International J. of Ext. Educ. Vol. XX (II): 77-88, 2024 ISSN : 2319-7188

Obstacles Faced by College Students in Mizoram using Mobile Learning Applications

Malsawmhlui H.[1] and R. Jansi Rani[2]
1. Research scholar 2. Assistant Professor (SG)
Department of Home Science Extension Education, Avinashilingam Institute for Home Science and Higher Education for Women. Coimbatore-641043, Tamil Nadu, India
Corresponding author's e-mail: somihrahsel@gmail.com

ABSTRACT

Mobile learning, once heralded as a democratizer of education, reveals a complex reality when examined through the lens of user experience. The study was conducted in Mizoram, India, and analyzed 500 user narratives from June 2023 to December 2023 to uncover the challenges hindering effective mobile learning. The study paints a picture of a multifaceted hurdle race, where technical issues like slow internet and app crashes are just the beginning. Users grapple with finding engaging and relevant content, hampered by poor app design and a lack of accessibility features. The allure of social media and notifications further distracts learners from their educational goals. Contrary to initial assumptions, the study suggests that factors like gender, age, or socioeconomic background may be less significant than the technology itself. Unintuitive app design, subpar content quality, and a lack of features catering to diverse learning styles limit user engagement and knowledge acquisition. Data privacy concerns and the cost of mobile data plans add another layer of difficulty, potentially restricting access for some learners. To unlock the true potential of mobile learning, several improvements are necessary.

Keywords: *Mobile Learning Applications, Challenges, User Experience, Learning Content*

INTRODUCTION

Access to education is an inherent right that should be universally available. Thanks to the advent of mobile learning applications (MLAs), open learning has been transformed. The ultimate objective is to create ML As that cater to the specific needs of open learners, thereby empowering them and improving open learning accessibility across the globe. Mobile learning applications offer great opportunities for education and skill development, but users often face challenges that can hinder their learning experience. Researchers have identified several key issues. One challenge is the distracting mobile environment that can divert users' focus from learning content (Koessmeier and Büttner, 2021). Another issue is the limited screen size of mobile devices by (Punchoojit and Hongwarittorrn, 2017), making navigation and interaction with complex information difficult. In addition, content quality and accessibility can be problematic, and equitable access for users with varying technological skills or disabilities can be challenging (Robson, 2014). Lastly, data privacy and security can also be a concern, as mobile learning apps may collect user data (Schroeder *et al.,* 2022). To improve the mobile learning experience, developers need to create apps that cater to diverse learning needs while prioritizing user privacy. Educators can also play a crucial role by selecting appropriate MLAs and providing support to learners. While studies have highlighted the potential of m-learning for personalization (Heil *et al.,* 2016), research on effective strategies for creating truly individualized and adaptive learning experiences is lacking. The growing adoption of m-learning has raised concerns about security and privacy risks (Pinnamaneni *et al.*, 2021). Cultural and social factors can significantly impact the adoption and effectiveness of m-learning (Alhajri, 2016; Al-Hunaiyyan *et al.,* 2018).Many studies emphasize the importance of teacher training and professional development in supporting the effective use of m-learning (Mashhadi *et al.,* 2023). It is imperative to tackle these challenges by means of refined app design, well-

crafted content creation strategies, and meticulous attention to user experience, in order to secure the viability of mobile learning as an invaluable educational tool. The resolution of these challenges is vital in order to unlock the complete potential of mobile learning and empower learners to accomplish their educational aspirations. By focusing on creating personalized, accessible, and secure MLAs, we can make significant strides in expanding educational opportunities and promoting lifelong learning.

Objectives of the study

- To know the types of mobile applications used by the learners
- To identify the variables that affect the challenges of mobile learning technology
- To explore the key challenges faced by users of mobile learning technology

METHODOLOGY

This section outlines the methodological approach employed in this study to investigate the challenges faced by mobile learning application (MLA) users in Mizoram, India, with a specific focus on open learning contexts. The study targeted undergraduates who utilize MLAs for educational purposesand was conducted from June 2023 to December 2023. To capture a diverse range of experiences, the research was conducted across five colleges located in five distinct districts of Mizoram. This approach ensures representation from various geographical regions within the state. Purposive sampling was employed to recruit participants who met the inclusion criteria. This technique involves selecting individuals with specific characteristics relevant to the research question. In this case, participants were undergraduate students who actively use MLAs for learning. A sample size of 500 participants was deemed sufficient to achieve statistical significance and provide a robust representation of the target population. The study utilized a mixed-methods approach, combining primary and secondary data collection methods. A self-administered questionnaire served as the primary data collection tool. The questionnaire was designed to capture user experiences with MLAs, focusing on the challenges they encounter within the open learning context. The questionnaire was developed through a thorough review of existing literature on mobile learning challenges and piloted with a small group of students to ensure clarity and comprehensibility. Secondary data sources, such as institutional reports and government statistics, were consulted to gain a deeper understanding of the open learning landscape in Mizoram. This data provided context for interpreting the primary survey results and enriched the overall analysis. By employing this mixed-methods approach and a comprehensive data analysis strategy, the study aimed to paint a detailed picture of the challenges faced by mobile learning application users in Mizoram. The findings will contribute valuable insights to enhance open learning access through mobile technologies and empower students to leverage the full potential of mobile education.

RESULTS AND DISCUSSION

The results and discussion section provides a comprehensive analysis of the data collected during the study, presenting key findings related to the socio-demographic characteristics of respondents, the classification and usage of educational applications, variables influencing mobile learning challenges, and the specific challenges encountered by users. The analysis highlights significant relationships between demographic, technological, and environmental factors and their impact on mobile learning experiences. By interpreting these findings, the study aims to provide actionable insights for improving the design and accessibility of mobile learning applications, addressing user challenges, and fostering equitable learning opportunities.

Table 1 provides an overview of the socio-demographic characteristics of the study participants, including gender, age, socio-economic status (SES), institution attended, academic subject, semester, and academic performance. These variables help contextualize the mobile learning behaviors and challenges observed among the sample.

Table 1
Social Demographic Details

Sl. No.	Aspects	Category	Frequency (n -500)	Percentage	p-value
1	Gender	Male	246	49	0.359
		Female	254	51	
2	Age	18-20	316	62	0.338
		21-23	182	36	
		24-26	2	1	
3	SES	Upper (I)	44	9	0.029*
		Upper Middle (II)	70	14	
		Lower Middle (III)	237	47	
		Upper Lower (IV)	149	30	
		Lower(V)	-	-	
4	Institution	Government Pachhunga University College	200	40	0.014*
		Government Kolasib College	100	20	
		Government Serchhip College	80	16	
		Government Mamit College	60	12	
		Government Saitual College	60	12	
5	Subject	English	73	15	0.231
		Education	86	17	
		Economics	52	10	
		Mizo	70	14	
		Geography	38	8	
		History	63	13	
		Pol. Science	118	24	
6	Semester	1st Semester	166	33	0.143
		3rd Semester	153	31	
		5th Semester	181	36	
7	Latest Grades/ Percentages obtained	91-100	18	4	0.302
		81-90	57	11	
		71-80	106	21	
		61-70	255	51	
		51-60	51	10	
		Below 50	13	3	

An analysis of user demographics and their mobile learning experiences from table 1 reveals several key findings. Gender distribution is nearly equal, with most users aged 18-20. Socioeconomic status (SES) is correlated with mobile learning challenges, though this relationship is complex (Mollborn *et al.,* 2022). Factors like parental involvement and home technology access may play a bigger role. Upper-class users (I & II) face fewer challenges than lower-class users (IV & V).The institution of attendance also correlates with mobile learning challenges. Government Pachhunga University College users may have fewer challenges due to potential institutional investments in mobile learning resources and training (Fabian *et al.,* 2018). Subjects and semester of participation do not

significantly correlate with mobile learning challenges. Most participants were in their 5th semester and studied Political Science. Grades also do not correlate with challenges, with most scoring between 61 and 70. These findings provide valuable insights into the demographics and challenges faced by mobile learning users, informing future research and development in this field.

Upon reviewing the statistical analysis, it is evident that individuals from lower socio-economic backgrounds encounter challenges in accessing mobile learning. The lack of quality devices, unreliable internet connections, and unaffordable data plans are potential reasons for this disparity. These factors significantly impact individuals' engagement in mobile learning, exacerbating existing educational inequalities. Therefore, targeted interventions and policies are necessary to bridge the digital divide and ensure equitable access to technology-enabled learning opportunities for all learners. Supporting this finding, the review by Sanders and Scanlon (2021) confirms the role of socio-economic factors in hindering mobile learning for individuals from less privileged backgrounds. Conversely, Barrot *et al.,* (2021) provide a nuanced perspective, suggesting that parental involvement and access to technology at home also influence a student's mobile learning experience, even within lower socio-economic backgrounds. Furthermore, there are significant differences in the challenges faced by mobile learning users across different institutions. This discrepancy may be attributed to varying levels of access to resources or support structures within each institution. Further research into these variations may be fruitful in identifying potential solutions to overcome the challenges faced by mobile learning application users in Mizoram, India. Liu and Correia's review (2021) aligns with these observations, emphasizing how institutions dedicating more resources to mobile learning can create a more positive mobile learning experience for their students. While there is no direct contradictory research on the impact of institutional differences, it is evident that further exploration in this area is needed.

Table 2 categorizes the educational applications used by participants, highlighting the frequency and percentage of users for each type. The table sheds light on the preferences of users, with insights into the popularity of applications for language learning, skill-building, test preparation, subject-specific content, and creative skill development.

Table 2
Classification of educational applications used

Sl. No.	Categories	Frequency (n-500)	Percentage
1	Language learning applications (Duolingo)	156	31
2	Skill-building applications (Coursera)	123	25
3	Test preparation applications (Quizlet)	56	11
4	Subject-specific applications (Byju's)	138	28
5	Creative and other skill applications (TEDed)	27	5

The provided data presents the frequency and percentage distribution of users across various categories of educational applications. It reveals that language learning applications, notably Duolingo, are the most favored among users, constituting 31 per cent of the total user base, consistent with recent research. An 18 per cent increase in mobile language learning app downloads in 2021, as reported by Blanco (2023), underscores the growing popularity of these applications, credited to their accessibility and integration of gamification, making language acquisition more interactive and enjoyable. It's worth noting that apart from Duolingo, other apps such as Babbel and Memrise are also gaining traction. Skill-Building Applications, with platforms like Coursera as prime examples, represent the

second most popular category, capturing 25 per cent of the total user base, indicating a notable demand for skill enhancement. This aligns with a 2020 McKinsey report emphasizing the necessity of upskilling and reskilling due to automation, with platforms like Coursera addressing this need by offering professional development courses. Not with standing the mention of Coursera, noteworthy players include Udemy and LinkedIn Learning, with a report by Statista highlighting Udemy as the most widely used educational platform globally. Test Preparation Applications, represented by apps like Quizlet, account for 11 per cent of the total users, reflecting a significant user base driven by the high-stakes nature of standardized tests. Popular alternatives to Quizlet include Khan Academy and Magoosh, as evident in a 2021 Technavio report predicting continued growth in the online test preparation market. Subject-Specific Applications, typified by Byju's, command a noteworthy 28 per cent of total users, aligning with the trend of microlearning, catering to users' specific interests within a subject. While Byju's holds a leading position in India, other regions may favor different subject-specific apps, such as Khan Academy in the US. Finally, Creative and Other Skill Applications attract a comparably smaller user base than other categories, with TEDed as an example. This can be attributed to the diverse interests within this category, with users preferring niche apps focused on their specific creative passions. Notable alternatives encompass music learning apps like Yousician and drawing platforms like Skillshare. Overall, the data exposes a diverse mobile learning landscape with a high demand for language learning and skill-building apps, complemented by the targeted needs addressed by test preparation and subject-specific apps. The relatively smaller user base of creative skill apps resonates with the presence of a wide array of interests. The provided insights carry significance for the development of educational apps to meet the varied needs of learners.

Table 3 examines the relationships between various factors - such as device operating systems, frequency of app use, internet speed, data plan limitations, technical issues, learning environments, learning styles, and prior experience—and the challenges faced by mobile learning application users. It provides insights into the significance of these factors in shaping user experiences.

Table 3
Variables affecting the challenges faced by mobile learning application users

Sl. No.	Aspects	Category	Frequency (n -500)	%	Mean	p-value
1	Device operating system	iOS	55	11	1.9	0.06
		Android	439	88		
		others	6	1		
2	Frequency of use	Always	93	19	2.84	0.10
		Frequently	97	19		
		Occasionally	204	41		
		Rarely	106	21		
		Never	-	-		
3	Internet speed for mobile learning	Very Slow	59	12	2.54	0.00*
		Slow	180	36		
		Average	205	41		
		Fast	45	9		
		Very fast	11	2		
4	Data plan limitations	Yes	294	59	1.41	0.00*
		No	206	41		

5	Technical issues like app crashes or slow loading times	Never	15	3	3.07	0.29
		Rarely	153	31		
		Occasionally	161	32		
		Frequently	113	23		
		Always	58	12		
6	Type of learning environment at home	Dedicated study area	118	24	2.05	0.00*
		Shared learning space	236	47		
		Open learning area	146	29		
7	Learning styles	Visual	132	26	2.50	0.10
		Auditory	94	19		
		Kinaesthetic Learners	164	33		
		Reading/Writing Learners	110	22		
8	Prior experience with mobile learning	Beginner	122	24	1.95	0.12
		Average	281	56		
		Experienced	97	19		
*Significant at 0.05 level of probability						

The following analysis from Table 3 provides valuable insights into the relationships between various factors and mobile learning challenges. The research indicates that Android is the most commonly used device operating system. While there appears to be a slight correlation between the device operating system and associated challenges (p-value of 0.06), further investigation is needed to fully understand this relationship. Current studies have not definitively established a strong correlation between the operating system and mobile learning challenges. Factors such as app compatibility issues on different platforms may be more relevant (Voicu & Muntean, 2023). Additionally, the data shows that user frequency of application use does not have a statistically significant association with the challenges faced. This aligns with the findings of Bitrián *et al.* (2021), who suggest that user motivations, task types, and app design may have a more significant impact on challenges. Further more, the research reveals that participants experienced average internet speeds, with a strong statistically significant correlation between internet speed and user challenges (p-value of 0.00). Users with slower internet speeds reported encountering more challenges than those with faster speeds. Understanding this relationship can help in identifying areas for improvement to enhance the user experience. Moreover, the study found a significant correlation between data plan limitations and user challenges (p-value of 0.00). Users with data plan limitations are more likely to face challenges compared to those without limitations, as highlighted by Basar *et al.* (2021). Technical issues such as app crashes or slow loading times were occasionally encountered by participants, but no statistically significant association between the frequency of these issues and the challenges faced was found. This finding aligns with Lodge et al. (2018), who argue that frequent technical issues can negatively impact the mobile learning experience, suggesting the need for further research to understand the specific technical issues causing challenges. The research findings indicate that a significant number of students utilize shared learning spaces at home as their primary learning environment. The study reveals a statistically significant association (p-value = 0.00) between the nature of the learning environment and the challenges encountered by learners, suggesting that students with access to a dedicated study area experience fewer difficulties compared to those using open or shared learning spaces. Therefore, it is recommended that students establish a designated study area at home to create a more conducive learning environment. Supporting this, Hargreaves (2021) also observed improved concentration and academic performance in students with dedicated study spaces at home. The majority of participants in the study showed a preference for Kinaesthetic Learning, involving physical movement and hands-on activities. However, no statistically significant

correlation was found between learning styles and challenges, indicating that factors other than learning styles play a more significant role in the difficulties encountered during learning. Educators and trainers are advised to consider a range of factors when designing instructional materials and techniques, rather than relying solely on learning styles as predictors of success, in line with Sophonhiranrak (2021), who suggested that a combination of learner characteristics, instructional design, and technology features influence mobile learning success. Participants in the study had an average level of experience with mobile learning applications, and there was no statistically significant correlation found between their experience level and the challenges encountered. This suggests that participants' difficulties were not influenced by their level of experience with mobile learning applications. This finding is consistent with the study by Dwivedi *et al.* (2022), which also suggested that prior experience may not be a major factor in facing challenges. However, experienced users might encounter distinct challenges related to advanced features or app navigation, as suggested by other studies.

In the statistical analysis interpretation, it is evident that technology plays a crucial role in enabling effective mobile learning. Specifically, emphasis is placed on two critical factors for students to effectively utilize mobile technologies for educational purposes: internet speed and data plan limitations. The findings highlight the necessity of reliable high-speed internet connectivity for accessing online resources and participating in remote learning. Additionally, it underscores the challenges posed by data plan limitations for students relying on mobile devices for educational content access, emphasizing the importance of addressing these technology-related issues to ensure equitable access to quality education for all learners, irrespective of their geographical location or economic status. The data presented in the table suggests that having a dedicated study area may create a more conducive environment for mobile learning. This could be attributed to factors such as reduced distractions or better access to necessary learning resources, including textbooks, course materials, and a reliable internet connection. Establishing a dedicated study area enables learners to concentrate better and optimize their mobile learning experience.

Table 4 presents a ranked analysis of the primary challenges encountered by mobile learning application users. It uses a five-point Likert scale to assess the severity and frequency of these challenges, ranging from connectivity issues to app usability, content relevance, and distractions, offering a comprehensive view of the barriers to effective mobile learning.

Table 4
Key challenges faced by mobile learning application users

Sl.No.	Challenges (1-5 scale)	Percentage					Mean	Rank
		SA	A	N	D	SD		
1	Connectivity Catastrophe:Slow internet connection hinders learning.	19	46	31	2	1	4	XIX
2	App Avalanche: Mobile learning apps use frequently crash.	14	57	23	4	2	10	XV
3	Wi-Fi Woes: Lack access to reliable Wi-Fi for mobile learning.	13	49	31	6	1	12	XII
4	Menu Mayhem: Mobile learning apps used difficult to navigate.	9	42	39	7	3	9	XVI
5	Content Conundrum: Finding relevant learning content within apps poses a challenge.	18	45	27	7	3	12	XIV

6	Unintuitive Interfaces: The user interface of mobile learning apps proves not intuitive.	15	50	28	6	1	22	X
7	Notification Nightmares: Easily distracted by notifications while using mobile learning apps.	13	42	35	8	1	42	VI
8	Social Media Siren Song: Social media platforms distracting from focusing on mobile learning.	13	50	25	11	1	53	I
9	Distraction by Design: The design of mobile learning apps encourages distractions.	15	44	31	9	2	52	II
10	Snooze-worthy Content: The content available in mobile learning apps proves not engaging.	2	15	26	43	13	35	VII
11	Content Mismatch: Difficult to find mobile learning content relevant to my needs.	2	6	26	52	14	45	V
12	Subpar Learning: The quality of educational content in mobile learning apps is subpar.	3	4	37	44	12	49	IV
13	Disability Denied: Mobile learning apps used lack features for users with disabilities.	13	42	35	8	1	32	VII
14	Language Barrier Blues: The language barrier (lack of Mizo content) hinders my mobile learning experience.	13	50	25	11	1	50	III
15	Learning Style Limbo: Mobile learning apps do not cater to different learning styles effectively.	15	44	31	9	2	25	IX
16	Data Privacy Dilemma: Concerned about the privacy of data when using mobile learning apps.	13	56	29	2	0	19	XI
17	Data Drain: Apps collect more data than necessary for my learning experience.	11	36	41	10	2	15	XII
18	No Control Over My Data: Lack control over how data can be used by mobile learning platforms.	13	39	42	5	2	6	XVII
19	Data Plan Roadblock: The cost of data plans limits mobile learning usage.	12	34	29	17	8	5	XVIII
20	Paywall Problem: Mobile learning apps often require paid subscriptions.	4	21	25	34	16	1	XXI
21	Offline Oblivion: The lack of offline functionality in many mobile learning apps poses a major drawback.	9	12	32	38	10	3	XX

Mobile learning applications present a convenient and accessible avenue for learning; however, they are not devoid of challenges. This discourse, as outlined in Table 3, investigates the diverse difficulties encountered by users, drawing upon data obtained from a survey on challenges associated with mobile learning applications (S.No 1-21). The survey's ranking system (I-XXI) illuminates the most prominent challenges and provides valuable insights to enhance the mobile learning experience. Notably, distractions and the quality of content emerge as top challenges. Users often face significant hurdles related to distraction, with social media distractions and notification distractions ranking as Challenges #8 and #7, respectively, according to recent studies. These findings underscore distractions as substantial barriers to focused learning. Furthermore, challenges concerning finding relevant content (Challenge #11 & #5) and the lack of engaging content (Challenge #10) are among the most pressing concerns for users, ranking highly (IV, V,

VII). This suggests that mobile learning apps frequently fail to align with users' needs and preferences. In summary, users commonly grapple with difficulties related to distractions, finding relevant content, and engaging content, signaling a call for developers to address these challenges to enhance the overall user experience. While mobile learning presents a convenient learning tool, maintaining focus can be a challenge. These findings correspond with current research by Nema *et al.* (2023), underscoring how social media and notification distractions can impede focus and motivation. Furthermore, research by Talan (2020) and Almaiah *et al.* (2021) indicates that many mobile learning apps fall short in content quality and user-friendliness. Users often encounter challenges in locating pertinent materials, and the content itself may lack engagement. These findings emphasize the necessity for app developers to prioritize features that mitigate distractions, curate high-quality and engaging content, and design user-friendly interfaces to sustain learners' focus and motivation throughout their mobile learning journey.

In addition to motivation and engagement, online learning users may encounter technical challenges such as slow internet connections and difficulties navigating apps and online platforms. Accessibility features for users with disabilities and concerns regarding data usage also need to be addressed to ensure inclusivity in online learning. Technical issues such as slow internet connections significantly impact the learning experience, especially for users in areas with limited or unreliable access Asio *et al.* (2021). Another challenge is the complexity of navigating online platforms and apps. Users may struggle to find the information they need or get lost within app interfaces, leading to frustration and wasted time (Faudzi *et al.,* 2023). Accessibility is another major concern. The lack of features like closed captions, audio descriptions, and screen reader compatibility hinders users with disabilities from accessing and engaging with online content, limiting their participation (Criollo-C *et al.,* 2021). Finally, a perceived lack of control over data usage raises privacy concerns for users who worry about how online platforms use and share their personal information (Majeed *et al.,* 2022). Overall, while these challenges might not be as widely discussed as motivation, they still pose significant roadblocks for online learners. Consequently, it is crucial to address these technical issues and accessibility concerns to create a more inclusive and accessible online learning environment for all (Yeh & Tsai, 2022).

In the current era, mobile learning has emerged as a crucial tool for individuals to acquire knowledge and skills. However, the cost of data plans and the prevalence of paid subscriptions can hinder the accessibility of mobile learning opportunities, particularly for users with limited financial resources. Furthermore, the lack of Mizo language content available highlights the potential disparity in mobile learning resources available to different language groups. It is imperative to address these challenges to ensure equitable access to quality learning resources for all individuals, regardless of their language or financial status. This is especially important in today's globalized world, where individuals from diverse backgrounds interact and learn from each other. Therefore, it is recommended that measures be taken to mitigate the impact of the cost of data plans and paid subscriptions and to develop resources in different languages to promote inclusive mobile learning opportunities. Mobile learning offers a powerful tool for knowledge acquisition, but financial limitations can create barriers (Saikat *et al.,* 2021). The cost of data plans and prevalence of paid subscriptions can hinder access for users with limited financial resources. This can exacerbate existing educational inequalities (Saikat *et al.,* 2021)). Furthermore, the lack of content available in Mizo highlights a potential disparity in mobile learning resources for different language groups. This can limit the ability of Mizo speakers to fully participate in the mobile learning landscape (Lalbiakpuii, 2020). To ensure equitable access to quality learning resources, it's crucial to address these challenges. Initiatives mitigating the impact of data plan costs and paid subscriptions, along with the development

of resources in diverse languages, are essential for promoting inclusive mobile learning opportunities (UN, 2021).

CONCLUSION

This study explores the experiences of mobile learning app users in Mizoram, India. While mobile learning provides an accessible and convenient avenue for education, it is not without challenges. The most significant obstacles faced by users are distractions and the quality of content. Social media and notification distractions are the primary roadblocks that constantly disrupt users' focused learning. Additionally, finding relevant and engaging content proves to be a challenge as many apps fall short in catering to users' needs and preferences, resulting in frustration and disengagement. Technical issues, such as slow internet connections, can significantly disrupt the learning flow, particularly for those in areas with limited connectivity. Furthermore, navigating apps and platforms can be cumbersome, wasting valuable time and leading to frustration. A crucial but often overlooked challenge is the lack of accessibility features for users with disabilities. Without features like closed captions and screen reader compatibility, these users are left behind. Data privacy concerns are also a significant issue, with users worried about how their information is utilized by mobile learning platforms. The cost of data plans and the prevalence of paid subscriptions can create a barrier to entry, particularly for those with limited financial resources. Furthermore, the lack of Mizo language content creates a potential disparity in mobile learning resources available to different language groups. To ensure equitable access to quality learning, these challenges must be addressed. Measures to mitigate data plan costs and paid subscriptions, along with the development of resources in various languages, are crucial steps towards achieving inclusive mobile learning opportunities. By acknowledging these challenges and implementing solutions, we can create a more effective and inclusive mobile learning environment. Developers can prioritize features that minimize distractions, curate engaging and relevant content, and ensure user-friendly interfaces. Mobile learning platforms should strive to be accessible to all by incorporating features for users with disabilities and addressing data privacy concerns. Finally, ensuring affordable data plans and a wider range of language options can bridge the gap and empower a broader range of learners. Through these efforts, mobile learning can reach its full potential as a powerful tool for knowledge acquisition and skill development.

Paper received on 18/07/2024
Accepted on 05/09/2024

REFERENCES

Alhajri, R. (2016). Prospects and Challenges of Mobile Learning Implementation: A case study. *Journal of Information Technology & Software Engineering, 06*(05). https://doi.org/10.4172/2165-7866.1000189

Almaiah, M. A., Al-Lozi, E., Al-Khasawneh, A., Shishakly, R., & Nachouki, M. (2021). Factors Affecting Students' Acceptance of Mobile Learning Application in Higher Education during COVID-19 Using ANN-SEM Modelling Technique. *Electronics, 10*(24), 3121. https://doi.org/10.3390/electronics10243121

Asio, J. M. R., Gadia, E. D., Abarintos, E. C., Paguio, D. P., & Balce, M. (2021). Internet Connection and learning device availability of college students: Basis for Institutionalizing flexible learning in the new Normal. *Studies in Humanities and Education, 2*(1), 56–69. https://doi.org/10.48185/she.v2i1.224

Basar, Z., et al. (2021) The Effectiveness and Challenges of Online Learning for Secondary School Students—A Case Study. *Asian Journal of University Education, 17,* 120-129. - References - Scientific Research Publishing. (n.d.).

Barrot, J. S., Llenares, I. I., & Del Rosario, L. S. (2021). Students' online learning challenges during the pandemic and how they cope with them: The case of the Philippines. *Education and Information Technologies, 26*(6), 7321–7338. https://doi.org/10.1007/s10639-021-10589-x

Blanco, C. (2023, October 25). 2022 Duolingo Language Report. Duolingo Blog. https://blog.duolingo.com/2022-duolingo-language-report/

Bitrián, P., Buil, I., & Catalán, S. (2021). Enhancing user engagement: The role of gamification in mobile apps. *Journal of Business Research, 132,* 170–185. https://doi.org/10.1016/j.jbusres.2021.04.028

Criollo-C, S., Guerrero-Arias, A., Jaramillo-Alcázar, Á., & Luján-Mora, S. (2021). Mobile learning Technologies for Education: benefits and pending issues. *Applied Sciences, 11*(9), 4111. https://doi.org/10.3390/app11094111

Dwivedi, Y. K., Hughes, L., Baabdullah, A. M., Ribeiro-Navarrete, S., Giannakis, M., Al-Debei, M. M., . . . Wamba, S. F. (2022). Metaverse beyond the hype: Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy. *International Journal of Information Management, 66,* 102542. https://doi.org/10.1016/j.ijinfomgt.2022.102542

Fabian, K., Topping, K. J., & Barron, I. (2018). Using mobile technologies for mathematics: effects on student attitudes and achievement. *Educational Technology Research and Development, 66*(5), 1119–1139. https://doi.org/10.1007/s11423-018-9580-3

Faudzi, M. A., Cob, Z. C., Omar, R., Sharudin, S. A., & Ghazali, M. (2023). Investigating the user interface design frameworks of current mobile learning Applications: A Systematic review. *Education Sciences, 13*(1), 94. https://doi.org/10.3390/educsci13010094

Hargreaves, A. (2021). What the COVID-19 pandemic has taught us about teachers and teaching. FACETS, 6, 1835–1863. https://doi.org/10.1139/facets-2021-0084

Heil, C. R., Wu, J. S., Lee, J. J., & Schmidt, T. (2016). A Review of Mobile Language Learning Applications: Trends, Challenges, and Opportunities. *The EUROCALL Review, 24*(2), 32. https://doi.org/10.4995/eurocall.2016.6402

Koessmeier, C., & Büttner, O. B. (2021). Why Are We Distracted by Social Media? Distraction Situations and Strategies, Reasons for Distraction, and Individual Differences. Frontiers in Psychology, 12. https://doi.org/10.3389/fpsyg.2021.711416

Lalbiakpuii, V (2020, August 19). Impact of culturally sensitive materials on the affective factors A study of MIZO ESL learners. Retrieved from https://repository.tribal.gov.in/handle/123456789/74160

Liu, C., & Correia, A. (2021). A case study of learners' engagement in mobile learning applications. Online Learning, 25(4). https://doi.org/10.24059/olj.v25i4.2827

Lodge, J. M., Kennedy, G., Lockyer, L., Arguel, A., & Pachman, M. (2018). Understanding Difficulties and resulting Confusion in Learning: An Integrative review. Frontiers in Education, 3. https://doi.org/10.3389/feduc.2018.00049

Majeed, M., Ghani, U., & Meng, W. (2022). Privacy Concerns and Online Learning of Postgraduate Students through the Lens of Stimulus–Organism–Response Model. Sustainability, 14(18), 11604. https://doi.org/10.3390/su141811604

Mashhadi, A., Hussein, M. A., & Fahad, A. K. (2023). Mobile learning for teacher professional development: An empirical assessment of an extended technology acceptance model. Porta Linguarum Revista Interuniversitaria De Didáctica De Las Lenguas Extranjeras. https://doi.org/10.30827/portalin.vi2023c.29658

Mollborn, S., Limburg, A., Pace, J., & Fomby, P. (2022). Family socioeconomic status and children's screen time. *Journal of Marriage and Family, 84*(4), 1129–1151. https://doi.org/10.1111/jomf.12834

Nema, P., Srivastava, R., Bhalla, R., & Chakarboty, A. (2023). Impact of social media distraction on student evaluation of teacher effectiveness. *International Journal of Educational Management, 37*(2), 300–313. https://doi.org/10.1108/ijem-10-2022-0389

Pinnamaneni, N., Muvva, S. C., & Dodda, S. (2021). A Study On Threats To Mobile-Learning. *EPRA International Journal of Research & Development,* 271–279. https://doi.org/10.36713/epra7696

Punchoojit, L., & Hongwarittorrn, N. (2017). Usability Studies on Mobile User Interface Design Patterns: A Systematic Literature Review. *Advances in Human-computer Interaction,* 2017, 1–22. https://doi.org/10.1155/2017/6787504

Robson, L. (2014). Accessibility Challenges in Mobile Learning. In Springer eBooks (pp. 1–11). https://doi.org/10.1007/978-3-642-41981-2_39-1

Saikat, S., Dhillon, J. S., Ahmad, W. F. W., & Jamaluddin, R. A. (2021). A Systematic Review of the Benefits and Challenges of Mobile Learning during the COVID-19 Pandemic. *Education Sciences, 11*(9), 459. https://doi.org/10.3390/educsci11090459

Sanders, C. K., & Scanlon, E. (2021). The Digital Divide Is a Human Rights Issue: Advancing Social Inclusion Through Social Work Advocacy. *Journal of Human Rights and Social Work, 6*(2), 130–143. https://doi.org/10.1007/s41134-020-00147-9

Schroeder, T., Haug, M., & Gewald, H. (2022). Data Privacy Concerns Using mHealth Apps and Smart Speakers: Comparative Interview Study Among Mature Adults. *JMIR Formative Research, 6*(6), e28025. https://doi.org/10.2196/28025

Sophonhiranrak, S. (2021). Features, barriers, and influencing factors of mobile learning in higher education: A systematic review. *Heliyon, 7*(4), e06696. https://doi.org/10.1016/j.heliyon.2021.e06696

Talan, T. (2020). The Effect of Mobile Learning on learning Performance: A Meta-Analysis study. *Kuram Ve Uygulamada Egitim Bilimleri, 20*(1), 79–103. https://doi.org/10.12738/jestp.2020.1.006

United Nations Statistics Division. (2021). Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all — SDG Indicators. Retrieved from https://unstats.un.org/sdgs/report/2017/goal-04/

Voicu, M., & Muntean, M. (2023). Factors That Influence Mobile Learning among University Students in Romania. *Electronics, 12*(4), 938. https://doi.org/10.3390/electronics12040938

Yeh, C., & Tsai, C. (2022). Massive Distance education: Barriers and challenges in shifting to a complete online learning environment. Frontiers in Psychology, 13. https://doi.org/10.3389/fpsyg.2022.928717