

Understanding Student Needs for Effective Online English Grammar Learning: A Quantitative Descriptive Study

*¹Sinta Dewi Permatasari, ¹Sunardi, ¹Sri Sumaryati

¹Universitas Sebelas Maret, Indonesia

***Correspondence:**

Sintadewi96@student.uns.ac.id

Submission History:

Submitted: September 25, 2024

Revised: November 16, 2024

Accepted: December 1, 2024



This article is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

Abstract

With the growing need for accessible English learning in online education, this study explores students' requirements for mastering English grammar in a virtual environment at the educational startup "Scholars" in Surakarta, Indonesia. The study aimed to identify students' learning needs and challenges in online grammar classes to provide recommendations for more effective instructional support. Using a quantitative descriptive approach, data were collected from 38 students through questionnaires and proficiency tests, focusing on their perceptions and performance in online English grammar learning. The findings showed that over 50% of students strongly needed structured, accessible digital materials, such as interactive e-books or guidebooks, to facilitate independent grammar study. Students struggled to identify word forms and understand sentence structures, contributing to low proficiency rates, as evidenced by a 40% failure to meet the passing grade. The research highlights that current materials, limited to PowerPoint presentations and PDF files, are insufficient to meet students' learning needs. The study concludes that integrating digital, interactive learning resources with exercises and structured materials could better support students' autonomy, improve engagement, and address learning gaps in online English grammar instruction. This approach promises to enhance learning outcomes and motivation in virtual English education.

Keywords: Online classes, English grammar, need analysis, interactive exercises, English material

INTRODUCTION

The demand for effective English language learning has increased significantly in recent years, particularly in online settings (Means et al., 2013; Sadeghi, 2019). As globalisation continues to shape professional and personal interactions, English proficiency has become essential for communication, collaboration, and career advancement, creating pathways for social and economic mobility (Crystal, 2012; Choi & Lee, 2020). However, non-native learners face challenges in mastering grammar, tense usage, and vocabulary, foundational elements necessary for clear communication (Liu et al., 2019). These challenges are further heightened in online environments, where limited direct interaction and

immediate feedback restrict personalised support for grammar acquisition (Baleghizadeh & Ashoori, 2017; Means et al., 2013). In countries like Indonesia, where English is taught as a foreign language within a limited instructional framework, students typically study English only once or twice weekly, restricting exposure to the language and hindering communicative competence (Pajarwati et al., 2021). The educational system's focus on exams often leads to high scores in controlled settings. Nevertheless, students struggle to apply language skills in real-world contexts, revealing a gap between language input and practical language use.

Addressing these challenges requires understanding students' needs in online grammar courses and developing digital resources that bridge learning gaps and foster self-directed study habits (Kohnke et al., 2021). For example, interactive exercises and structured e-books can enhance learners' independent grasp of grammar concepts (Hwang et al., 2022). However, many online programs rely on static materials, like PowerPoint slides and PDFs, which may limit engagement and retention (Moos & Marroquin, 2010). Moreover, EdTech solutions must consider the importance of creating dynamic resources, particularly in settings where the national curriculum lacks integration with digital tools that foster practical language use (Roemintoyo & Budiarto, 2021). Identifying and addressing these needs is essential to develop educational strategies that improve language proficiency and cultivate lifelong learning skills, empowering students to thrive independently in a globalised world (Johnson & Aragon, 2003; Gacs et al., 2020).

Recent studies underscore the significant advantages of integrating digital resources into English language education, highlighting their role in enhancing language proficiency and essential modern skills. Handayani (2022) and Azhary and Ratmanida (2021) emphasise that English proficiency and digital literacy are essential for global engagement, communication, and critical thinking. This approach aligns with trends that prioritise interactive, technology-driven learning environments. Burbules et al. (2020) and Zhou et al. (2018) discuss how digital tools accelerate material delivery and make learning accessible from any location, especially valuable in hybrid and virtual classrooms. Kaur et al. (2023) and Alobaid (2021) further demonstrate the power of audiovisual and multimedia platforms like YouTube and Duolingo in supporting listening, grammar, and writing skills, while Bilyalova (2017) notes the value of structured online resources such as BBC Learning English for learners at various proficiency levels. These studies illustrate that digital tools make English learning more interactive, flexible, and practical, equipping students with the skills needed to succeed in a globalised world.

While numerous studies highlight the benefits of digital tools in English language education, significant gaps remain in understanding their application for specific learner needs, particularly in online grammar courses. Much of the existing research has focused on general language skills such as speaking and listening (e.g., Kaur et al., 2023; Zhou et al., 2018), leaving grammar—an essential yet challenging component—underexplored in the context of digital education (Alobaid, 2021; Bilyalova, 2017). Although platforms like YouTube and Duolingo have shown promise in supporting language learning, limited research examines their effectiveness in fostering independent grammar acquisition, especially in structured online programs designed for adult or non-traditional learners (Moos & Marroquin, 2010). In Indonesia, these challenges are compounded by an education system that prioritises exam performance over communicative competence, as noted by Pajarwati et al. (2021), and often lacks practical strategies for integrating digital resources into English instruction (Handayani,

2022; Roemintoyo & Budiarto, 2021). These gaps underscore the need for a more focused analysis of learner-specific requirements and innovative digital materials to bridge learning gaps in grammar education effectively.

This study aims to address these gaps by focusing on the specific needs of students in online English grammar courses and exploring practical solutions to enhance their learning experiences. Unlike previous research that broadly examines digital tools, this study emphasises developing and implementing structured resources, such as interactive e-books and multimedia exercises, to support independent grammar learning. By contextualising the research within Indonesia's unique educational landscape, this study provides valuable insights for designing effective instructional strategies tailored to local needs. Moreover, it bridges the divide between static teaching materials and dynamic, technology-driven resources, offering a practical framework for enhancing grammar instruction in digital environments. This targeted approach fills existing research gaps and introduces innovative solutions for improving online grammar education, making this study both timely and significant.

Failing to address these gaps in online English grammar education has several negative implications that could impact both learners and the broader educational landscape. Students may continue to struggle with fundamental grammar skills, leading to weak communicative competence, especially in written and spoken English. This limitation hinders their ability to express ideas clearly, affecting their academic performance, professional opportunities, and confidence in English. In Indonesia, where English is crucial for higher education and global engagement, neglecting these gaps could perpetuate reliance on rote learning and exam preparation over meaningful language acquisition. Without targeted, interactive digital resources, learners may find online grammar courses disengaging, resulting in low retention rates and a lack of motivation. This, in turn, could undermine the potential of digital education to foster self-directed learning, leaving students ill-prepared for lifelong learning and adaptability in an increasingly digital and globalised world. Ultimately, failing to innovate in online grammar instruction risks creating a generation of learners underprepared for the demands of modern communication, diminishing the overall quality and effectiveness of English education in Indonesia and beyond.

This study seeks to address critical gaps in online English grammar education by focusing on the unique needs of learners and the importance of tailored interactive digital resources. Recognising the limitations of existing materials, such as static slides and PDF files, the study aims to develop and implement innovative tools—such as structured e-books and multimedia exercises—that can enhance independent grammar learning. The following research questions guide the study: (1) What specific needs do students in online English grammar courses have that remain unmet by current resources? (2) How can interactive digital tools be designed and implemented to foster self-directed grammar acquisition? (3) What instructional strategies can support the integration of these tools in Indonesia's unique educational context? This study strives to provide practical insights for creating locally relevant, effective instructional strategies by contextualising the research within Indonesia's exam-focused education system. Ultimately, this research aims to bridge the gap between traditional and digital resources in grammar instruction, foster a more engaging online learning environment, and empower students with skills for lifelong learning and global engagement. Through these efforts, the study aspires to make valuable contributions to online

grammar education, equipping learners with the linguistic and professional demands of a globalised world.

METHOD

This study employed a descriptive quantitative research design to investigate the specific needs of students in an online English grammar course at the edu-startup “Scholars” in Surakarta, Indonesia. The primary goal was to analyse students’ learning media preferences and proficiency levels to inform the development of tailored digital resources. Descriptive quantitative research is well-suited for identifying trends and learner preferences without testing specific hypotheses, allowing for detailed insights into educational needs and behaviours (Creswell & Creswell, 2018; Cohen et al., 2018; Fraenkel & Wallen, 2019).

Participants

The study used random sampling to select two distinct groups of students from the Scholars online grammar program. The first group comprised 38 students who completed a needs-analysis questionnaire, while the second group included 34 students who participated in a proficiency test. Participants represented a diverse range of ages, backgrounds, and English learning objectives, providing a comprehensive view of learner needs within the program. Random sampling is widely recognised for enhancing the generalizability of findings across different demographic groups (Fowler, 2013; Bryman, 2016).

Instruments

This study used two primary instruments: a structured questionnaire and a proficiency test. The questionnaire was designed based on observations and interviews with course tutors, following best practices in needs analysis for language education (Richards, 2017; Brown, 2016). The instrument assessed students’ preferences and needs in three key areas: online learning environments, grammar content, and digital resources. Structured using a 15-item Likert scale with response options ranging from “strongly agree” to “strongly disagree,” the questionnaire provided a nuanced measure of students’ attitudes and requirements for online English grammar learning (Boone & Boone, 2012). Administered via Google Forms on September 21, 2023, responses were calculated in percentages, with a 50% agreement threshold indicating a significant need, as is common in descriptive analysis (Field, 2018; Creswell & Creswell, 2018). The proficiency test, adapted from the Test of English Proficiency (TOEP) model (Widodo & Musyarofah, 2020), consisted of 15 multiple-choice questions targeting essential grammar and vocabulary skills needed for effective communication. This test provided an objective measure of students’ proficiency, identifying areas where further support might be necessary (Harmer, 2015; Nation & Macalister, 2020). The proficiency test was administered on July 23, 2024, to a different cohort from the questionnaire participants, allowing for a broader understanding of learning needs across different monthly program cohorts (Dörnyei, 2018; Larson-Hall, 2021).

Procedures

Data collection was conducted in two sequential stages. Initially, the questionnaire was distributed to capture students’ self-reported learning needs and preferences regarding online grammar education. This was followed by administering the proficiency test, designed

to assess grammar competence objectively. Ethical considerations, including participant anonymity and voluntary participation, were strictly followed, as recommended by research ethics guidelines in educational studies (Hyatt & Newman, 2020). This sequential approach provided a balanced understanding by first identifying students' perceived needs and then measuring their proficiency, thus enhancing the depth and validity of findings (Creswell & Creswell, 2018).

Data Analysis

Quantitative methods were employed to summarise and interpret the questionnaire and proficiency test results. Questionnaire responses were calculated as percentages to identify prevalent trends, with a 50% consensus considered an indicator of solid learner needs, following standard practices in descriptive statistical analysis (Cohen et al., 2018; Fink, 2020). Proficiency test scores were analysed by calculating the percentage of correct responses for each question, highlighting areas of difficulty in grammar comprehension. This combined analysis allowed for a comparative understanding of perceived needs versus actual proficiency, thus strengthening the reliability of the study's conclusions (Fraenkel et al., 2019).

FINDINGS

The findings of this study highlight key insights into students' perceptions and needs regarding online English grammar courses. Conducted with 38 participants, the questionnaire aimed to assess various aspects of their online learning experience, including flexibility, the effectiveness of materials, and specific needs for additional resources. The data in Table 1 reveal a strong demand for comprehensive, tailored resources that support independent study and a desire for structured guidance, such as a straightforward guidebook, to improve learning outcomes in an online environment.

Table 1. Student Perceptions and Needs in Online English Grammar Courses

No.	Questions	Percentage	Category
1	Do you find the online English course format flexible and convenient for your schedule?	71.67	High
2	Do you believe this English course will significantly improve your English language skills?	81.11	High
3	Is the material delivered by the tutor relevant to your specific learning needs?	71.67	High
4	Are the materials provided compelling enough to support independent study?	72.2	High
5	Can the PowerPoint slides and PDF files help you study and understand the course material?	78.33	High
6	Is the teaching approach and content delivered by the tutor appropriate for your current level of English proficiency?	70.55	High
7	Do you usually review or reread the material provided after each class?	64.4	Medium
8	Have you previously studied English grammar independently outside of this course?	60.55	Medium
9	Do you believe improving your English language skills will benefit your career and educational goals?	81.67	High

10	Do you find grammar one of the most challenging aspects of learning English?	75	High
11	Do you need additional practice exercises on English grammar to improve your skills?	82.87	High
12	Do you understand the specific competencies expected of you in this course?	77.78	High
13	Would having a structured guidebook help you study more effectively in this online course?	94.44	Very High
14	Would a summary at the end of each chapter/module help you review and reinforce the material?	86.11	High
15	Do you need materials that allow you to study independently outside of class time?	80	High

Needed Media and Resources

The findings from the questionnaire highlight a strong demand for structured and comprehensive learning materials explicitly tailored to online English grammar courses. An overwhelming 94.44% of students indicated a high need for a straightforward guidebook, emphasising the importance of having a structured resource to support their learning. Additionally, 86.11% expressed the need for summaries to aid in self-study, and 80% emphasised the necessity for independent learning materials. These data reveal that the current resources—primarily PowerPoint presentations and PDF files—are insufficient for effective self-directed learning, with 78.33% of students agreeing that these materials alone do not fully meet their study needs. Specific requests from students included interactive exercises, such as multiple-choice quizzes and sentence analysis tasks, as well as concise summaries to reinforce key concepts at the end of each chapter. Furthermore, 82.87% of respondents stated that they need frequent grammar exercises, which could be delivered effectively through digital resources to provide ongoing practice and reinforce learning.

Challenges Faced

The study identified several challenges students and tutors face in delivering and engaging with online English grammar content. Tutors reported difficulty categorizing students' competencies due to the lack of standardized teaching materials and guidebooks. Each tutor was required to prepare materials independently, leading to inconsistencies across sessions. This issue was further compounded by the diverse age range of students (17-40 years) and their varied educational and professional backgrounds. Many students found grammar particularly challenging, with 75% identifying it as the most difficult aspect of learning English. The proficiency test results also underscored this challenge, as 44% of students scored below the passing grade of 70. For example, one test item (Figure 1) showed that only 7.3% of students correctly answered a question on past simple tense usage ("watched"). In contrast, 75.6% incorrectly chose "was," indicating confusion with verb forms and tense. Such findings suggest that students struggle with foundational grammar concepts, pointing to the need for structured resources that cater to their specific challenges.

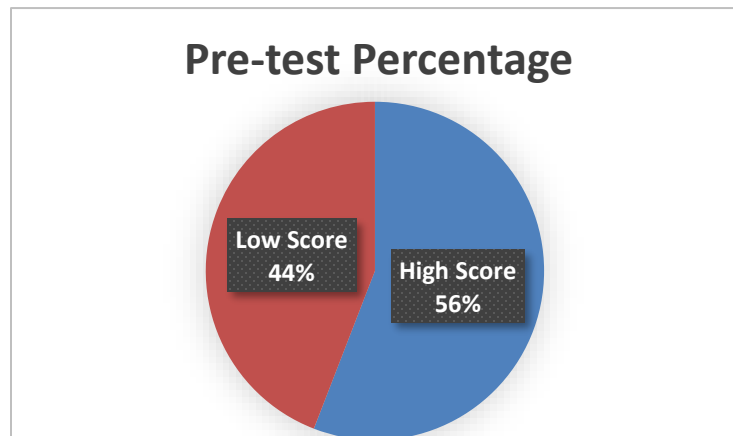


Figure 1. Students' pretest results

Impact of Current Materials

While somewhat effective, the current materials and teaching methods do not fully support students' proficiency and engagement needs. Although 81.11% of students believed that taking the course would improve their skills, only 72.2% felt the materials were adequate for independent study. The reliance on PowerPoint presentations and PDF files limits students' ability to engage deeply with the content, as these materials are static and do not offer interactive learning opportunities. The need for additional resources to support self-directed learning is further validated by the 80% of students who indicated that they require materials designed for independent study. Additionally, Figure 2 shows that in another test item on past perfect usage, 51.2% of students incorrectly selected "has painted," demonstrating difficulties in applying past tense rules in various contexts. This lack of proficiency in grammar usage suggests that the current materials are insufficient for reinforcing grammatical concepts effectively, particularly in an online setting where face-to-face interaction is absent. Addressing these material limitations through interactive and comprehensive digital resources could significantly enhance proficiency and engagement.

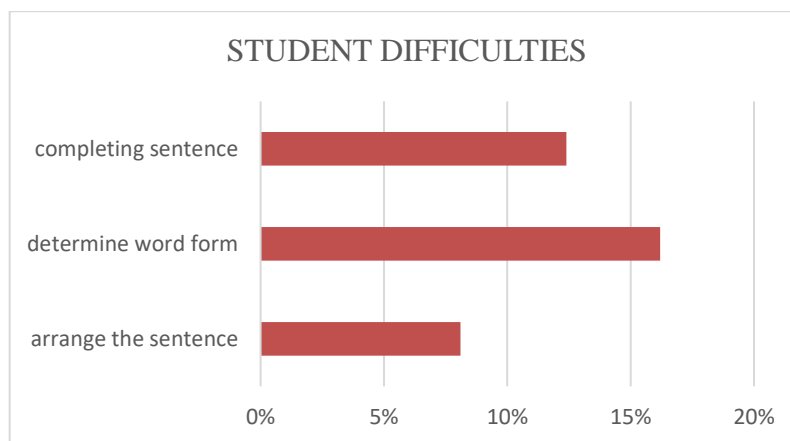


Figure 3. Students' difficulties in the test.

DISCUSSION

The findings from this study underscore the urgent need for tailored, interactive resources to effectively support students' independent study in online English grammar courses. Analysis of student responses and proficiency test results reveals critical gaps in the instructional materials provided and the pedagogical support available online. These gaps are particularly significant in online learning, where students rely heavily on self-directed study resources and structured guidance to achieve meaningful progress. In the increasingly digital world of language education, failing to provide such resources risks leaving students ill-prepared for real-world language applications and undermines the broader goals of English language proficiency (Kaur et al., 2023; Gacs et al., 2020).

One of the most striking findings is the overwhelming demand for structured, comprehensive resources to facilitate compelling independent study. Nearly all students (94.44%) needed a guidebook, and 86.11% highlighted summaries' importance in reinforcing learning. These statistics reveal a gap between the resources provided and students' needs, indicating that existing materials—primarily PowerPoint slides and PDF files—are insufficient for fostering deep understanding and retention. Research suggests that static materials such as slides and PDFs do not engage students effectively in online settings, as they lack interactivity and fail to accommodate diverse learning styles (Chen & Carliner, 2020). Students may struggle to navigate complex grammar rules independently without a straightforward, structured guidebook, especially when immediate instructor feedback is unavailable. Interactive and well-structured resources could help bridge this gap, allowing students to organise their study sessions better and foster a more active approach to learning, which has been shown to improve retention and comprehension in online environments (Martin & Bolliger, 2018).

Furthermore, the absence of standardised teaching materials poses significant challenges for students and tutors. Tutors reported difficulty in assessing and categorising student competencies due to a lack of uniformity in curriculum and instructional guides. Each tutor prepared materials independently, leading to inconsistent teaching methods and potentially varying learning outcomes. Inconsistent instructional quality has been found to hinder students' progress, as learners benefit most from a structured curriculum that aligns with established learning objectives (Means et al., 2020; Reiser & Dempsey, 2017). Additionally, students in this study come from diverse backgrounds, ranging in age from 17 to 40, and have varied professional and educational experiences. Adult learners, for instance, often need materials that relate to practical, real-world applications, a principle supported by adult learning theories, which emphasise relevance and contextual learning (Knowles et al., 2020; Merriam & Baumgartner, 2020). Without resources tailored to accommodate these diverse needs, there is a risk of disengagement and a lack of meaningful learning, as standardised materials allow for flexibility and inclusivity, accommodating a range of learner backgrounds and educational needs.

The proficiency test results underscore significant gaps in foundational grammar understanding, particularly in verb forms and tense usage. For example, only 7.3% of students correctly identified the past simple tense in a test item, while 75.6% incorrectly selected the past progressive tense. Additionally, over half of the students (51.2%) struggled with the past perfect tense, indicating a weak grasp of essential grammar concepts. These results are

consistent with previous studies that show grammar as one of the most challenging aspects of language learning for English as a Foreign Language (EFL) students, especially in online settings where personalised support is limited (Al-Seghayer, 2017; Kim, 2020). The static nature of the current materials may be a contributing factor, as research has demonstrated that interactive exercises with immediate feedback significantly improve grammar acquisition by allowing students to practice and correct their mistakes in real-time (Blake, 2021; Luo, 2021). Incorporating interactive grammar exercises, digital quizzes, and self-assessment tools could play a crucial role in bridging these proficiency gaps, fostering an environment where students can actively engage with the material and internalise grammar rules more effectively.

Despite a generally positive perception of the course's flexibility and benefits—81.11% of students believe it enhances their skills—the limitations of current materials remain a substantial barrier to effective self-directed learning. Only 72.2% of students found the materials effective for independent study, and 78.33% felt that PowerPoint slides and PDFs alone were insufficient. In online education, where engagement heavily relies on the interactivity and quality of resources, static content fails to meet the needs of learners who thrive on hands-on, interactive experiences (Mayer, 2021; Martin & Bolliger, 2018). Research in online learning environments has consistently shown that multimedia-rich content, which includes interactive elements like videos, quizzes, and digital simulations, can enhance motivation, engagement, and learning outcomes, particularly for adult learners (Wang & Luo, 2022; Gonzalez & St. Louis, 2021). By transitioning from static slides to more dynamic resources, such as video explanations, interactive grammar drills, and structured quizzes, online grammar courses could better align with best digital pedagogy practices, ultimately improving engagement and proficiency.

These findings suggest several practical steps for improving online English grammar instruction. First, there is a clear need to develop a structured guidebook designed specifically for online learners, providing a roadmap of grammar rules, practical examples, and guided exercises that support self-directed study. Such a guidebook would be an essential reference, helping students navigate challenging grammar concepts independently. In addition to a guidebook, digital summaries and review sections at the end of each module would help students consolidate their understanding, addressing a need expressed by 86.11% of respondents who highlighted the value of chapter-end summaries. Second, integrating interactive resources like grammar quizzes with instant feedback could help address specific proficiency gaps and support continuous learning. Research on digital learning has shown that tools providing immediate feedback foster greater accuracy in language production and help students correct errors more effectively than traditional methods (Gikandi et al., 2019; Sung & Huang, 2022). Lastly, implementing standardised materials across all batches would ensure a more consistent learning experience, helping tutors deliver cohesive instruction while allowing flexibility to meet the varied needs of younger and older learners.

The findings of this study emphasise the necessity of creating tailored, interactive resources to support online English grammar education effectively. Addressing the expressed need for structured guidebooks, interactive exercises, and standardised materials could help online programs support students in building grammar proficiency and developing skills for independent study. Recognising the specific challenges of online learning—such as the lack of face-to-face guidance and the diversity of learners—online language courses must evolve to

incorporate digital resources that foster engagement, meet diverse learning needs, and enhance overall learning outcomes. By implementing these improvements, online English grammar courses can provide a more robust, learner-centered educational experience that improves proficiency and prepares students for practical language use in real-world settings. This approach aligns with current digital learning trends, emphasising adaptability, interaction, and inclusivity as key to effective education in the digital age (Sun et al., 2021; Liu et al., 2021).

CONCLUSION

This study underscores the urgent need for tailored, interactive resources to address the challenges of online English grammar courses and improve both student engagement and proficiency. The findings highlight significant gaps in the current materials, with students expressing a solid demand for structured guidebooks, interactive exercises, and comprehensive summaries to facilitate independent study. The absence of standardised instructional resources exacerbates teaching approach inconsistencies, hindering tutors' ability to deliver cohesive lessons and students' capacity to achieve consistent learning outcomes. Proficiency test results further reveal foundational weaknesses in grammar, underscoring the importance of dynamic, practice-oriented tools such as digital quizzes and immediate feedback mechanisms. By adopting standardised yet flexible curricula incorporating multimedia-rich and interactive content, online grammar courses can better align with the diverse needs of learners, fostering more profound engagement, enhancing comprehension, and bridging the gap between theoretical knowledge and practical language use. These findings contribute to a better understanding of effective online language instruction and offer actionable strategies for creating learner-centred programs that prepare students to meet the demands of global communication and real-world application in a rapidly evolving digital landscape.

ACKNOWLEDGMENT

I am deeply grateful to my alma mater, Universitas Sebelas Maret Surakarta, and the Indonesia Endowment Fund for Education (LPDP) for their sponsorship and support, which made this research possible. I also sincerely thank "Scholars" Surakarta for the opportunity to conduct this study. I extend special appreciation to my advisors, whose guidance, feedback, and encouragement were essential in shaping this work. Their mentorship has been invaluable, and I am genuinely thankful for their support throughout this journey.

REFERENCES

- Alobaid, A. (2021). The potential of multimedia platforms in language education: A case study on Duolingo. *Language Learning in Practice*, 14(2), 45–58.
- Al-Seghayer, K. (2017). The impact of technology-enhanced language learning on EFL reading comprehension: A meta-analysis. *Journal of Educational Technology Development and Exchange*, 10(1), 27–40.
- Azhary, L., & Ratmanida, R. (2021). The Implementation of 21st century skills (communication, collaboration, creativity and critical thinking) in English lesson plan at MTsN 6 Agam. *Journal of English Language Teaching*, 10(4), 608-623. <https://doi.org/10.24036/jelt.v10i4.114944>

- Baleghizadeh, S., & Ashoori, A. (2017). The relationship between teacher feedback and grammar acquisition. *Iranian Journal of Language Teaching Research*, 5(1), 105-120.
- Bilyalova, A. (2017). ICT in teaching a foreign language in high school. *Procedia - Social and Behavioral Sciences*, 237, 175-181. <https://doi.org/10.1016/j.sbspro.2017.02.065>
- Blake, R. J. (2021). *Technology and the language classroom*. Routledge.
- Boone, H. N., & Boone, D. A. (2012). Analyzing Likert data. *Journal of Extension*, 50(2), 1-5.
- Brown, J. D. (2016). *Introducing needs analysis and English for specific purposes*. Routledge.
- Bryman, A. (2016). *Social research methods* (5th ed.). Oxford University Press.
- Burbules, N. C., Fan, G., & Repp, P. (2020). Digital transformation in education: The challenges and opportunities of online learning. *Educational Philosophy and Theory*, 52(2), 1-12. <https://doi.org/10.1080/00131857.2020.1793330>
- Chen, Y., & Carliner, S. (2020). Interactive design in online learning: Bridging engagement gaps. *Journal of Online Learning*, 5(3), 13-28.
- Choi, J., & Lee, J. (2020). The role of English in globalized communication. *World Englishes*, 39(1), 50-63. <https://doi.org/10.1111/weng.12345>
- Cohen, L., Manion, L., & Morrison, K. (2018). *Research methods in education* (8th ed.). Routledge.
- Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). Sage.
- Crystal, D. (2012). *English as a global language* (2nd ed.). Cambridge University Press.
- Dörnyei, Z. (2018). *Research methods in applied linguistics*. Oxford University Press.
- Field, A. (2018). *Discovering statistics using IBM SPSS statistics* (5th ed.). Sage.
- Fink, A. (2020). *Conducting research literature reviews: From the Internet to paper* (5th ed.). Sage.
- Fowler Jr, F. J. (2013). *Survey research methods*. Sage publications.
- Fraenkel, J. R., & Wallen, N. E. (2019). *How to design and evaluate research in education* (10th ed.). McGraw Hill.
- Gacs, A., Goertler, S., & Spasova, S. (2020). Effective practices in online language teaching: Pre-pandemic and beyond. *Foreign Language Annals*, 53(1), 380-392. <https://doi.org/10.1111/flan.12448>
- Gikandi, J. W. (2021). Enhancing E-learning through integration of online formative assessment and teaching presence. *International Journal of Online Pedagogy and Course Design (IJOPCD)*, 11(2), 48-61. <https://doi.org/10.4018/IJOPCD.2021040104>
- Gonzalez, C., & St. Louis, R. (2021). Interactive learning through multimedia in ESL contexts. *TESL-EJ*, 25(2), 1-15.
- Handayani, N. (2022). Digital literacy in Indonesia's language classrooms. *Language Education in Asia*, 13(2), 101-117.
- Harmer, J. (2015). *The practice of English language teaching* (5th ed.). Pearson.
- Hwang, G.-J., Lai, C.-L., & Wang, S.-Y. (2022). Seamless flipped learning: Exploring its effectiveness in enhancing language skills. *Interactive Learning Environments*, 30(1), 45-64. <https://doi.org/10.1080/10494820.2021.1907832>
- Hyatt, J. C., & Newman, S. L. (2020). Should a good risk manager worry about cost and price transparency in health care?. *AMA Journal of Ethics*, 22(11), 924-932. <https://doi.org/10.1001/amajethics.2020.924>

- Johnson, S. D., & Aragon, S. R. (2003). An instructional framework for online learning environments. *New Directions for Adult and Continuing Education*, 100, 31-43. <https://doi.org/10.1002/ace.117>
- Kaur, P., Zafar, F., & Baig, F. (2023). Leveraging digital tools for language learning: Insights from online platforms. *Journal of Digital Language Learning*, 9(1), 75-95.
- Kaur, U., Chutani, N., & Handa, P. (2023). E-learning for Undergraduate Students Amid The Pandemic: Teachers' Perspective. *Journal of Engineering Education Transformations*, 37(2). <https://doi.org/10.16920/jeet/2023/v37i2/23153>
- Kim, S. (2020). Online English grammar instruction: Challenges and solutions. *Journal of Language Teaching and Research*, 11(3), 471-481. <https://doi.org/10.17507/jltr.1103.02>
- Knowles, M. S., Holton, E. F., & Swanson, R. A. (2020). *The adult learner: The definitive classic in adult education and human resource development* (9th ed.). Routledge.
- Kohnke, L. (2023). A pedagogical chatbot: A supplemental language learning tool. *Relc Journal*, 54(3), 828-838. <https://doi.org/10.1177/00336882211067054>
- Larson-Hall, J. (2021). Discussion paper: using statistics to solve practical vocabulary problems. *Vocabulary learning and instruction*, 101.
- Liu, C., Sands-Meyer, S., & Audran, J. (2019). The effectiveness of gamification in language learning apps. *Educational Technology Research and Development*, 67(4), 1-23. <https://doi.org/10.1007/s11423-018-9604-7>
- Luo, H. (2021). The role of technology in improving grammar proficiency. *Language Education Journal*, 13(1), 89-102.
- Martin, F., & Bolliger, D. U. (2018). Engagement matters: Student perceptions on the importance of engagement strategies in the online learning environment. *Online Learning Journal*, 22(1), 205-222. <https://doi.org/10.24059/olj.v22i1.1092>
- Mayer, R. E. (2017). *Multimedia learning* (3rd ed.). Cambridge University Press.
- Means, B., Bakia, M., & Murphy, R. (2020). *Learning online: What research tells us about whether, when, and how*. Routledge.
- Means, B., Toyama, Y., Murphy, R., & Baki, M. (2013). The effectiveness of online and blended learning: A meta-analysis of the empirical literature. *Teachers college record*, 115(3), 1-47. <https://doi.org/10.1177/016146811311500307>
- Merriam, S. B., & Baumgartner, L. M. (2020). *Learning in adulthood: A comprehensive guide*. Wiley.
- Moos, D. C., & Marroquin, E. (2010). Multimedia, hypermedia, and hypertext: Motivation considered and reconsidered. *Computers in Human Behavior*, 26(3), 265-276. <https://doi.org/10.1016/j.chb.2009.11.004>
- Nation, I. S. P., & Macalister, J. (2020). *Language curriculum design* (2nd ed.). Routledge.
- Pajarwati, D., Sudarsono, & Hamka, H. (2021). Challenges in teaching English as a foreign language in Indonesia. *Indonesian Journal of Language Teaching*, 15(3), 123-134.
- Reiser, R. A., & Dempsey, J. V. (2017). *Trends and issues in instructional design and technology* (4th ed.). Pearson.
- Richards, J. C. (2017). *Curriculum development in language teaching* (2nd ed.). Cambridge University Press.
- Roemintoyo, T., & Budiarto, M. (2021). The role of EdTech in enhancing EFL learning in Indonesia. *Technology in Language Education*, 14(2), 101-120.

- Sadeghi, M. (2019). A shift from traditional classrooms to online learning in higher education. *Education and Information Technologies*, 24(3), 1-15. <https://doi.org/10.1007/s10639-018-9765-5>
- Sun, J. C., Xie, H., & Anderman, E. (2021). Enhancing engagement through digital tools in online learning environments. *Educational Researcher*, 50(1), 12-23. <https://doi.org/10.3102/0013189X20964471>
- Sung, J. S., & Huang, W. D. (2022). Motivational design for inclusive digital learning innovation: A systematic literature review. *The Journal of Applied Instructional Design*, 11(2), 1-12. <https://doi.org/10.59668/377.8287>
- Wang, S., & Luo, W. (2022). Designing effective interactive grammar learning modules for online education. *Interactive Learning Environments*, 30(2), 100-120. <https://doi.org/10.1080/10494820.2021.1942931>
- Widodo, J., & Musyarofah, L. (2020). Measuring EFL proficiency using TOEP. *Indonesian Journal of Applied Linguistics*, 9(4), 150-164.
- Zhou, N. R., Hou, W. M. X., Wen, R. H., & Zou, W. P. (2018). Imperceptible digital watermarking scheme in multiple transform domains. *Multimedia Tools and Applications*, 77, 30251-30267. <https://doi.org/10.1007/s11042-018-6128-9>