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STUDENTS' PERCEPTIONS OF TECHNOLOGY INTEGRATION AND MEDIA USE IN LEARNING ACTIVITIES: A MIXED-METHODS APPROACH

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ABSTRACT
This study investigates university students' perceptions of technology integration and media use in English language learning using a mixed-methods approach. Quantitative data were collected from 432 students via a Likert-scale questionnaire and analyzed through descriptive and inferential statistics, including Mann-Whitney U and Kruskal-Wallis H tests. The findings showed a generally positive perception (M = 48.30, SD = 5.81), with no significant differences based on gender (p = .163), but a significant variance based on semester level (p = .026), indicating improved perception with higher academic exposure. Qualitative data from interviews with selected students revealed five central themes: ease of access, technical challenges, platform overload, preference for blended learning, and the influence of prior digital experience. Students favored media such as Kahoot, videos, and animations for their engaging features, although their long-term impact on learning was questioned. Participants with earlier exposure to digital tools adapted more confidently, while others initially struggled. Both statistical and thematic analyses highlight the importance of pedagogical alignment, infrastructure stability, and gradual digital familiarization. The study underscores that technology and media can enhance English learning when meaningfully integrated into instruction and supported by institutional strategies.

INTRODUCTION

The integration of technology in learning has become an essential part of the educational process, enabling a more interactive and engaging learning experience. According to Yu et al. (2022) rapid advances in technology and media have brought about significant changes in today's world of education. The use of mobile based learning tools and social media is proven to improve student engagement and academic outcomes, especially in learning activities.

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Studies show that these technologies can increase student engagement in behavioral, social, cognitive and emotional aspects more effectively than traditional teaching methods.

According to Maung & Win (2019), technology plays important in english learning. It provides an opportunity to support student oriented learning and meet the educational needs of today's digital generation. Various technology based tools, such as social media, websites and language learning apps, contribute to improving student's language skills while broadening their horizons. In addition, Elisa (2023) technology allows for more independent and autonomous learning, a very important aspect in the second language acquisition process.

The diversity of academic backgrounds and english comprehension levels among students is an important factor in the learning process. In addition, the use of digital media as the main platform in lectures can also affect students' learning experience, both in terms of ease of access to material, interaction with lecturers, and effectiveness of material understanding. Therefore, the researcher wanted to explore student's perceptions of the implementation of digital based english courses and identify the challenges and opportunities faced in the learning process.

According to Kupchyk (2025) understanding how students perceive the use of technology and media in learning is an important aspect in improving teaching effectiveness. Research shows that students generally have a positive view of the utilization of digital tools in english classes. They recognize various advantages of technology based learning over conventional methods. Therefore, understanding student's perceptions can be the basis for designing more effective and relevant learning strategies in the future.

Although many studies have examines the integration of technology in education, there is still a gap in understanding student's perceptions of technology in learning activies. Some studies focus more on teacher's perceptions rather than student's, as shown in the research of Akram et al., (2022) and Setyaningsih et al., (2020), which highlighted how teachers use technology in the classroom without exploring how students experience it directly. In addition, Pittas & Adeyemi, (2019) research examines the effectiveness of technology in education broadly, but not specifically in the context of the learning activities. In terms of the use of learning media, there is limited research comparing the effectiveness of different media in the english learning, as noted by Hakim & Agustina, (2022) Furthermore, little research has looked at whether students' previous experiences with technology influence their perceptions, as alluded to by Álvarez et al., (2025).

Therefore, this study aims to fill that gap by exploring university students' perceptions of technology integration in English language learning, how they perceive the effectiveness of technology-based learning media, as well as whether their previous experiences with technology influence how they perceive its use in learning activities. Based on the previous research findings above, I am interested in filling this gap by exploring students' perceptions of technology integration in English language learning, how they assess the effectiveness of technology-based learning media, as well as whether previous technology experiences influence the way they perceive its use in classroom, according to my 3 research questions. In an era where technology increasingly shapes educational practices, understanding how students perceive its integration in language learning becomes essential. This study aims to identify students' perceptions of technology integration in English language learning, describe their views on the use of learning media within learning activities, and analyze whether these perceptions differ based on their prior experience with using technology in educational contexts.

1. What are students' perceptions of the integration of technology in their learning activities?
2. What are students' perceptions of the use of various learning media in supporting their learning activities?
3. How do students' prior experiences with educational technology influence their perceptions of technology and media use in learning?

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RESEARCH METHODS

This study employed a descriptive mixed-methods design, integrating both quantitative and qualitative approaches to explore students' perceptions of technology and media integration in English language learning Creswell, J. W., & Plano Clark, (2017). The quantitative data were gathered through a 15-item Likert-scale questionnaire adapted from Dewi et al., (2023), while qualitative data were collected via semi-structured interviews using open-ended questions to gain deeper insights Creswell, (2015).

The population consisted of students at Universitas Muhammadiyah Kalimantan Timur (UMKT), with samples drawn from those enrolled in the General English course. Slovin's formula was applied to determine the sample size, and random sampling across 24 study programs ensured representation Creswell, (2017). For the interviews, purposive sampling was used to select participants based on criteria emerging from the survey results Yu et al., (2022), enabling a more focused exploration of student experiences and challenges.

Quantitative data were analyzed using descriptive statistics, including mean, standard deviation, and frequency Yu et al., (2022). Meanwhile, qualitative data were examined through reflexive thematic analysis Braun & Clarke, (2019), allowing the researcher to construct themes based on contextual meanings. The integration of both methods enhanced the depth and validity of the findings Johnson, R. B., (2017);Ruggiano & Perry, (2019)

RESULTS AND DISCUSSION

Findings of Quantitave

The instrument used in this study was validated through the Pearson Product Moment correlation, with all 15 items showing r-values above the critical threshold of 0.10 (ranging from 0.60 to 0.72), confirming strong construct validity. Reliability testing using Cronbach's Alpha yielded a coefficient of 0.914, indicating excellent internal consistency. Descriptive analysis based on 432 valid responses showed a mean score of 48.30 (SD = 5.81), suggesting that students generally had a positive perception of technology and media integration in English learning activities.

Test of Normality

To determine the appropriate statistical test for comparing perception scores across semester groups, a normality test was first conducted to assess whether the data were normally distributed.

Table 1. ***Normality of the Instrument***

		Kolmogorov-Smirnov			Shapiro-Wilk		
	Semester	Statistic	df	Sig.	Statistic	df	Sig.
Score	2	.167	116	.000	.934	116	.000
	4	.155	173	.000	.878	173	.000
	6	.104	60	.164	.967	60	.014
	8	.080	83	.200	.200	83	.114

*. This is a lower bound of the true significance
a. Litiefors Significance Correction

The normality of students' perception scores across semester groups (N = 432) was tested using the Kolmogorov-Smirnov and Shapiro-Wilk methods. As shown in Table 5, perception scores for Semester 2 and 4 significantly deviated from a normal distribution ($p < .05$), while scores for Semester 6 and 8 met the normality assumption ($p > .05$). Since not all groups showed normal distribution, non-parametric tests were used in further analysis.

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Table 2. *Grouping Gender*

	Gender	N	Mean Rank	Sum of Ranks
Score	Female	331	221.11	73186.00
	Male	101	201.41	20342.00
	Total	432		

Table 3. *Test Statistic*

	Score
Mann-WhitneyU	15191.000
Wilcoxon	20342.000
Z	-1.394
Asymp. Sig.	.163

a. Grouping Variable: Gender

To investigate whether gender differences influenced students' perceptions of technology integration and media use in English language learning, a Mann-Whitney U test was performed. This non-parametric statistical test was selected due to the non-normal distribution of the perception score data, as indicated by earlier normality testing. The analysis compared the responses of 331 male students and 101 female students. The results showed that the mean rank of perception scores for male students was 221.11, whereas female students had a mean rank of 201.41. The calculated Mann-Whitney U value was 15191.000, with a Z-score of -1.394 and an associated p-value (Asymp. Sig. 2-tailed) of .163. Since the p-value exceeded the conventional alpha level of .05, the result indicates that the difference in perception scores between male and female students was not statistically significant. Thus, gender does not appear to significantly influence students' perceptions of the integration of technology and media in their English learning experiences.

To examine whether students' perceptions of technology integration and media use in English language learning differed based on their semester level, a Kruskal-Wallis H test was performed. This non-parametric test was selected due to the non-normal distribution of perception scores across semester groups, as confirmed by previous normality tests.

Table 4 *Grouping Semester*

	Semester	N	Mean Rank
Score	2	116	197.63
	4	173	211.76
	6	60	219.33
	8	83	250.71
	Total	432	

Table 5 *Test Statistic*

	Score
Kruskal-Wallis H	9.247
df	3
Asymp. Sig.	.026

a. Kruskal-Wallis Test
b. Grouping Variable Semester

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The analysis included four groups: Semester 2 (n = 116), Semester 4 (n = 173), Semester 6 (n = 60), and Semester 8 (n = 83). The mean rank scores were 197.63, 211.76, 219.33, and 250.71 respectively, indicating a gradual increase in perception scores across higher semesters. The test yielded a statistically significant result, with a Kruskal-Wallis H value of 9.247, degrees of freedom (df) of 3, and an Asymptotic Significance (p-value) of .026. Since the p-value is less than .05, it can be concluded that there is a significant difference in students' perceptions of technology integration and media use among the different semester groups. These findings suggest that students' experiences and perceptions of educational technology may improve as they progress through higher semesters, potentially due to increased exposure and familiarity with digital learning tools.

Findings of Qualitative

This section presents the findings derived from the qualitative data collected through semi-structured interviews with four university students from different academic programs and semesters. The analysis was conducted thematically to explore their perceptions of technology integration and media use in English language learning. The findings are structured based on the three research questions, highlighting both convergent and divergent views among participants. Direct quotes are included to illustrate key insights and support the interpretation of the themes that emerged.

Table 6. ***Students' Perceptions of Technology Integration***

Theme	Codes	Representative Quotes
Positive perception of access	Helpful for accessing materials and assignments	" makes it easier to access materials" (SM, GR)
Connectivity challenges	Internet issues, platform Errors	" sometimes the network is inadequate" (CA), "error" (IF)
Platform overload	Too many platforms cause confusion	" too many platforms" (SM)
Adaptation gap	Initial struggle adapting to digital systems	" it's quite difficult to adapt to it" (CA, IF)
Need for balance	Traditional learning still Valued	" more effective than direct explanation from the lecturer" (CA, GR)

The qualitative data revealed a range of student perceptions regarding the integration of technology in English language learning. Overall, students expressed mixed but mostly positive views, acknowledging the benefits of digital platforms while also noting several limitations. Several participants emphasized the practical advantages of technology in accessing learning materials and submitting assignments. For example, SM (Semester 8) stated, *"LMS and interactive apps are quite helpful, especially for submitting assignments and accessing course materials."* GR (Semester 4) echoed this, noting that *"Google Classroom helps by providing easy access to the needed information and resources."* These comments suggest that students generally appreciate the accessibility and efficiency that digital tools offer in organizing their academic tasks.

Despite these benefits, students also highlighted significant challenges, particularly related to technical issues such as internet connectivity and system errors. CA (Semester 8) mentioned, *"Sometimes it's hard to access the platform because of poor internet connection or system errors, so it's difficult to stay consistently active using it."* IF (Semester 2) similarly shared that slow internet often discouraged her from using digital learning platforms.

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Another recurring concern involved the fragmentation of digital tools, with students needing to navigate multiple platforms for different courses. SM pointed out that *"Each lecturer uses a different system, so we have to keep switching between apps, and it's exhausting."* In addition, there was a notable perception that technology alone cannot replace traditional classroom interaction. CA and GR emphasized that direct instruction from lecturers was still more effective for comprehension and engagement. CA said, *"For me, learning directly from the lecturer is more effective because I can ask questions right away."* GR added that *"Too much reliance on technology may reduce real interaction with lecturers, which is important for understanding."* Finally, some participants indicated a period of initial difficulty adapting to technology, particularly those with limited exposure during high school. IF (Semester 2), who reported minimal use of digital tools before university, found it initially challenging to adjust to technology-integrated learning.

These findings suggest that while students generally recognize the value of technology integration in supporting their learning, they also emphasize the importance of balance, infrastructure support, and pedagogical consistency to make digital tools truly effective in English language education.

Table 7. ***Students' Perceptions of Learning Media Use in the Classroom***

Theme	Codes	Representative Quotes
Engaging learning environment	Kahoot/quiz as fun and motivating	" more excited to study when the lecturer used Kahoot" (SM, GR)
Temporary motivation	Effect doesn't last	" the effect is only temporary" (SM)
Preference for visual media	Animation and video increase interest	" like animated videos…interesting" (IF, GR)
Over-reliance concerns	Visual-heavy tools lack depth	" fun but not too memorable" (SM)
Self-driven media exploration	Use of social media platforms for learning	" saw it on Instagram…learning vocab" (CA), "TikTok" (IF)

The use of diverse learning media such as animations, video content, and interactive quizzes was generally perceived by students as a way to enhance engagement and make learning more interesting. Participants across all semesters recognized the entertainment value and motivational boost provided by these media formats. Several students described positive emotional responses when media was used to supplement traditional instruction. SM (Semester 8) noted, *"Animated videos and online quizzes can make learning sessions more enjoyable and definitely less boring."* Similarly, GR (Semester 4) remarked that *"interactive media like Kahoot made lessons feel more fun and competitive, which kept me motivated."* These statements reflect a common view that such tools can energize the classroom environment and temporarily improve student focus.

However, many participants also observed limitations to media use, particularly when it became overused or poorly aligned with learning objectives. SM emphasized that *"the fun aspect doesn't always mean effective learning sometimes it feels more like entertainment than study."* This suggests a disconnect between engagement and learning retention when media lacks sufficient instructional depth. Moreover, some students, such as IF (Semester 2), questioned the educational impact of media despite finding it entertaining. She said, *"It's interesting to watch videos or animations, but they don't always help me understand the material better."* This indicates that while media is engaging, it does not automatically translate into improved learning outcomes, especially if not contextually meaningful or well-integrated. There was also a recurring theme that media is best used as a supplement rather than a core instructional method. SM and GR both shared that media like Kahoot can be effective for reviews or breaks, but

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should not replace foundational instruction. SM explained, *"It's great as a refresher or to lighten the mood, but the excitement fades quickly once we go back to the regular lessons."*

In addition, students' preferences for media types varied based on learning styles. Some, like CA (Semester 8) and IF, preferred short-form media such as Instagram posts or TikTok videos for vocabulary learning. These platforms were seen as informal but effective ways to acquire specific language skills in a light and engaging format.

Table 8. ***Differences in Perception Based on Prior Exposure to Technology***

Theme	Codes	Representative Quotes
Limited tech exposure during school	Rarely used LMS or apps before college	" rarely used technology during school" (CA, IF, SM)
Digital shock at university transition	Initial difficulty adapting	" a bit shocked" (SM), " it was a bit hard at first" (CA)
Gradual adaptation through use	Improved with consistent Use	" understand more each day" (CA), " more prepared" (GR)
Tech readiness depends on experience	Prior exposure affects confidence	" previous experience helped, but not fully prepared" (SM)

The qualitative data suggest that students' prior exposure to technology during their pre-university education significantly influenced their perceptions and adaptation to technology-integrated learning at the university level. Participants with limited access to digital tools before entering university often expressed initial challenges, while those with prior experiences showed greater readiness and confidence in navigating digital learning environments.

CA (Semester 8), for instance, recalled minimal use of educational technology during high school, noting that *"We didn't use much technology back then—not even projectors or online apps. So at the beginning of college, it was hard to adjust."* Similarly, IF (Semester 2) explained that her exposure to online learning tools was rare during school and that she felt unfamiliar with platforms like Google Classroom or Kahoot when first introduced to them in university. Despite these initial struggles, students generally indicated a progressive improvement in adaptation over time. CA reflected, *"At first it was difficult to adapt, but the more I used the tools, the better I understood them."* This points to the importance of continuous use and exposure in building technological competence.

On the other hand, participants with moderate prior exposure, such as GR (Semester 4), reported greater ease in transitioning to university-level digital learning. He stated, *"I had already used educational videos on YouTube and taken some online courses, so I was quite ready to use technology in college."* His response reflects a more seamless adjustment process, reinforcing the value of early engagement with technology. SM (Semester 8) offered a more nuanced view, stating that although she had used basic technologies like YouTube and Google during high school, she still faced mental fatigue and screen exhaustion in fully digital environments. *"Technology helps, but constant use is mentally draining,"* she said, emphasizing that readiness is not solely technical, but also emotional and psychological. Furthermore, students agreed that exposure alone is not enough what matters is how meaningful and consistent that exposure was. IF remarked, *"Even if we used tech sometimes in school, it wasn't regular or deep enough to really prepare us for university."*

Discussion

Perceptions of Technology Integration (RQ1)

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The findings of this study indicate that students generally perceived technology integration in English language learning as beneficial, particularly in terms of facilitating access to materials and simplifying communication with lecturers. However, they also expressed concerns about technical barriers such as internet connectivity issues and inconsistent platform use which occasionally hindered their learning experience. Furthermore, students emphasized the need for a balanced approach between digital and traditional instruction, noting that direct explanations from lecturers remained more effective for comprehension and engagement.

These findings are consistent with previous research by Almahasees et al., (2021), who found that while students appreciated the flexibility and convenience of technology-supported learning, they often preferred traditional classroom interaction for deeper understanding. Similarly, Hidayati & Saputra, (2020) emphasized that digital tools are only effective when supported by stable infrastructure and pedagogical consistency.

This study adds to the growing literature by highlighting that technological access alone is insufficient; students require platforms that are reliable, consistently used, and well-integrated into teaching strategies. It reinforces the idea that technology should not be viewed as a substitute for pedagogy, but as a complementary tool that enhances it.

Perceptions of Media Use in the Classroom (RQ2)

In relation to media use in classrooms, students largely welcomed learning media such as videos, animations, and gamified quizzes (e.g., Kahoot, Quizizz) for their ability to make learning more engaging and enjoyable. These tools appeared to boost motivation temporarily, especially when used for reviews or interactive classroom activities. However, students also expressed concern that overuse of such media particularly when not pedagogically aligned can lead to superficial learning and fatigue.

This study highlights the importance of strategic integration of media, suggesting that media use is most effective when it supports not distracts from core learning objectives. It also illustrates that student engagement should not be equated with entertainment, and that digital media must be designed to stimulate cognitive as well as emotional involvement.

Differences in Perception Based on Previous Exposure (RQ3)

The study also revealed significant differences in students' perceptions and adaptability based on their prior exposure to educational technology. Those with limited exposure during school especially in rural or under-resourced settings reported initial difficulty adjusting to university-level digital learning environments. Conversely, students with moderate to frequent exposure before university showed higher levels of confidence and readiness, though some still reported challenges related to screen fatigue and digital overload.

These findings align with the digital divide theory, particularly as discussed Reynolds, (2021), which posits that access to technology is not enough usage and digital skills are equally crucial. Research by Warschauer (2004) similarly emphasized the importance of early and meaningful exposure to technology to prepare students for digitally integrated learning environments. This study contributes to the conversation by emphasizing that prior exposure to educational technology has a lasting impact on students' readiness and perception. However, it also reinforces that with sustained use and institutional support, students are capable of adapting regardless of their initial background.

CONCLUSION

The findings of this study indicate that university students generally perceive the integration of technology and media in English language learning positively. Quantitative data revealed that students found digital tools beneficial for accessing learning materials, managing tasks, and increasing motivation (M = 48.30; SD = 5.81). While gender differences were not statistically significant, semester-level differences emerged, suggesting that increased exposure to technology enhances acceptance and familiarity.

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Qualitative insights reinforced these results, highlighting students' appreciation for the accessibility, interactivity, and engagement offered by digital platforms such as videos, Kahoot, and animations. However, students also reported challenges including unstable internet connections, fragmented platform usage, and screen fatigue. Prior experience with digital tools influenced students' adaptability, with those more digitally exposed showing greater confidence. Despite the benefits, students consistently emphasized that digital tools could not replace the value of direct interaction with lecturers for achieving deeper understanding and academic engagement.

The study underscores the need for balanced and inclusive technology integration strategies. Institutions should invest in stable infrastructure, minimize platform overload, and enhance students' digital literacy. Importantly, technological tools should serve not just to engage, but to meaningfully support pedagogical objectives in line with learners' needs and readiness.

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