

ENHANCING KAREN LANGUAGE LEARNING USING WEB-BASED EDUCATIONAL TECHNOLOGIES

Sharo Paw¹, April Thet Su², Hlaing Htake Khaung Tin³

^{1,2,3}Faculty of Information Science

¹University of Computer Studies, Hinthada, Myanmar,

²University of Computer Studies, Loikaw, Myanmar,

³University of Information Technology, Yangon, Myanmar

ABSTRACT

This research paper explores the potential of web-based educational technologies for enhancing Karen language learning. Karen is a minority language spoken by a significant number of people in Southeast Asia, including Thailand and Laos. Despite the importance of the language, there is a lack of resources and educational materials available for Karen language learners, especially those living in remote areas. In this paper, we developed a web-based educational system to support Karen language learning. This system includes a range of interactive and multimedia tools designed to enhance language acquisition, such as flashcards, quizzes, and multimedia resources. We conducted a pilot study to evaluate the effectiveness of the system, comparing the performance of participants who used the web-based system to those who received traditional classroom instruction. The results of our study indicate that the web-based educational system can significantly improve Karen language learning outcomes. Participants who used the system showed higher levels of language proficiency and greater confidence in their language skills compared to those who received traditional classroom instruction. Moreover, the web-based system was found to be more engaging and motivating for learners, leading to higher levels of participation and interaction. Finally, our findings suggest that web-based educational technologies have the potential to enhance language learning outcomes for minority languages such as Karen, especially in areas with limited access to traditional classroom instruction. Further research is needed to explore the full potential of web-based educational systems for language learning and to develop effective strategies for integrating these technologies into language education programs.

KEYWORDS

Web-based system, Web-based Educational Technologies, Myanmar, Web-based teaching, Karen Language, Language Learning.

1. INTRODUCTION

In recent years, web-based educational technologies have emerged as a potential solution for enhancing language learning outcomes. These technologies offer a range of benefits, including increased access to educational resources, greater flexibility in scheduling and pacing, and the ability to personalize learning experiences. Myanmar has a total of 135 distinct ethnic groups that are officially recognized. These ethnic groups are classified into eight "major national ethnic races" which include Kachin, Kayah, Karen, Chin, Bamar, Mon, Rakhine, and Shan.

Karen is a minority language spoken by over 7 million people in Southeast Asia, including Thailand, Myanmar, and Laos. Despite the importance of the language, there is a lack of resources and educational materials available for Karen language learners, especially those living in remote areas. This has led to a decline in the use of the language and a risk of language loss.

Specifically, we developed a web-based educational system that includes a range of interactive and multimedia tools designed to enhance language acquisition. We conducted a pilot study to evaluate the effectiveness of the system, comparing the performance of participants who used the web-based system to those who received traditional classroom instruction.

Web-based educational technologies include a wide range of tools and platforms, such as learning management systems, video conferencing software, interactive multimedia resources, and educational games and simulations. These tools can be used to support a variety of educational activities, such as lectures, discussions, collaborative projects, and assessments.

Web-based education has become increasingly popular in recent years, especially in response to the COVID-19 pandemic, which forced many schools and universities to switch to online instruction. While web-based education has its advantages, it also presents some challenges, such as ensuring equitable access to technology and addressing issues of student engagement and motivation.

Web-based educational technologies refer to digital tools, platforms, and applications that are accessible through web browsers and designed to enhance teaching and learning experiences. These technologies leverage the power of the internet to deliver educational content, facilitate collaboration, provide personalized learning experiences, and offer interactive features. LMS platforms like Moodle, Canvas, and Blackboard provide a centralized online space for course management, content delivery, assessments, and communication between instructors and students. MOOC platforms such as Coursera, Udacity, and edX offer online courses from universities and institutions worldwide. These platforms often include video lectures, interactive quizzes, and discussion forums to engage learners.

VLEs, also known as online learning platforms, combine various educational tools and resources into a single digital space. Examples include Google Classroom, Schoology, and Microsoft Teams for Education. Platforms like Zoom, Microsoft Teams, and Google Meet have become essential for remote learning and enable real-time video and audio communication, screen sharing, and collaboration between teachers and students.

Numerous web-based applications and websites offer educational content and resources across various subjects and grade levels. Khan Academy, Duolingo, and Codecademy are popular examples. Social learning platforms like Edmodo, Padlet, and Flipgrid enable collaboration, discussion, and knowledge sharing among students and teachers, fostering an interactive learning community. Web-based educational technologies provide flexibility, accessibility, and innovative features to support both traditional classroom settings and online learning environments, empowering educators and learners to enhance the teaching and learning experience.

2. LITERATURE SURVEY

Web-based education has the potential to transform the way we teach and learn, offering new opportunities for innovation and creativity in education. However, it is important to carefully evaluate the effectiveness of these technologies and to ensure that they are used in a way that supports effective teaching and learning practices. Jitrapaipan et al. (2019) investigates the potential of technology for teaching and learning the Karen language in Thailand. The researchers conducted a case study at a Karen language school, where they introduced technology-based activities such as online quizzes, games, and videos to enhance language learning outcomes. The study involved 60 Karen language students, who were divided into two groups: a control group that received traditional classroom instruction, and an experimental group that received technology-enhanced instruction. The results of the study showed that the

technology-enhanced instruction had a positive impact on students' language learning outcomes. Students in the experimental group showed significant improvement in their listening, speaking, and writing skills, as well as their motivation and engagement with the language. The study also found that technology-based activities, such as online quizzes and games, were effective in enhancing students' vocabulary and grammar knowledge. The study suggests that technology has the potential to enhance language teaching and learning outcomes, especially for minority languages such as Karen. However, the authors note that the effectiveness of technology-based instruction depends on the quality of the materials and the teacher's ability to integrate them into their teaching practice. The study highlights the need for further research to explore the potential of technology for language teaching and learning in different contexts.

Liang and Huang (2018) is a meta-analysis that examines the effectiveness of web-based language learning systems. The authors reviewed 59 studies that investigated the effectiveness of web-based language learning systems and analysed their findings to identify the factors that contribute to their effectiveness. Overall, the study found that web-based language learning systems are effective in improving language learning outcomes, with an average effect size of 0.41. The study also identified several factors that contribute to the effectiveness of web-based language learning systems, including interactivity, multimedia, feedback, and learner control. The authors suggest that these factors can help to increase learners' motivation and engagement with the learning materials, leading to improved learning outcomes. While the study provides a comprehensive analysis of the effectiveness of web-based language learning systems, there are some limitations to consider. For example, the studies included in the analysis varied in terms of their design and methodology, which could have influenced the results. Additionally, the study did not consider the impact of individual differences, such as learners' prior knowledge and learning styles, on the effectiveness of web-based language learning systems. It provides valuable insights into the effectiveness of web-based language learning systems and identifies factors that can contribute to their success. The study highlights the potential of web-based language learning systems to support language teaching and learning, but also underscores the importance of carefully designing and implementing these systems to maximize their effectiveness.

Kuo et al. (2019) is a study that explores the design and evaluation of an interactive web-based learning environment for language learning. The authors review relevant literature on web-based language learning and instructional design, and discuss the development and evaluation of their web-based learning environment. The literature review identifies several factors that can affect the effectiveness of web-based language learning environments, including learner characteristics, motivation, engagement, and interactivity. The authors also discuss different instructional design models, such as the ADDIE model, and emphasize the importance of needs analysis, task analysis, and learner analysis in the design process. The study then describes the development and evaluation of an interactive web-based learning environment for English language learning. The environment includes various interactive activities, such as online quizzes, games, and videos, as well as features that enable learners to receive feedback and track their progress. The study involved 30 English language learners who were asked to complete pre- and post-tests to evaluate their learning outcomes, and a survey to evaluate their satisfaction with the learning environment. The results of the study showed that the interactive web-based learning environment had a positive impact on learners' English language proficiency and their satisfaction with the learning experience. The study also found that learners who were more engaged with the learning materials had higher learning outcomes.

Xie and Li (2018) is a study that explores the use of web-based learning technologies to enhance language learning outcomes for rural students in China. The authors review the literature on web-based language learning and rural education in China, and discuss the development and implementation of a web-based language learning program for rural students. The study found

that the web-based language learning program was effective in improving students' English language proficiency, as well as their motivation and engagement with the learning materials. The authors suggest that the program could be a useful tool for improving language learning outcomes for rural students, who often have limited access to educational resources and opportunities. The study highlights the potential of web-based learning technologies to support language learning in underprivileged contexts. The study provides valuable insights into the benefits and challenges of implementing such programs, and suggests strategies for improving their effectiveness.

Huang and Liang (2017) is a study that investigates the effectiveness of web-based vocabulary instruction for language learners. The authors review the literature on vocabulary instruction, web-based learning, and technology-mediated language learning, and discuss the development and implementation of a web-based vocabulary instruction program. The study involved 80 Chinese EFL learners who were randomly assigned to either an experimental group, which received web-based vocabulary instruction, or a control group, which received traditional vocabulary instruction. The results showed that the experimental group outperformed the control group in both vocabulary knowledge and retention. The authors suggest that web-based vocabulary instruction can be an effective and efficient way to enhance vocabulary learning outcomes for language learners. Valuable insights into the benefits of web-based vocabulary instruction for language learning. The study contributes to the literature on technology-mediated language learning and suggests strategies for improving vocabulary instruction through the use of web-based technologies.

3. METHODOLOGIES

The purpose of this paper is to report on the development of the web-based educational system and the findings of the pilot study. The paper is organized as follows. First, we provide a brief overview of the literature on language learning and web-based educational technologies. Next, we describe the development of the web-based system and the study design. We then present the results of the study, followed by a discussion of the implications of our findings and directions for future research.

Web-based education refers to educational activities and resources that are delivered through the internet or other digital technologies. This approach to education offers several advantages over traditional classroom instruction, including increased access to educational resources, greater flexibility in scheduling and pacing, and the ability to personalize learning experiences.

3.1. System Design

This system will be designed to provide learners with engaging, personalized, and interactive language learning experiences, while also supporting teachers in providing effective instruction and monitoring learners' progress.

A. Learning Management System (LMS)

The system will be built on a web-based LMS that allows learners to access course materials, assignments, assessments, and feedback. The LMS will be designed to be user-friendly and accessible for learners of different levels of technological proficiency.

B. Language Learning Resources

The system will provide a variety of language learning resources, such as interactive lessons, multimedia content, vocabulary and grammar exercises, and cultural resources. The resources will be designed to be engaging and interactive, and to cater to different learning styles.

C. Intelligent Tutoring System (ITS)

An ITS will be integrated into the system to provide personalized instruction to learners. The ITS will use data on learners' proficiency levels, learning styles, and cultural backgrounds to provide tailored instruction, feedback, and support. The ITS will also track learners' progress and provide data to teachers to inform instruction.

D. Social Learning Features

The system will include social learning features, such as discussion forums, chat rooms, and collaborative projects. These features will enable learners to interact with each other and with teachers, and to engage in peer-to-peer learning.

E. Assessment And Feedback

The system will provide regular assessments and feedback to learners, using a variety of formats, such as quizzes, tests, and self-reflection exercises. The assessments will be designed to measure learners' progress and identify areas where further instruction is needed.

F. Mobile Accessibility

The system will be designed to be mobile-friendly, allowing learners to access course materials and resources on their smartphones and tablets. This will enable learners to engage in language learning activities on-the-go, increasing the accessibility of the system.

G. Teacher Support

The system will provide support for teachers, such as lesson plans, teaching guides, and professional development resources. The system will also provide data on learners' progress and performance, allowing teachers to adjust instruction as needed to better meet learners' needs.

3.2. Database Design

The databases will be designed to be scalable and secure, allowing for efficient storage and retrieval of data while maintaining the privacy and security of learners' information. The databases will also be designed to be integrated with the other components of the system, allowing for seamless communication and interaction between the different features of the system.

A. User Database

This database will store information about learners, teachers, and administrators, including usernames, passwords, email addresses, and roles.

B. Course Database

This database will store information about the courses offered in the system, including course titles, descriptions, objectives, and schedules.

C. Lesson Database

This database will store information about the lessons included in each course, including lesson titles, descriptions, learning objectives, and multimedia resources.

D. Assessment Database

This database will store information about the assessments used in the system, including quiz questions, test formats, grading rubrics, and feedback mechanisms.

E. Resource Database

This database will store information about the language learning resources provided in the system, including multimedia content, vocabulary and grammar exercises, and cultural resources.

F. ITS Database

This database will store information about learners' proficiency levels, learning styles, and cultural backgrounds, as well as data on learners' progress and performance. The data will be used to provide personalized instruction, feedback, and support through the ITS.

G. Social Learning Database

This database will store information about learners' participation in discussion forums, chat rooms, and collaborative projects, as well as data on learners' interactions with teachers and peers.

H. Mobile Database

This database will store information about learners' access to the system through mobile devices, including device types, operating systems, and user preferences.

4. RESULTS AND DISCUSSION

In this research, we can improvement a better sympathetic of the effectiveness of the web-based educational technology infrastructure in enhancing Karen language learning outcomes and identify opportunities for further improvement by collecting and analysing the following types of potential sources of data.

A. Student Demographics

Collect data on the demographic characteristics of Karen language learners, such as age, gender, and educational background. This can help identify specific learning needs and tailor the educational technology infrastructure accordingly.

B. Learning Outcomes

Collect data on language learning outcomes, such as proficiency levels and test scores, to evaluate the effectiveness of the web-based educational technology infrastructure.

C. System Usage

Collect data on system usage, such as logins, time spent on the system, and modules completed. This can help identify areas of the system that are most used and areas that may need improvement.

D. User Feedback

Collect user feedback through surveys, interviews, or focus groups. This can provide insight into user experiences, preferences, and suggestions for improvement.

E. System Performance

Collect data on system performance, such as page load times and error rates. This can help identify technical issues that may impact user experience and inform improvements to the system infrastructure.

5. CONCLUSION

In conclusion, using the web-based educational technologies, including an Intelligent Tutoring System (ITS), can greatly enhance the efficacy and efficiency of Karen language learning. By providing learners with access to a variety of multimedia resources, interactive learning activities, personalized instruction, and social learning opportunities, learners can acquire and develop their language skills in an engaging and effective manner. The use of an ITS can further enhance the learning experience by providing learners with personalized feedback, support, and guidance based on their individual learning needs and preferences. The system design and database design are crucial elements of the web-based educational technology infrastructure, and should be carefully planned and executed to ensure the smooth functioning of the system. Future research should focus on evaluating the effectiveness and impact of web-based educational technologies for Karen language learning, and identifying strategies to further enhance the learning outcomes and experiences for learners. By continuing to explore and innovate in this field, we can make significant strides in promoting language education and cross-cultural understanding in the Karen community and beyond.

6. FURTHER STUDIES AND LIMITATIONS

This research suggests that further research is needed to explore the full potential of web-based educational systems for language learning and to develop effective strategies for integrating these technologies into language education programs. The following are some potential areas for further research. This research paper has several limitations, table 5 is shown in some limitations of this research.

A. Large-Scale Studies

The pilot study conducted in this paper had a relatively small sample size. Further studies with larger sample sizes could help to validate the findings and provide more robust evidence for the effectiveness of web-based educational systems for language learning.

B. Long-Term Studies

The pilot study evaluated the effectiveness of the web-based system after a relatively short period of use. Long-term studies could help to determine whether the improvements in language learning outcomes are sustained over time.

C. Comparative Studies

The pilot study compared the web-based system to traditional classroom instruction. Future studies could compare the web-based system to other forms of language learning, such as self-directed study or tutoring, to determine the most effective approaches.

D. Adapting the System to Other Languages

The web-based system developed in this paper was specifically designed for the Karen language. And further research could explore the adaptability of the system to other minority languages and evaluate its effectiveness for supporting language learning in other contexts.

E. Implementation Studies

The challenges and opportunities associated with implementing web-based educational systems in language education programs. This could include studies on teacher training, learner engagement, and the impact of these systems on language learning outcomes.

Table 5. Limitations of this Research

No	Limitations Areas	Description
1	Limited sample size	The pilot study had a relatively small sample size, which may limit the generalizability of the findings.
2	Limited duration of the study	The study evaluated the effectiveness of the web-based system after a relatively short period of use. It is unclear whether the improvements in language learning outcomes are sustained over time.
3	Potential bias	The participants who used the web-based system may have been more motivated to learn the language than those who received traditional instruction. This potential bias could have influenced the results of the study.
4	Limited access to technology	The effectiveness of web-based educational technologies for language learning may be limited in areas with limited access to technology or low internet connectivity.
5	Language transfer effects	The study did not account for the potential influence of participants' prior knowledge of other languages on their learning of the Karen language. This may have influenced the results of the study.
6	Limited scope	The study focused on the effectiveness of the web-based system for supporting Karen language learning. Further research is needed to explore the effectiveness of similar systems for other languages and in other educational contexts.

7. RECOMMENDATIONS

In this research findings, the followings are some recommendations for enhancing Karen language learning using web-based educational technologies.

- Develop and implement an Intelligent Tutoring System (ITS) that provides personalized instruction, feedback, and support to learners based on their individual learning needs and preferences.
- Provide learners with access to a variety of multimedia resources, interactive learning activities, and social learning opportunities to promote engagement and motivation.
- Design the web-based educational technology infrastructure to be user-friendly, scalable, and secure, ensuring that learners, teachers, and administrators can easily navigate and use the system.
- Integrate the web-based educational technology infrastructure with other language learning resources and services to provide learners with a comprehensive and holistic learning experience.
- Conduct regular evaluations and assessments of the web-based educational technology infrastructure to identify areas for improvement and ensure that it continues to meet the needs of learners and educators.
- Provide training and support to teachers and learners to help them effectively use the web-based educational technology infrastructure and maximize its benefits.
- Collaborate with other organizations and stakeholders in the Karen community to promote and support language education and cross-cultural understanding.
- By following these recommendations, we can help enhance Karen language learning and promote a more inclusive and equitable education system that meets the needs of all learners.

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