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Article

Factors Influencing Students' Acceptance of Electronic Learning Materials in English as Foreign Language Classroom

Miao-Shan Lin and Ruei-Teng Hung *

Department of Applied English, Chaoyung University of Technology, Taichung 41349, Taiwan; sus1098654@gmail.com
*Correspondence: hb865777@gmail.com

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Abstract: This study examines EFL learners' acceptance of electronic learning materials and their expectations. The research involved 85 sophomores majoring in Applied English, including two international students. Data were collected through a questionnaire featuring a five-point Likert scale and open-ended questions. The findings indicated that students generally had a positive perception of electronic learning materials, particularly in terms of learning efficiency and convenience. Key factors influencing acceptance include environmental sustainability, interactivity, and access to up-to-date information. Additionally, students expressed high expectations for electronic English learning environments, valuing accessibility, efficiency, and support for independent learning. While the study highlighted the advantages of electronic learning, it also identified areas for improvement, such as accommodating diverse learning needs and personalizing environments to better align with individual preferences. Overall, this research provided valuable insights into the effective integration of electronic learning materials in EFL classrooms, considering student perceptions and expectations.

Keywords: Students' acceptance, Electronic learning materials, EFL classroom, Technology integration, Perceived usefulness

1. Introduction

In recent years, most of EFL classrooms have integrated electronic materials instead of printed text-books during the class (Cole & Vanderplank, 2016; Jurkovič, 2019), including Artificial Intelligence (AI). According to Liang et al. (2023), AI was utilized to English as a Foreign Language (EFL) environments to stimulate EFL learners' motivation and increase their learning experience. As a result, electronic learning materials which replace traditional printed textbooks let teaching methods become more diverse and it alleviate teachers' burden for class preparation with the assistance of educational technology (Zadorozhnyy & Yu, 2023). Moreover, students may not feel bored as well. For example, Lin et al. (2017) compared electronic learning and traditional teaching, their study implied the former was better than the latter on the aspect of motivation. Hence, electronic learning materials applied in courses can also improve students' learning efficiency and autonomy (Liu et al., 2020).

The purpose of the study was to investigate the factors that influence students' acceptance of electronic learning materials in EFL classroom. Therefore, there were three research questions as follows,

1. How do EFL students view the effectiveness of electronic learning materials in comparison to traditional paper-based methods for improving their language skills?
2. What are EFL students' perceptions and levels of acceptance toward a teaching environment that incorporates electronic learning materials? What factors contribute to their acceptance?
3. What expectations do EFL students have regarding a teaching environment that utilizes electronic learning materials?

2. Literature Review

2.1 Electronic Learning Materials and Emerging Technologies in EFL Education

There are many kinds of electronic learning materials, including e-books, e-teaching, which facilitate educational content delivery (Gros & García-Peñalvo, 2023). This tool offers significant advantages for both educators and EFL students, enhancing curriculum development and stimulating learning motivation (Yu, 2022). The electronic learning materials have proven effective in addressing common challenges in language learning. Shahi (2016) found that e-learning significantly reduced anxiety among Iranian

EFL learners while simultaneously improving their language skills. The integration of multimedia materials plays a critical role in creating more engaging and less intimidating learning experiences. Additionally, El-Sabagh (2021) stated adaptive e-learning environments have shown potential to enhance student engagement through personalized learning pathways.

However, Rahim and Chandran (2021) identified several barriers during the pandemic-accelerated shift to e-learning, including infrastructure limitations (inadequate internet connectivity, power supply issues), hardware constraints (expensive ICT equipment), and digital literacy gaps among both educators and students. These challenges highlight the need for comprehensive approaches to technology integration that address both technical and pedagogical dimensions.

2.2 Electronic Learning Materials and Factors for Students' Acceptance

Electronic learning materials, including e-books, interactive digital textbooks, and AI-enhanced content which provide more interactive and personalized learning experiences compared to traditional printed resources. Ebied and Rahman (2015) demonstrated the quasi-experimental research that e-books can be more effective than traditional printed materials for learning outcomes. Hence, this kind of materials that replace traditional text-books has become essential tools for developing innovative teaching methodologies and stimulating student interest (Mohammad & Boushehry, 2023).

The factors that affect students' acceptance on the electronic learning materials involve various aspects. According to Ly and Doeur (2024), the electronic learning materials that related to educational technology can significantly enhance student engagement and learning efficiency by diversifying learning modalities. Key factors influencing the students' acceptance include student engagement levels, self-efficacy, and learning style preferences (Balalle, 2024; Kevrekidis et al., 2024; Sinaga & Setiawan, 2022).

In conclusion, the effectiveness of electronic learning materials ultimately depends on thoughtful implementation strategies that align technological affordances with pedagogical objectives and student needs.

3. Materials and Methods

3.1 Participants

The study included 85 sophomore students majoring in the Department of Applied English at a university in central Taiwan, including two international students. The research aimed to investigate the factors that influenced the students' acceptance of electronic learning materials that replace traditional text-books.

Demographic data was collected to establish participants' background information, including gender, previous experience with textbook-free learning, preferred devices for digital learning, and familiarity with digital learning environments. Results indicated that most participants regularly used smartphones to support their learning and had prior experience with digital learning environments.

3.2 Data Collection

The research utilized a questionnaire with five-point Likert-scale items to evaluate factors influencing student acceptance and perceptions of electronic learning materials compared to traditional paper-based approaches. The questionnaire consisted of three sections with ten multiple-choice questions each. The first section was comparative analysis of paper-based versus electronic English learning environments. The second was factors influencing acceptance of electronic learning materials by EFL learners. The last one was expectations for next-generation electronic English learning environments.

Each section included one to two open-ended questions specifically designed for international students to explore their unique perspectives on electronic learning materials, challenges they encountered, and their vision for ideal electronic learning environments that could better support cultural exchange and language learning between international and local students. In total, the questionnaire contained 35 questions (30 Likert-scale items and 5 open-ended questions).

3.3 Data Analysis

Quantitative data from the 30 multiple-choice questions were analyzed by SPSS to validate the questionnaire's reliability and examine patterns in student responses and the open-ended questions were analyzed thematically to provide deeper insights into the following the three research questions,

1. How do EFL students view the effectiveness of electronic learning materials in comparison to traditional paper-based methods for improving their language skills?

2. What are EFL students' perceptions and levels of acceptance toward a teaching environment that incorporates electronic learning materials? What factors contribute to their acceptance?

3. What expectations do EFL students have regarding a teaching environment that utilizes electronic learning materials?

4. Results

4.1 RQ1: How do EFL Students View the Effectiveness of Electronic Learning Materials in Comparison to Traditional Paper-based Methods for Improving Their Language Skills?

Understanding students' learning needs is crucial to align with the increasing use of electronic learning materials. Table 1 presented the descriptive statistics comparing paper-based and digital learning environments. The highest mean was C3 (M = 3.81), corresponding to the statement: "I believe that using electronic learning materials with digital devices to learn English improves my learning efficiency." Most participants found digital learning beneficial for enhancing their English proficiency, with 15.3% strongly agreeing and 52.9% agreeing. The second highest mean was C4 (M = 3.74), which stated: "I find that a digital English learning environment is more convenient for accessing and searching for information." Most participants acknowledged the ease of obtaining information online, with 18.8% strongly agreeing and 47.1% agreeing. The third highest mean, C8 (M = 3.66), represented the statement: "I find that a digital English learning environment is more efficient for collaboration and group work compared to a paper-based one." In this regard, 10.6% of participants strongly agreed and 51.8% agreed that digital tools facilitated group work completion more efficiently.

Conversely, the lowest mean was noted for C1 (M = 3.36), which stated: "I believe that an electronic English learning environment is more effective than a paper-based one." Many participants still recognized the effectiveness of traditional paper-based learning in improving their language skills.

Additionally, one international student highlighted that music serves as an effective digital learning tool in their country, and Google Classroom helped them overcome language barriers in the electronic English learning environment.

Overall, the findings suggest that EFL students generally hold positive perceptions of electronic English learning environments, particularly regarding efficiency and convenience. However, a notable proportion of students remain neutral on certain aspects. This implies that educators must take into account the diverse needs and preferences of students when integrating the electronic learning materials with digital device and may need to offer additional support and guidance to maximize their effectiveness compared to traditional paper-based learning.

Table 1. Descriptive statistics for comparison between paper-based and digital English learning environments.

Questions	N	M	SD	Percentage	
				Strongly Agree	Agree
C1	85	3.36	.814	8.2	31.8
C2	85	3.34	.894	9.4	31.8
C3	85	3.81	.715	15.3	52.9
C4	85	3.74	.902	18.8	47.1
C5	85	3.42	.822	7.1	38.8
C6	85	3.54	.751	8.2	44.7
C7	85	3.61	.832	11.8	47.1
C8	85	3.66	.765	10.6	51.8
C9	85	3.58	.891	12.9	43.5
C10	85	3.49	.811	10.6	38.5

C1-10 were referred to comparison.

4.2 RQ2: What are EFL Students' Perceptions and Levels of Acceptance toward a Teaching Environment that Incorporates Electronic Learning Materials? What Factors Contribute to Their Acceptance?

Several factors may influence students' acceptance of electronic learning materials, including familiarity, internet connectivity, device compatibility, and perceived learning effectiveness. Table 2 presented the descriptive statistics of these influencing factors. The highest mean score was recorded for F18 (M = 4.13), associated with the statement: "I believe that an electronic English learning environment is more environmentally friendly than a paper-based one." A significant number of participants perceived electronic learning as cost-effective and believed it could reduce paper waste (36.5% strongly agreed, 42.4% agreed). The second highest mean was observed for F19 (M = 3.91), which stated: "I think that learning activities in an electronic English learning environment promote interaction and participation." Sixty participants agreed that digital learning tools and environments enhanced their classroom engagement (22.4% strongly agreed, 48.2% agreed). The third highest mean, F21 (M = 3.87), corresponded to the statement: "I think that learning resources in an electronic English learning environment are updated more quickly." Fifty participants believed that this kind of materials allowed them to stay informed with the latest information and developments.

On the other hand, the lowest mean was found for F20 (M = 3.56), which stated: "I believe that an electronic English learning

environment better meets my learning needs and preferences." While some participants acknowledged the diverse learning resources available in electronic English environments, others felt that these materials did not fully cater to their individual needs.

Additionally, one international student mentioned struggling to adapt to Taiwan's digital learning environment due to language barriers, as they were not fluent in English. However, they found that Google Translate helped mitigate this challenge, which in turn influenced their acceptance of electronic learning.

Overall, the findings indicated that students appreciate the environmental benefits, interactivity, and real-time access to updated resources in electronic learning environments that without paper-based textbooks. However, improvements are needed to better align these platforms with students' diverse learning preferences and individual needs.

Table 2. Descriptive statistics for factors influencing the acceptance of a digital learning environment by EFL students.

Questions	N	M	SD	Percentage	
				Strongly Agree	Agree
F13	85	3.67	.777	16.5	36.5
F14	85	3.64	.754	11.8	44.7
F15	85	3.86	.804	23.5	41.2
F16	85	3.72	.781	15.3	44.7
F17	85	3.68	.978	22.4	35.3
F18	85	4.13	.799	36.5	42.4
F19	85	3.91	.766	22.4	48.2
F20	85	3.56	.879	12.9	41.2
F21	85	3.87	.799	23.5	42.4
F22	85	3.79	.757	16.5	49.4

F13-F22 were referred to factors.

4.3 RQ3: What Expectations do EFL Students have Regarding a Teaching Environment that Utilizes Electronic Learning Materials?

With the advancement of technology, it is essential to consider students' learning needs and expectations when designing curricula and lesson plans. Table 3 presented the descriptive statistics on students' expectations regarding the teaching environment of electronic learning materials. The highest mean scores were recorded for E25 (M = 4.08) and E28 (M = 4.08).

E25 corresponded to the statement: "I hope to be able to access learning resources anytime and anywhere in an electronic English learning environment." Most participants expressed a desire for flexible learning and easy access to information, with 32.9% strongly agreeing and 47.1% agreeing. Similarly, E28 stated: "I expect an electronic English learning environment to simplify the process of submitting assignments and receiving feedback." Sixty-six participants found this aspect convenient and efficient, as it streamlined task completion and facilitated prompt feedback (34.1% strongly agreed, 43.5% agreed).

Conversely, the lowest mean score was observed for E33 (M = 3.84), which stated: "I hope that an electronic English learning environment will enhance my ability to learn independently." While most participants acknowledged that electronic learning materials could foster greater autonomy in learning, this expectation was rated slightly lower compared to others.

Additionally, one international student emphasized that an ideal electronic English learning environment needs to be designed to better support students from diverse cultural backgrounds. They suggested incorporating open forums for discussion, enabling EFL learners to engage in advanced English learning.

In summary, students held high expectations for electronic English learning environments, particularly regarding accessibility, efficiency, and opportunities for independent learning. These insights highlight the importance of integrating technology in ways that align with students' preferences and enhance their overall learning experience.

Table 3. Expectations of English as a Foreign Language (EFL) Students Regarding an electronic learning material.

Questions	N	M	SD	Percentage	
				Strongly Agree	Agree
E24	85	4.01	0.799	25.9	54.1
E25	85	4.08	0.834	32.9	47.1
E26	85	4.06	0.807	30.6	48.2
E27	85	3.86	0.861	23.5	44.7
E28	85	4.08	0.834	34.1	43.5
E29	85	4.06	0.746	29.4	48.2
E30	85	4.00	0.859	31.8	40.0
E31	85	3.96	0.808	28.2	42.4

E32	85	4.07	0.910	40.0	31.8
E33	85	3.84	0.814	22.4	42.4

E24-E33 were referred to expectations.

5. Conclusions

5.1 Findings

This study revealed a generally positive perspectives among EFL learners toward innovative electronic English learning environments. The findings align with recent advancements in educational technology research, which emphasize the potential of electronic learning materials to enhance learning efficiency, engagement, and outcomes compared to traditional paper-based methods (Bai et al., 2022; Cheng & Yang, 2023; Kay, 2023). Additionally, factors influencing students' acceptance of electronic learning materials included environmental considerations, access to up-to-date information, and interactive learning experiences. The use of electronic learning materials with educational technology not only reduced paper waste but also allowed students to quickly obtain the latest information. Furthermore, EFL learners had high expectations for a textbook-free learning environment, efficiency, and support for autonomous learning. Following the COVID-19 pandemic, electronic learning has gained widespread popularity, contributing to a reduction in students' learning anxiety (Shahi, 2016).

5.2 Limitation

Although electronic materials with educational technology offer numerous learning conveniences, certain challenges still need to be addressed, such as accommodating students' diverse learning needs and customizing the learning environment. Moreover, while this study incorporated open-ended questions for exchange students, gathering more in-depth qualitative data could have yielded richer insights into their perceptions and experiences. Therefore, further research exploring the influence of cultural factors and specific tools on EFL learners' acceptance and academic performance could provide a more comprehensive understanding of the effectiveness of electronic English learning environments.

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