (2021) postulated that, without proper support, e-learning can exacerbate the digital divide, disadvantaging students from underprivileged backgrounds. Therefore, although e-learning platforms offer significant benefits, their implementation must be carefully managed.

Obstacles preventing teachers from promoting quality e-learning platforms in schools

Many factors prevent teachers from promoting high-quality e-learning platforms in educational institutions. One major challenge is the inadequacy of infrastructure, including unreliable Internet services and insufficient digital devices (Qazi et al., 2022). Similarly, Adarkwah (2021) posits that a lack of electricity, knowledge and skills, e-learning resources and Internet connectivity hinders teachers from implementing e-learning in their classrooms. Teachers also face limited training and technical support, adversely affecting their ability to integrate technology effectively into the classroom (Al-Araibi et al., 2018). Furthermore, Chandra et al. (2024) state that digital literacy disparities among teachers further hinder their confidence in using e-learning platforms, resulting in their failure to effectively deliver lessons through multimedia and other e-learning platforms.

According to Singh et al. (2021), budgetary constraints prevent educational institutions from acquiring and maintaining high-quality e-learning tools. Resistance to change and preference for traditional pedagogical methods among some teachers also hinder the adoption of innovative learning technologies (Watty et al., 2016). Additionally, privacy and security concerns about online platforms discourage teachers from fully embracing digital learning environments because they appreciate the potential exposure of student data to breaches (Mouawad, 2020).

Providing effective teaching and learning via e-learning platforms in schools

Effective teaching through e-learning platforms requires the strategic integration of technology with pedagogy. Alqurashi (2019) and Hover and Wise (2020) posited that teachers must adapt their instructional methodologies to suit digital environments, incorporating interactive tools such as quizzes, videos and discussion forums to enhance engagement. Haleem et al. (2022) echoed similar sentiments by stating that e-learning platforms enhance lesson delivery, foster deeper conceptual understanding and boost the students' learning capacity through multimedia tools such as videos and audio.

A critical component of successful e-learning is the design of structured, clear and user-friendly courses. Xu et al. (2020) emphasised the importance of well-organised content that facilitates independent learning while providing timely feedback to students. Furthermore, Chand et al. (2022) and Tagimaucia et al. (2024) highlighted the importance of blended learning, which integrates online and face-to-face instruction to enhance flexibility and learning outcomes.

Teachers must also possess digital literacy to provide effective e-learning skills. Lukas and Yunus (2021) stated that without adequate training in digital tools, teachers may find it difficult to use their full potential. Dhillon and Murray (2021) and Morris and Mwaraksurmes (2024) suggested that ongoing professional development and access to resources are crucial for improving teachers' e-learning competencies. Finally, Azionya and Nhedzi (2021) emphasise the need for equitable access to technology, as disparities in access can hinder the effectiveness of e-learning platforms for all students.

THEORETICAL FRAMEWORK

This study's theoretical framework draws upon the Technology Acceptance Model (TAM) and Constructivist Learning Theory. TAM describes how users adopt and use technology, particularly emphasising the importance of perceived usefulness and simplicity as critical determinants of engagement with e-learning platforms (Davis, 1989). Although there are more recent alternatives to TAM, this study maintains TAM as the preferred model due to its strong empirical support, simplicity, and applicability in adopting educational technology. TAM has been extensively validated in various technological environments, making it a dependable framework for understanding teachers' participation in e-learning opportunities. Furthermore, its emphasis on perceived usefulness and user-friendliness continues to be relevant in modern digital learning environments, where user acceptance is a critical determinant of successful implementation (Venkatesh & Bala, 2008).

Constructivist learning theory posits that learning is an active process in which learners acquire knowledge through interaction and engagement (Chand, 2023). This theory explains the need for adequate support structures that facilitate teachers' understanding and effective use of e-learning tools. By integrating these frameworks, this investigation explores the impact of preparation and support systems on the engagement of teachers with e-learning technologies.

RESEARCH METHOD

This study adopted a mixed methods design, combining qualitative and quantitative approaches to comprehensively explore the role of e-learning platforms in improving teaching effectiveness in Fijian schools. The mixed methods approach was selected because it allowed the integration of statistical analysis with rich, contextual data, providing a well-rounded understanding of the research problem. Quantitative data were collected through structured questionnaires, while

qualitative data were collected through semi-structured interviews. This approach enhanced the validity of the findings by triangulating data from multiple sources.

One hundred participants were involved in the study: 20 school principals, 40 teachers and 40 students. Participants were randomly selected from 10 schools within a single Fiji education district. Although unnamed for confidentiality, this district includes urban and rural schools and was chosen for its diversity in school types and student populations. The study included four government schools and six community schools. Of the 10 schools, five were urban, and five were in rural areas.

Participant codes were assigned to maintain confidentiality and ensure traceability of the data sources during analysis; principals were coded as P1–P20, teachers as T1–T40, and students as S1–S40. This coding allowed for a clearer distinction between perspectives during data interpretation.

Structured questionnaires were distributed to all 100 participants. The questionnaires addressed core themes, such as teacher digital readiness, infrastructural and training challenges and perceived benefits of using e-learning platforms. The questionnaire contained closed-ended questions (to generate quantifiable data) and open-ended questions (to gather qualitative insights). The emphasis was placed on issues relevant to the Fijian context, such as digital divide concerns, language barriers and localised training support.

In addition, 30 semi-structured interviews were conducted to collect qualitative data. These included 10 principals (from five urban and five rural schools), 10 teachers (evenly distributed by school type and location) and 10 students (five from government schools and five from community-managed schools). The interview questions focused on real-life experiences with e-learning tools, challenges in integration, training adequacy and student engagement. These interviews were essential to capture the nuances of implementation and the contextual factors that affect the uptake of e-learning.

Quantitative data were analysed using descriptive statistical techniques, with frequency distributions and percentages reported. Key findings were presented in tables and graphs to ensure clarity and transparency. The qualitative data from open-ended responses and interviews were analysed using thematic analysis. Emerging themes were categorised according to relevance to the research questions, such as ‘infrastructure limitations’, ‘teacher competency gaps’ and ‘student motivation and access issues.’ Data coding for themes followed a systematic process to ensure inter-coder reliability and consistency.

Integrating quantitative and qualitative data allowed for a comprehensive understanding of how e-learning platforms are used in different school types and geographical settings in Fiji. This methodological triangulation strengthened the credibility of the findings and informed context-specific strategies to improve digital education delivery in Fijian schools.

Ethical consideration

Before the study, consent forms were distributed to all participants to confirm their agreement to participate. Participation in this study was voluntary; therefore, no individuals were compelled to participate. All participants were fully informed of their rights and responsibilities throughout the study. Participants were also informed that providing personal information on the surveys was voluntary and explicitly asked to respond to all questions. However, they

retained the absolute right to refuse to answer any question they desired. Participants were assured that their identities would not be disclosed in any part of the study. Data collected from the participants were securely stored in a locked cabinet according to the ethical standards adhered to in any study.

RESULTS OF THE STUDY

All participants answered the same questions, allowing direct comparisons across respondent groups. Tables 1 to 5 summarise results from the quantitative data.

Principal's views on the need for teachers to use e-learning platforms in schools

The principals were asked to explain the most important need for e-learning in schools. Their responses ranged from developing 21st-century learning skills in children to effective lesson delivery, developing children toward technology literacy, creative and innovative teaching styles, and accessing e-learning material online.

Table 1 shows that principals most frequently cited '21st-century learning skills' (30%) as the primary reason for using e-learning tools, followed by 'effective lesson delivery', 'developing children towards technology literacy' and 'creative and innovative teaching styles' (20% each). Only 10% mentioned access to e-learning materials as the main reason. This highlights that principals highly value skills that prepare students for modern, digital contexts.

Table 1: Principals' views on the reasons the teachers should use e-learning tools

Why should teachers use e-learning tools?	Frequency	Percentage (%)
Effective delivery of lessons.	4	20
Develop children towards technology literacy.	4	20
Develop 21st-century learning skills in children.	6	30
For creative and innovative teaching styles.	4	20
Have access to e-learning material online	2	10

Teachers' views on the need for e-learning platforms

In line with the principal's perspectives, teachers were asked to explain the necessity of utilising e-learning platforms in schools. Their responses included facilitating comfortable, efficient and expeditious learning, preparing students for 21st-century learning methodologies, improving lesson delivery, boosting students' learning capacity, improving conceptual understanding, enabling teachers to share resources via online platforms and introducing innovation and creativity to teaching and learning materials.

Table 2: Teacher responses on the reasons for using e-learning tools

Why should teachers use e-learning tools?	Frequency	Percentage (%)
E-learning makes learning comfortable, easy, and fast.	13	33
Train children to get used to 21st-century learning habits.	12	30
E-learning tools are the best mode of delivery of lessons.	17	43
E-learning improves students' learning ability.	10	25
E-learning improves the standard of understanding concepts.	5	13

Why should teachers use e-learning tools?	Frequency	Percentage (%)
Teachers can share resources through online platforms	2	5
E-learning brings innovation and creativity to teaching and learning resources.	2	5

Table 2 reveals that the most commonly cited reason (43%) was that e-learning tools offer the best mode of teaching. This is followed by preparing students for 21st-century learning (30%) and making learning comfortable, easy and fast (33%). On the contrary, only 5% of teachers identified innovation and creativity or resource sharing as primary benefits, indicating a possible underappreciation of these aspects.

Although Table 1 highlights that 20% of the principals emphasised creative and innovative teaching styles, only 5% of the teachers did so, suggesting a gap in understanding the creative potential of e-learning tools that may require targeted training.

Student perspectives on e-learning

Table 3 shows the rating of reasons students provided for valuing the e-learning tools. The highest-rated benefit, cited by 36% of students, was improved engagement through interactivity. This suggests that students are drawn to digital platforms' dynamic and responsive nature, which helps them maintain attention and interest in learning tasks. A further 30% of the students reported that e-learning improves their understanding of complex topics through multimedia tools, such as videos, animations and simulations. These resources help them visualise and more easily grasp the abstract or difficult content, a benefit particularly relevant in subjects like mathematics and science.

Another 24% of the students valued e-learning because it allows for independent and self-paced learning. This theme is less prominent in the responses from principals and teachers, but highly significant for the students. This preference reflects a desire for autonomy and flexibility in how, when and where they engage with content, traits aligned with modern student-centred learning philosophies. Only 10% cited that e-learning makes learning more enjoyable, although this still underscores the affective benefits of technology integration.

Table 3: Student perspectives on e-learning

Why do students value e-learning tools?	Frequency	Percentage (%)
Improves engagement through interactivity	18	36
Enhances understanding of complex topics via multimedia	15	30
Allows for independent and self-paced learning	12	24
Makes learning more enjoyable	5	10

The students' greater emphasis on autonomy and interactive participation reveals a notable factor in learner expectations. While principals and teachers prioritised e-learning for lesson delivery, technological literacy and innovation, students focused more on the direct impact of these tools on their learning experience, highlighting the need for teachers to align their teaching strategies with what students find most beneficial.

These findings support the constructivist theoretical framework, which posits that learners actively construct knowledge through experience and interaction with their environment. The strong student preference for interactive and self-directed learning environments underscores the relevance of e-learning tools for promoting constructivist learning. It also suggests that for e-learning to be fully effective, implementation strategies must be grounded in students' lived experiences and learning preferences, not solely on teacher convenience or institutional goals.

Factors limiting the implementation of e-learning

Across all participant groups, principals, teachers and students, several key barriers to the effective implementation of e-learning were identified, including a lack of electricity, Internet connectivity problems, inadequate resources, insufficient training opportunities and gaps in knowledge and skills related to e-learning tools.

Table 4 shows a comparative analysis of these challenges. The data show that the 'lack of e-learning resources' was the most reported barrier identified by principals (85%), teachers (78%) and 68% of students, confirming that inadequate access to devices and platforms is widespread. Internet connectivity issues were a shared concern, reported by 55% of principals, 65% of teachers and a significant number (70%) of students, making it the most common obstacle among the three groups. Lack of electricity was mentioned by 30% of principals, 28% of teachers and 35% of students, indicating that infrastructural challenges remain prominent, especially in rural areas.

Another important concern was the lack of skills and knowledge, with 80% of principals, 63% of teachers and 45% of students acknowledging it as a challenge. This suggests that while teachers may need targeted professional development, students also need guidance in effectively using digital tools for learning. Furthermore, 80% of principals, 70% of teachers and 50% of students highlighted the lack of training, underlining the need for system-wide capacity building.

Table 4: Comparative analysis of barriers to e-learning implementation

Barriers to e-learning implementation	Principals' views (%)	Teachers' views (%)	Students' views (%)
No electricity	30	28	35
No internet connection	55	65	70
Lack of e-learning resources	85	78	68
Lack of skills and knowledge on the use of e-learning	80	63	45
Lack of training on e-learning platforms	80	70	50

Strategies for effective teaching through e-learning

In response to these challenges, principals, teachers and students were asked to suggest strategies to improve the adoption of e-learning. Their responses included professional development for teachers, provision of sufficient resources, motivational support and education on the benefits of e-learning. The students also emphasised the need for improved teacher skills in using e-learning tools, better resource availability and inclusive teaching practices that help them understand how to engage with digital platforms effectively.

Table 5 rates the importance of these recommendations. Professional development emerged as the top recommendation in all groups, with 60% of teachers, 50% of principals and 55% of students highlighting it. Motivation and encouragement were also important: 40% of the principals, 35% of the teachers and 40% of students mentioned this as a way to improve the adoption of e-learning. Furthermore, 25% of principals, 30% of teachers and 35% of students indicated the importance of educating teachers about the benefits of e-learning. Resource provision was supported by 30% of the principals, 40% of the teachers and 45% of students, reflecting a widespread concern about the availability of the necessary tools and devices.

Table 5: Principals', teachers' and students' views on strategies to motivate teachers to use e-learning

Strategies to motivate teachers to use e-learning	Principals' views (%)	Teachers' views (%)	Students' views (%)
Encourage teachers to learn the benefits of e-learning.	25	30	35
Professional development for teachers in e-learning.	50	60	55
Provide teachers with sufficient e-learning resources.	30	40	45
Motivate and encourage teachers to use e-learning freely and upgrade their skills.	40	35	40

Qualitative analysis and themes

Qualitative data complements the quantitative findings, offering deeper insight into stakeholder perspectives. Three core themes emerged from the responses of principals, teachers and students: (1) perceived benefits of e-learning platforms, (2) barriers to the implementation of e-learning platforms and (3) strategies for effective teaching through e-learning. These themes provide a nuanced understanding of the factors influencing e-learning integration and echo the broader patterns revealed in the survey data.

1. Perceived benefits of e-learning platforms

Across all groups, participants described several advantages of using e-learning tools, which were categorised under three subthemes: access to resources, engagement, interactivity, and flexibility and autonomy.

Access to resources.

School leaders, particularly in remote locations, observed that e-learning platforms reduced the gap in learning resources between urban and rural schools.

> E-learning platforms reduce resource mismatches in rural areas by providing access to modern educational materials. This is particularly helpful for science and mathematics. (P4, Rural school)

> We no longer rely solely on textbooks; teachers and students can now access updated global content online. (P12, Semi-urban school)

Engagement and interactivity

Teachers noted that the interactive nature of digital platforms helped maintain students' interest and improved learning outcomes, especially in abstract or technical subjects.

> E-learning tools promote the use of interactive media, increasing student participation and maintaining interest among learners, particularly in difficult subjects. (T36, Urban school)

> Students become more engaged when lessons include animations or simulations. They learn faster and retain more. (T9, Rural school)

> These tools have helped weaker students who don't usually speak up. With videos and quizzes, they feel more confident. (T18, Urban school)

Flexibility and autonomy

Students appreciated the ability to learn at their own pace, review lessons and access multimedia content anytime, particularly outside the classroom.

> I enjoy using e-learning tools because they make studying more enjoyable, especially when I can watch videos to understand new topics. (S29, Year 11)

> Sometimes, I don't fully understand a topic in class, but with e-learning, I can go back and revise on my own. (S6, Year 12)

> I like the freedom it gives. I can study when I feel ready, even at night or on weekends. (S16, Boarding school)

2. Barriers to the implementation of e-learning platforms

Despite the benefits, participants identified several challenges, grouped into the subthemes of infrastructure limitations, insufficient training and confidence, and resource access issues.

Infrastructure limitations

Principals and students particularly highlighted unreliable electricity and poor Internet connectivity, especially in rural and island schools.

> One of the most significant obstacles encountered is the lack of reliable electricity. Without power, devices are useless. (P6, Rural school)

> Internet access is not consistent. Sometimes, it is down for the whole day. (P17, Maritime school)

> Sometimes the Internet is too slow or does not work. It's frustrating when we cannot finish assignments. (S30, Urban school)

Insufficient training and confidence

Teachers reported limited opportunities for hands-on training and expressed discomfort using digital tools without adequate preparation.

> We lack sufficient training on how to use these e-learning devices. Some of us are hesitant to incorporate them into our classrooms. (T28, Rural school)

> Even though I want to use these tools, I'm not confident enough. I'm afraid I might teach something wrong. (T13, New graduate)

> I have attended one workshop, but it was not enough to use everything confidently. (T2, Urban school)

Resource access issues.

Students shared concerns about the limited availability of devices at school or home, which affected their ability to fully engage with e-learning content.

> There are only a few computers in the lab, and sometimes, we don't get the opportunity to use them. (S16, Year 12)
>
> Not all of us have smartphones or laptops. We often have to share, which makes it hard to complete the job. (S35, Year 12)
>
> My family cannot afford a tablet or a good phone, so I rely on printed notes or the teacher's explanation. (S8, Rural school)

3. Strategies for effective teaching through e-learning

The participants proposed several strategies to address these challenges and support the integration of e-learning, which fell into three categories: training and professional development, resource provision and inclusive student support.

Training and professional development

Principals and teachers emphasised the need for regular, ongoing training to improve teacher confidence and competence.

> Continuing professional development programs are crucial to ensure that teachers are competent in using these modern tools appropriately. (P9, Semi-urban school)
>
> Workshops should be held more frequently, with follow-up sessions. Just one training session doesn't help much. (T14, Urban school)
>
> We need training in local contexts, not just theoretical presentations. (T36, Rural school)

Resource provision and system support

The availability of reliable infrastructure, government funding and digital learning platforms was considered critical to successful implementation.

> Government support is essential for providing necessary resources such as the Internet, devices and maintenance. (P20)
>
> If the platforms are user-friendly and aligned with our syllabus, teachers will be more willing to use them. (T18)
>
> Every school should have a dedicated IT support person. It would solve many technical delays. (T40, Urban school)

Inclusive student support

Students stressed the importance of clear guidance and training on using e-learning tools to participate confidently.

> Teachers should clearly explain how to use the online platforms. Sometimes, I feel left out because I don't understand them. (S3)
>
> We should have sessions just for students to learn to navigate and use the apps and sites. (S34, Year 11)
>
> When teachers use e-learning tools well, it helps us. But if they don't, we get confused and stop trying. (S19, Year 12)

The qualitative findings reveal a more complex picture of how e-learning is experienced across different stakeholder groups. While principals and teachers emphasise professional training and infrastructure, students pay attention to access, usability and autonomy. These narratives reinforce the quantitative results and demonstrate the importance of a collaborative, inclusive approach to advancing digital education that addresses systemic barriers and learner needs.

DISCUSSION

The findings of this study reaffirm the central role that e-learning platforms play in modernising education in Fiji, especially from the perspective of principals, teachers and students. Consistent with the work of Kalyani (2024), the principals in this study stressed that e-learning platforms are not just supplementary tools but essential drivers for cultivating 21st-century skills, enhancing instructional delivery and fostering technological literacy among learners. They viewed these platforms as bridge tools, especially in rural areas where traditional learning resources are often scarce. This aligns with the broader educational goals observed in digitally advanced nations such as Singapore and South Korea, where e-learning forms the backbone of future-ready schooling systems.

However, a recurring concern was the insufficient professional preparation of teachers in the technical and pedagogical aspects of e-learning. This gap undermines the potential envisioned by school leaders. It is consistent with trends observed in other developing contexts, including sub-Saharan Africa and Southeast Asia, where inadequate training continues to limit the effectiveness of digital initiatives. For the aspirations to be fully realised in classrooms, a strong focus on capacity-building for teachers is essential, both in using tools and designing instruction that maximises digital platforms.

From a global perspective, the results also resonate with findings by Al-Emran and Teo (2019), who argued that e-learning supports the dissemination of knowledge and the development of teacher and student competencies. Our study further supports the work of Haleem et al. (2022), highlighting the effectiveness of multimedia elements such as videos and interactive tools in improving student understanding. The students in this study echoed these benefits, often referencing visual and audio content that made learning more engaging, accessible and effective.

Teachers in this study acknowledged the convenience and flexibility of e-learning platforms but expressed less confidence in using them as tools for creative or student-centred instruction. This aligns with studies, such as those from India and the Philippines, that found many teachers use technology for content delivery rather than to foster inquiry-based or collaborative learning. Encarnacion et al. (2021) also found that e-learning can increase instructional efficiency, but only if teachers are equipped with the right pedagogical strategies to harness it effectively. The implication here is clear: professional development must extend beyond technical training to include training in digital pedagogies that encourage innovation, interactivity and learner autonomy.

Students' views added a unique layer to the findings. While principals and teachers focused primarily on instructional improvements, students valued the autonomy, accessibility and self-paced nature of e-learning platforms. This signals a critical shift in educational priorities. Today's learners are increasingly drawn to personalised, technology-driven learning environments. Their emphasis on flexibility and engagement reinforces the need for e-learning designs that cater not only to curriculum requirements but also to student expectations and learning styles, underscoring the need for inclusive platform development that prioritises content relevance and user experience.

Despite these promising insights, the study confirms that infrastructural and logistical constraints remain formidable barriers among stakeholder groups. Consistent with Adarkwah's (2021) findings, the lack of reliable electricity and stable Internet connectivity severely restricts access to e-learning, particularly in rural schools. Teachers and students reported disruptions in access and frustrations with device limitations; challenges that point to systemic inequities requiring targeted interventions and policy reforms. Without addressing these basic infrastructure deficiencies, the benefits of e-learning cannot be realised equitably.

Finally, echoing the findings of Dhillon and Murray (2021), our study underscores the importance of ongoing professional development for teachers and school principals to support meaningful integration of e-learning. Without consistent and structured training in digital pedagogy, there is a risk that technology will continue to be used superficially, limiting its impact on teaching and learning. Evidence from South America and Eastern Europe supports this claim, demonstrating that digital tools rarely lead to meaningful educational transformation without sustained capacity building. Therefore, investing in human capital through continuous training and mentorship must accompany infrastructure upgrades to unlock the full potential of e-learning in Fiji.

CONCLUSION, LIMITATIONS AND IMPLICATIONS

This study investigated the need for teachers in Fijian schools for e-learning platforms, their readiness to adopt e-learning platforms, the factors that impede the implementation of e-learning and strategies to improve teaching and learning through these platforms. The results demonstrate that e-learning platforms are increasingly recognised by principals, teachers and students in Fiji as powerful tools for transforming educational delivery. Principals acknowledged that e-learning provides critical access to quality resources, particularly in underserved rural schools with limited physical materials. Teachers saw e-learning as a means of enhancing engagement, introducing innovative teaching methods and supporting differentiated instruction. Students, meanwhile, valued the flexibility of self-paced learning, the ability to revisit content through multimedia and the more enjoyable, interactive nature of digital platforms. These findings reflect a broader shift toward learner-centred and constructivist approaches in education enabled by digital technologies.

The study also revealed several significant barriers that hinder the effective implementation of e-learning. In all stakeholder groups, challenges, including unreliable Internet connectivity, frequent power outages, lack of access to devices and limited digital literacy, were consistently reported. Teachers, in particular, highlighted a lack of confidence and insufficient training as key impediments to adopting e-learning tools. Students expressed frustration with inconsistent access and a lack of support in navigating digital platforms, while principals stressed infrastructural and funding limitations that prevent full-scale integration. These challenges point to the need for coordinated efforts to improve access, capacity and confidence in using technology in the education system.

The findings of this study should be interpreted in light of certain limitations. First, the study was confined to the Fijian education context, where infrastructure, policies and socioeconomic conditions differ significantly from other regions. This limits the generalisability of the findings beyond similar settings. Second, the sample size, particularly of teachers and principals, was modest and may not fully represent the diversity of views across the education sector. Third, the study relied primarily on self-reported data collected through interviews and questionnaires,

which can introduce bias and fail to capture actual classroom practices or learning outcomes. Fourth, while the study acknowledged infrastructure constraints such as the Internet and electricity, it did not delve deeply into the economic or logistical challenges schools face in overcoming these barriers. Fifth, data collection was conducted in person, potentially excluding individuals who could not participate due to travel or time constraints. Sixth, although student perspectives were included, the study did not incorporate the views of policymakers or IT personnel who are instrumental in shaping and supporting e-learning infrastructure. Finally, the study's cross-sectional nature captures stakeholder perceptions at one point in time. It may not reflect changes in attitudes or practices as digital learning becomes more widespread.

The findings of this study have important implications for educational policy, school leadership and classroom practice. First, the study underscores the urgent need for investment in basic infrastructure, including reliable electricity, Internet connectivity and access to digital devices, especially in rural and disadvantaged areas. These are the foundational requirements for e-learning platforms to function effectively and equitably. Furthermore, school leaders and educational authorities must prioritise ongoing professional development for teachers, equipping them with the knowledge, skills and confidence necessary to integrate technology into their teaching practices. Tailored training programs, mentorship and peer support networks could serve as sustainable models to build teacher capacity.

Equally important is the need to support students using e-learning tools. The study found that students often felt left behind due to unclear instructions or a lack of guidance on using platforms effectively. Teachers should receive training in using digital tools, scaffolding students' digital literacy and designing inclusive, accessible learning experiences. The study also points to the benefits of hybrid teaching models, which combine traditional and digital methods, cater to different learning styles and ensure continuity of education in times of disruption.

At the policy level, inclusive planning involving principals, teachers and students in decision-making will be critical to ensuring that e-learning solutions are relevant, sustainable and context-appropriate. Future research should broaden the scope of investigation by including more diverse participants, incorporating longitudinal data and examining the role of external stakeholders such as policymakers and IT support teams. Overall, this study provides a foundation for improving the adoption of e-learning and creating a more dynamic, equitable and resilient education system in Fiji.

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