World Journal on Educational Technology: Current Issues
e-ISSN 1309-0348

Volume 18, Issue 1, (2026) 60-75

https://un-pub.eu/ojs/index.php/wjet/index

Developing a self-paced online learning platform for computer servicing using Google Sites

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Suggested Citation:
Arante, R. B., Cabachete, J., Sapa, J., Serna, M. A. D., & Alas, J. A. (2026). Developing a self-paced online learning platform for computer servicing using Google Sites. *World Journal on Educational Technology: Current Issues, 18*(1), 60-75. https://doi.org/10.18844/wjet.v18i1.9757

Received on August 8, 2025; revised on December 12, 2025; accepted on January 2, 2026.
Selection and peer review under the responsibility of *Prof. Dr. Huseyin Uzunboylu*, University of Kyrenia, Cyprus

Abstract

The increasing demand for flexible and accessible technical education has intensified the need for innovative digital learning solutions in computer servicing. Although online platforms are widely used in general education, limited research has examined the design and effectiveness of structured self-paced environments specifically tailored to technical skill development. This study addresses this gap by developing and evaluating a self-paced online learning platform for computer servicing using Google Sites. The platform was designed for learners of all levels and incorporates structured modules, video tutorials, interactive quizzes, hands on exercises, discussion forums, and peer support to promote practical competence in hardware fundamentals and troubleshooting. An iterative design process guided by usability testing and user feedback informed continuous refinement of the platform. Findings indicate that the platform strengthens practical skill acquisition and facilitates the integration of theoretical knowledge with applied tasks. High levels of usability and learner engagement were observed. The study contributes to digital technical education by demonstrating how thoughtfully designed self-paced platforms can broaden access, support workforce skill development, and enhance experiential learning outcomes.

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Keywords: Computer servicing; digital learning; instructional design; online education; technical skills.

1. INTRODUCTION

In an era dominated by technology, the importance of computer service skills cannot be overstated. With the rapid evolution of hardware and software components, individuals across various sectors seek to acquire and hone their abilities in maintaining and troubleshooting computer systems. Traditional educational models often struggle to keep pace with these advancements, necessitating innovative approaches to facilitate accessible and compelling learning experiences.

An increase in demand for internet-based teaching and learning has been created by the vast existence of the internet and the accessibility of technology. Today, computer technology is commonly used as a learning medium for education practitioners. Most students use personal computers, laptops, and netbooks for educational purposes. Computer learning has benefits that start growing in learners, such as attractiveness (Muslihudin et al., 2018). Internet education is increasingly invading schools and universities. Although some schools and universities are currently using traditional learning methods (for instance, face-to-face lectures in a classroom), educational institutions have also started blended learning (Dhawan, 2020).

Online learning applies to diverse groups of students of differing instructional needs who are inadequate or incapable of attending formal school classes. The need for online courses stems from a drive "to provide all learners with quality education, regardless of location and time" (Anderson, 2020). Students who are hospitalized, have phobias related to school conditions, are single parents, have been suspended, are dropouts trying to receive a diploma, and several such particular circumstances have contributed to a rise in the number of distance learning courses and services available (Hasan, 2019). Online learning can generate educational options for people who, previous to the growth of online training services, may have encountered unsurpassable barriers.

Nevertheless, the apparent benefits of e-learning technology for accessing knowledge and maintaining educational dialogue should not be overlooked or opposed. It is unnecessary to see the integration of e-learning systems as producing winners and losers. The power of combining online and face-to-face interactions is that while understanding and incorporating the immense capabilities of online learning to offer a sustained, rigorous dialogue, it recognizes the distinct benefits and expectations associated with face-to-face learning communities. Unconstrained by time, the ability of e-learning to integrate verbal and written dialogue has driven educators to reconsider the possibilities of including campus-based students in face-to-face and online environments. This thoughtful blending of complementary face-to-face and online approaches has been called blended learning to meet specific educational goals.

Online learning applies to diverse groups of students of differing instructional needs who are unable or incapable of attending formal school classes. The need for online courses stems from a drive to provide all learners with quality education, regardless of location and time (Richardson et al., 2025; Anderson, 2020). Students who are hospitalized, have phobias related to school conditions, are single parents, have been suspended, are dropouts trying to receive a diploma, and several such particular circumstances have contributed to a rise in the number of distance learning courses and services available (Almarzooqi, 2019). Online learning creates educational opportunities for individuals who, prior to the expansion of online training services, faced significant or insurmountable barriers to access.

Google Sites is a great website construction platform. All the other incredible Google features are pulled together by Google Pages so that it helps users embed Google Docs, Calendar, YouTube, Picasa albums, and many more. In one of the published research articles, various ways and tips were discussed on tapping into this medium's educational value, along with valuable suggestions for implementing it with classroom students (Dwi Wicaksono et al., 2023).

Google Sites was first launched in 2008, and it uses cloud technologies that simplify website design, communication, and sharing. The presenters showed how simple it is to set up personalized portfolio templates without needing expert knowledge of HTML or other web creation resources for students and faculty. The introduction concentrates on picking a prototype from which to act, adjusting the template's look, and customizing the navigation (Anh and & Truong, 2023).

1.1. Purpose of study

In summary, this study sets the stage for developing an online learning platform that addresses the challenges of traditional education models and leverages the capabilities of Google Sites to provide accessible and compelling learning experiences in computer servicing. Through this platform, learners can acquire and enhance their computer maintenance and repair skills, empowering them to thrive in an increasingly digital world.

2. METHODS AND MATERIALS

2.1. Research design

Developing an online learning platform using Google Sites requires a comprehensive research approach. A mixed-method research design is increasingly recognized as a valuable approach to studying educational technology, including online learning platforms (Cohen, 2008). This approach allows for a more comprehensive understanding of complex phenomena, such as the factors influencing learner engagement and satisfaction with online learning environments (Naveed et al., 2023; Mathew et al., 2024). Quantitative methods, such as surveys and usability testing, can provide valuable data on user preferences, platform usability, and learning outcomes (Sardana et al., 2023). For instance, usability testing can help identify design flaws hindering user interaction and learning (Kamińska et al., 2022). Qualitative methods like focus groups and interviews can offer deeper insights into learners' experiences, motivations, and challenges (Campbell et al., 2021). By combining these methods, researchers can gain a more nuanced understanding of the factors that contribute to the success or failure of developing an online learning platform.

2.2. Ethical Considerations

This study adhered to internationally accepted ethical standards for research involving human participants. Prior to data collection, all participants (teachers, students, and IT experts) were informed about the aims and procedures of the study, and their voluntary consent was obtained. Data collected through surveys, usability testing, and feedback sessions were treated confidentially and anonymized before analysis. No personal or identifiable information was included in the dataset or reported in the findings. Participants were informed of their right to withdraw at any time without any consequences. All data were used strictly for academic purposes, in compliance with institutional and ethical research guidelines.

2.3. Participants

Research participants are categorized into three main groups based on their roles and responsibilities in the context of the study. Each plays a crucial part in the overall learning or training process. These categories are broken down as follows:

2.3.1. Teachers

This group comprises individuals responsible for imparting knowledge, guiding, and assessing the learners' progress. Depending on the learning environment, they may include schoolteachers, college professors, corporate trainers, or industry experts. In an IT-based or blended learning setup, this group of participants was familiar with educational technology, integrating digital tools like Learning Management Systems (LMS) into their teaching (Furqon et al., 2023).

2.3.2. Students

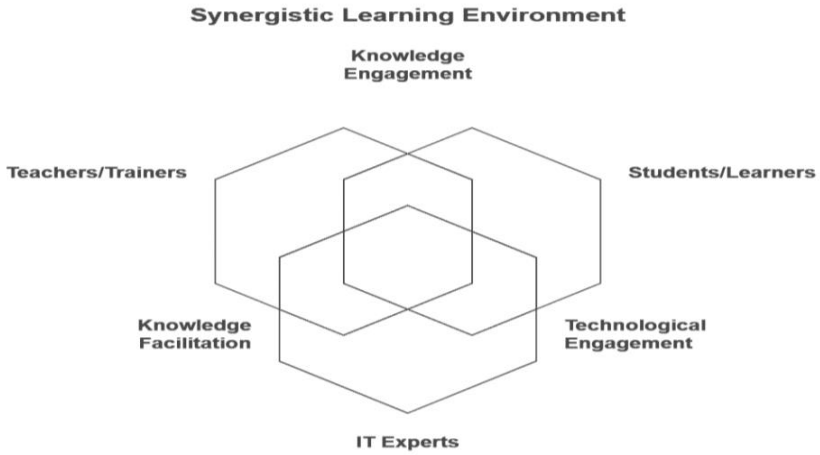
This group consists of individuals who acquire new knowledge or skills. They could be school students, university undergraduates, professionals undergoing training, or anyone in a lifelong learning process. They may come from varied backgrounds, and their interaction with technology can vary, affecting their learning experience (Katsarou & Chatzipanagiotou, 2021).

2.3.3. IT experts

This group consists of IT Experts in the learning environment. They serve as the technical backbone, ensuring that the infrastructure and tools used for learning are functional, secure, and user-friendly. Their primary roles include Technical Support, System Maintenance and Updates, Integration of IT Tools, Data Security and Privacy, and providing training for Teachers and Students (Ramansyah et al., 2024).

Figure 1

Synergistic role of the participants in this online learning environment



The figure represents a "Synergistic Learning Environment", illustrating the interaction between Teachers/Trainers, Students/Learners, and IT Experts. Each group contributes to creating an effective learning ecosystem through different forms of engagement. Knowledge Engagement occurs between teachers and students, facilitating learning through instruction and discussion. Technological Engagement

happens between students and IT experts, ensuring learners can use digital tools and platforms effectively. Knowledge Facilitation is the collaboration between teachers and IT experts, integrating technology into education to enhance teaching methods (Arante & Bascon, 2025). The overlapping hexagons symbolize the interconnectedness of these roles, emphasizing that an optimal learning environment is achieved through their seamless collaboration.

In summary, each category is interconnected in the learning or training process. Teachers/Trainers are the content experts, delivering knowledge; Students/Learners are the recipients, actively engaging with the material; and IT Experts are the enablers, providing the necessary technological support to ensure a smooth and practical learning experience, especially in modern, tech-driven educational environments. The synergy between these groups ensures that the learning goals are met efficiently and effectively.

3. RESULTS

3.1. Platform development

The online learning platform for computer servicing was successfully developed using Google Sites, following the outlined methodology. It features a user-friendly interface with an organized content layout and integrated multimedia elements, ensuring an engaging learning experience. The platform offers a comprehensive range of educational materials catering to the diverse needs of learners.

Figure 2

Home Page of the newly developed online learning platform

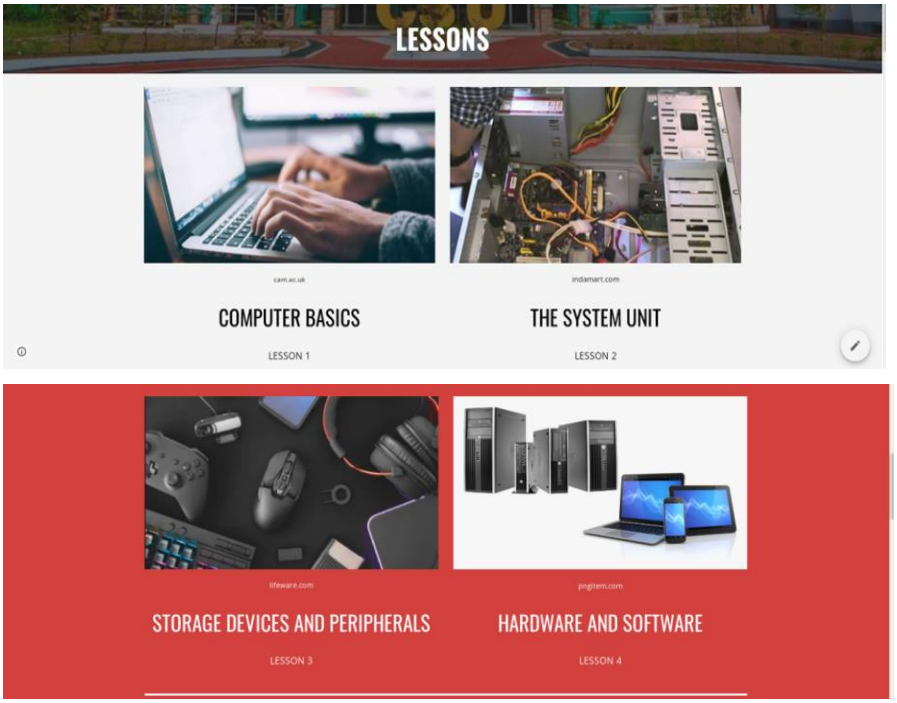
Figure 2 illustrates the home page of the newly developed online learning platform, showcasing its design and functionality. The page features a clean, user-friendly interface with a well-organized layout, making it easy for users to navigate and access course materials. Key elements such as a menu bar, search function, and prominently display multimedia content (for instance, images, videos, or interactive modules) are integrated to enhance usability and engagement. The home page serves as the central hub, providing quick access to various platform sections, including course modules, resources, and support tools, ensuring users a seamless and intuitive learning experience (Wiyanah & Rahman, 2024).

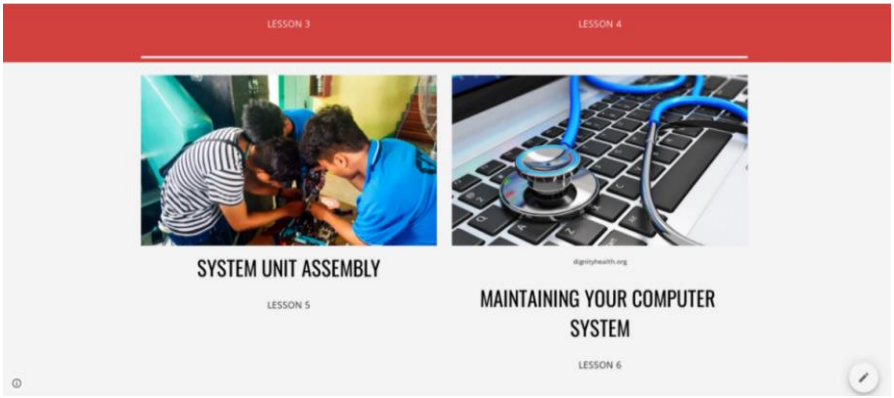
3.2. Content integration

The platform incorporates diverse educational content, including text-based tutorials, video demonstrations, interactive simulations, practical exercises, quizzes, assessments, and discussion forums. The content covers various topics such as computer basics, the system unit, storage devices and peripherals, hardware and software, system unit assembly, and computer system maintenance. These lessons related to computer servicing cater to all learners at different skill levels.

Figure 3

Learning materials within the Google site learning platform





3.3. Interactive features

Interactive features such as quizzes, assessments, and discussion forums were implemented to enhance learner engagement and interaction. These features allow learners to test their knowledge, receive feedback, and engage in peer-to-peer learning and collaboration. Implementing interactive features such as quizzes, assessments, and discussion forums has enhanced learner engagement and interaction. Users reported that these features provided valuable opportunities for self-assessment, feedback, and peer-to-peer learning. The effectiveness of these interactive elements in promoting active learning and knowledge retention underscores their importance in online education platforms (Roque-Hernández et al., 2023).

3.4. Pilot testing and assessment feedback

Pilot testing of the platform was conducted with a small group of users, representative of the target audience. Feedback from users was generally positive, with users praising the platform's intuitiveness, content relevance, and interactive features that enhance learning experiences. The positive feedback from users indicates that the online learning platform developed using Google Sites has been well-received. This positive feedback is encouraging and suggests that the platform has the potential to effectively address the needs and preferences of its target audience (Ševančec & Fink Grubačević, 2019). Some suggestions for improvement were also provided, including enhancements to navigation and additional content offerings.

Table 1

Evaluators' comments/feedback during the pilot testing of the learning platform

Experts/Evaluators	Comments/Feedback
Teachers/Trainers	● Citations or sources should be included for every picture used in the lesson presentation to avoid plagiarism. ● Every topic/competency should have a learner's feedback or insight. ● Instead of material and direction, change to materials and directions. ● During the hands-on activity, occupational health and safety (OHS) practices and procedures must be stated as one of the activities. ● Some of the learning outcomes do not observe HOTS and SMART.
Students/Learners	● The learning materials provided through the link must be OPEN ACCESS,

	not limited. ● Simplified self-directed instruction on how to navigate the site must be incorporated. ● Instructional content is easy to understand and is very helpful for beginners.
IT Experts	● Some performance tasks do not use Google Forms. ● Use Google Forms in drop-down format for ease of use. ● Improve user interface aesthetics. ● Navigational buttons must be clearly labelled. ● Improve the layout and content presentation. ● Please consider using your own videos.

Table 1 provides valuable feedback from three key stakeholder groups: Teachers/Trainers, Students/Learners, and IT Experts regarding developing and implementing an online learning platform for computer servicing. The feedback highlights both strengths and areas for improvement, offering actionable insights to enhance the platform's effectiveness, usability, and educational value. Teachers'/Trainers' feedback regarding the evaluation of the newly developed online learning platform highlights several critical areas for improvement, focusing on enhancing credibility, pedagogical effectiveness, user engagement, and alignment with educational best practices. First, the suggestion to include citations or sources for every picture used in lesson presentations emphasizes the importance of academic integrity and proper attribution, ensuring the platform adheres to ethical standards and avoids plagiarism. This enhances the platform's credibility and ensures compliance with copyright laws. Second, the recommendation to incorporate learner feedback or insights for every topic or competency underscores the need for a learner-centered approach, fostering engagement and enabling continuous improvement based on user experiences. Third, the feedback to change "material and direction" to "materials and directions" highlights the importance of precise and professional language, which improves clarity, consistency, and overall usability. Fourth, the call to integrate occupational health and safety (OHS) practices into hands-on activities is crucial for promoting safety awareness, aligning with industry standards, and preparing learners for real-world scenarios. Finally, the observation that some learning outcomes lack Higher-Order Thinking Skills (HOTS) and SMART (Specific, Measurable, Achievable, Relevant, Time-bound) criteria indicates the need for well-defined, rigorous objectives that promote critical thinking and measurable progress. The Teachers/Trainers recommended that addressing areas such as ethical content creation, learner-centered design, language precision, safety integration, and robust learning outcomes will significantly enhance the platform's quality, usability, and educational impact, ensuring it effectively meets the needs of learners and educators in the field of computer servicing.

The feedback from Students/Learners regarding the evaluation of the newly developed online learning platform also highlights their need for accessibility, usability, and content clarity, which are critical for creating an effective learning experience. First, the request for learning materials to be open access emphasizes the importance of removing barriers such as paywalls or login requirements, ensuring that all learners, regardless of their background, can freely access resources. This promotes inclusivity and aligns with the platform's goal of democratizing computer servicing education. Second, the call for simplified self-directed instructions on navigating the site underscores the need for an intuitive and user-friendly interface. Clear navigation guidance empowers learners to explore the platform independently, reducing frustration

and enhancing their overall experience. Finally, the positive feedback on the instructional content being easy to understand and helpful for beginners highlights the platform's success in delivering explicit and beginner-friendly materials. This clarity keeps learners engaged and motivated, fostering a positive learning environment. Addressing these feedback points, ensuring open access, simplify navigation, and maintaining explicit content will significantly enhance the platform's usability, accessibility, and effectiveness, making it a valuable resource for learners at all levels.

Lastly, the feedback from IT Experts regarding the evaluation of the newly developed online learning platform highlights several technical and design-related areas for improvement, focusing on usability, functionality, and content quality. First, the suggestion to use Google Forms for performance tasks, particularly in a drop-down format, emphasizes the need for streamlined and user-friendly assessment tools that simplify data collection and enhance the learner experience. Second, the call to improve user interface aesthetics and clearly label navigational buttons underscores the importance of an intuitive and visually appealing design, which is critical for maintaining user engagement and ensuring ease of navigation. Third, the recommendation to enhance the layout and content presentation reflects the need for organized and visually coherent materials that facilitate effective learning. Finally, the advice to use original videos instead of relying on external content highlights the importance of authenticity and customization, ensuring the platform offers tailored and high-quality resources. They also recommend optimizing assessment tools, refining the interface, improving content presentation, and incorporating original learning materials, significantly enhancing the platform's usability, functionality, and overall effectiveness, making it a more professional and impactful resource for learners.

Figure 4

Product quality (ISO/IEC 25010) assessment result

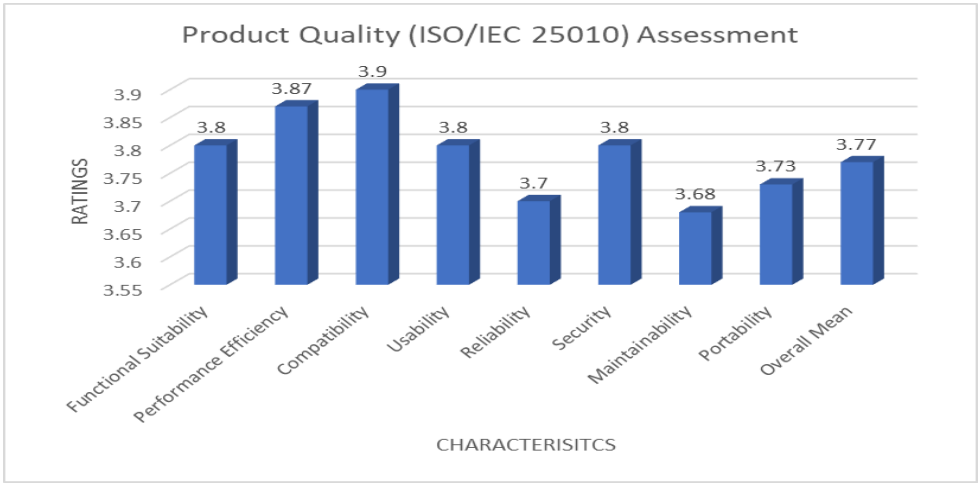


Figure 4 presents the results of the Product Quality Assessment based on the ISO/IEC 25010 standard, evaluating various product characteristics on a rating scale (Trichkova-Kashamova, 2021). Among the assessed characteristics, Compatibility received the highest rating at 3.9, followed closely by Performance Efficiency (3.87) and Usability (3.8), indicating strong system compatibility, efficient performance, and ease of use. Other attributes, such as Functional Suitability, Security, and Maintainability, also scored 3.8, showing well-balanced product capabilities. However, Reliability (3.7) and Portability (3.68) received slightly lower scores, suggesting areas for potential improvement. The Overall Mean Rating of 3.77 reflects a generally

high-quality product but also highlights the need for enhancements in reliability and portability. The implications of these findings suggest that while the product is efficient, compatible, and user-friendly, further improvements in system stability, adaptability, and transportability could enhance its overall quality and usability (Alkoblan & Wadud, 2023).

3.5. Iterative development

Feedback from users also highlighted areas for improvement in terms of usability and accessibility. Suggestions for navigation, layout, and content presentation enhancements were noted, indicating opportunities for further refinement to optimize the platform's usability and accessibility. Iterative development cycles will be crucial in addressing these suggestions and ensuring the platform remains user-friendly and accessible to all learners. The iterative development approach employed in refining the platform based on user feedback is essential for ensuring its ongoing effectiveness and relevance (Hurd & Billingsley, 2023; Praveena et al., 2023). Continuous monitoring of user engagement, participation rates, and learning outcomes provided valuable insights into the platform's performance and areas for further improvement. By prioritizing user feedback and incorporating it into subsequent development cycles, the platform can evolve to meet the changing needs of its users and remain a valuable educational resource (Gönç et al., 2023).

3.6. Launch and monitoring

After completing development and quality assurance testing, the online learning platform was successfully launched for public access. User engagement, participation rates, and learning outcomes are being monitored to evaluate the platform's effectiveness in achieving its objectives. Ongoing feedback from users will continue to inform further refinements and optimizations to the platform.

Developing an online learning platform for computer service using Google Sites has proven successful, offering a comprehensive curriculum, interactive features, and positive user feedback. This achievement has broader implications for online education, demonstrating the potential of accessible technology to democratize knowledge and empower individuals in high-demand fields (Su et al., 2022; Ulinuha & Parnawati, 2022). The methodologies and best practices employed in this project can serve as a model for developing similar platforms in other domains, fostering the continued growth and innovation of online learning.

3.7. Limitations

The study's inherent limitations revealed technical, educational, content, and accessibility challenges in developing a comprehensive computer servicing course on Google Sites. These challenges, such as platform constraints, lack of hands-on experience, and the digital divide, emphasize the need for targeted solutions to enhance the course's effectiveness. Addressing these limitations ensures successful learning outcomes and creates an inclusive, engaging educational experience (Kim, 2020).

Technical Constraints present notable hurdles, particularly regarding platform limitations, bandwidth, and storage. Google Sites, while user-friendly, may lack advanced features or customization options necessary for a detailed computer servicing course. Additionally, if the course relies heavily on large media files, such as videos or high-resolution images, bandwidth and storage limitations could hinder the user experience. Furthermore, while Google provides general technical support, specialized assistance for computer servicing-related issues may be limited. These constraints emphasize the need for careful planning

and resource management to optimize the platform's capabilities while mitigating its limitations (Rocha Estrada et al., 2022).

Educational Challenges are equally significant, particularly the lack of hands-on experience and limited interaction. Research consistently underscores the importance of hands-on practice in developing practical skills, such as hardware assembly or troubleshooting, which are difficult to replicate in an online environment (Tamm, 2023). To address this, incorporating interactive simulations, virtual labs, or project-based learning can provide learners with simulated hands-on experiences. Additionally, partnerships with local repair shops or community centers could offer real-world training opportunities. Similarly, while online forums and discussion boards facilitate interaction, they may not match the engagement levels of face-to-face learning (Rizvi & Nabi, 2021). To enhance interaction, instructors can integrate synchronous sessions, such as live webinars or video conferencing, and use collaborative tools to foster real-time discussions and group work (Ong & Quek, 2023). These solutions are crucial for bridging the gap between theoretical knowledge and practical application and maintaining learner engagement and motivation.

Content Limitations further complicate the development of a comprehensive course. Due to space and resource constraints, Google Sites may struggle to accommodate the depth and breadth of computer servicing topics. Moreover, the rapid evolution of technology poses a challenge in keeping course content up to date. These limitations highlight the need for a dynamic and flexible approach to content creation, including regular updates and using external resources or supplementary platforms to expand the course's scope (Gai & Qiu, 2018). Ensuring that the course remains relevant and comprehensive is essential for delivering value to learners.

Accessibility and Equity issues also play a critical role in the course's effectiveness. The digital divide, or unequal access to the internet and devices, can limit the course's reach, excluding learners who lack the necessary technology (Vassilakopoulou & Hustad, 2023). Additionally, a purely online format may not fully accommodate diverse learning styles, and learners may require a certain level of technical literacy to navigate the platform and access materials (Deschênes, 2024). These challenges underscore the importance of designing inclusive and accessible courses, such as providing offline resources and technical support, and incorporating multimodal content to cater to different learning preferences. Addressing these barriers ensures equitable access to education and fosters an inclusive learning environment.

In summary, while Google Sites offers a versatile platform for developing an online computer servicing course, the technical, educational, content, and accessibility challenges must be carefully addressed to maximize its effectiveness. Educators can overcome these limitations by leveraging innovative solutions, such as interactive simulations, synchronous sessions, and inclusive design principles, and creating a robust, engaging, and accessible learning experience. These efforts are essential for achieving the course's educational goals, promoting equity, and ensuring that learners from diverse backgrounds can benefit from the program.

4. DISCUSSION

The results of this study highlight the strengths of the online learning platform in delivering quality education in computer service. The high ratings for Compatibility, Performance Efficiency, and Usability indicate that the platform successfully meets user expectations for accessibility, ease of use, and system efficiency. These findings are particularly significant in the context of digital education, as they demonstrate that even a widely available tool like Google Sites can be leveraged to create effective learning

environments. The balanced scores across Functional Suitability, Security, and Maintainability suggest that the platform is well-rounded in terms of essential features, ensuring reliability and security while remaining manageable for long-term use. However, the slightly lower ratings in Reliability and Portability highlight areas where further development could enhance the platform's robustness and adaptability across different devices and environments.

The iterative development approach played a critical role in refining the platform based on user feedback. The suggestions for improving usability and accessibility indicate that while the platform is functional, there is room for optimization in navigation, content organization, and overall user experience. The significance of this iterative process cannot be overstated, as continuous refinement ensures that the platform remains relevant and user-friendly. Monitoring engagement and participation rates provides valuable insights into how learners interact with the platform, allowing developers to identify potential barriers to learning and address them effectively. This aligns with best practices in digital education, where ongoing assessment and adaptation are key to maintaining an engaging and practical learning experience.

The platform's successful launch and initial reception demonstrate its potential to democratize access to technical education. By providing a structured and interactive learning experience, the platform empowers individuals to acquire computer servicing skills without the constraints of traditional classroom settings. This is particularly important in addressing skill gaps in the workforce as the demand for digital and technical competencies continues to grow. The methodologies employed in this project could serve as a model for similar initiatives, reinforcing the idea that accessible, web-based platforms can serve as viable alternatives to conventional technical training.

Despite these successes, several limitations were observed and acknowledged. The reliance on Google Sites imposes certain technical constraints, such as limited customization options and potential bandwidth issues when incorporating multimedia content. These factors may affect the overall learning experience, particularly for users with slower internet connections or those requiring more advanced features. Additionally, the lack of hands-on experience presents a challenge in fully replicating the practical aspects of computer service. While interactive elements and peer discussions help mitigate this issue, integrating virtual simulations or hybrid learning opportunities could further bridge the gap between theory and practice.

Content expandability also poses a challenge, as computer service is a rapidly evolving field requiring frequent updates to remain relevant. Maintaining up-to-date course materials while operating within the platform's constraints requires a dynamic and flexible approach to content management. Furthermore, accessibility remains a concern, particularly for learners facing digital literacy barriers or those with limited internet access. Addressing these issues through offline resources, technical support, and multimodal content delivery can enhance the inclusivity and effectiveness of the platform.

This study demonstrates the viability of using accessible web-based platforms for technical education while underscoring the need for ongoing improvements. By addressing the identified limitations and leveraging innovative solutions, the platform can continue to evolve into a robust and inclusive learning environment. These findings emphasize the importance of iterative development, user-centered design, and continuous adaptation in creating effective digital learning solutions that cater to diverse learners.

5. CONCLUSION

In conclusion, this study underscores the potential of an accessible online learning platform for delivering quality education in computer servicing, demonstrating strong usability, Compatibility, and efficient performance. The platform's iterative development, guided by user feedback, highlights the importance of continuous refinement to enhance navigation, content organization, and engagement. Its successful implementation reinforces the viability of web-based technical training, particularly in addressing workforce skill gaps and expanding access to education. However, limitations such as platform constraints, the lack of hands-on experience, and accessibility challenges indicate areas for further enhancement. Addressing these issues through virtual simulations, content scalability, and inclusive design will be crucial for maximizing the platform's effectiveness. Ultimately, this research contributes to the growing field of digital education by showcasing how adaptable, user-centered learning environments can democratize technical skills acquisition, fostering greater inclusivity and innovation in online learning.

To enhance the online learning platform's effectiveness and inclusivity, it is recommended that future efforts address its identified limitations through practical and attainable improvements. First, integrating virtual simulations and interactive lab exercises can help bridge the gap between theoretical learning and hands-on practice, providing learners with realistic troubleshooting experiences. Collaboration with industry partners or educational institutions also facilitates hybrid learning opportunities, where learners can complement online lessons with in-person training sessions at designated centers. Second, improving content expandability and adaptability is essential to keep the curriculum up to date with evolving computer servicing technologies. This can be achieved by incorporating modular course structures, enabling easier updates and customization.

Additionally, leveraging cloud-based repositories or supplementary platforms can expand content availability beyond the limitations of Google Sites. Third, enhancing accessibility and inclusivity should be a priority. Providing offline learning resources, such as downloadable materials or mobile-friendly content, can accommodate learners with limited internet access. Implementing multi-language support and accessibility features, such as screen reader compatibility, can further improve the platform's usability for diverse learners.

Future research should explore the long-term effectiveness of the platform, focusing on learner retention, skill application in real-world scenarios, and overall career impact. Conducting large-scale usability studies and performance assessments across different learner demographics will provide deeper insights into how the platform can be refined for broader adoption. Lastly, investigating the integration of AI-driven personalized learning could enhance adaptability, allowing the system to provide tailored recommendations based on individual learning progress and needs. By implementing these improvements, the platform can continue evolving into a robust, scalable, and inclusive learning environment, effectively supporting digital skills development in the workforce.

Conflict of Interest: The authors declare no conflict of interest.

Ethical Approval: The study adheres to the ethical guidelines for conducting research.

Funding: This research received no external funding.

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