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## Research Article

# DEVELOPMENT OF THE METHODS OF CREATING LANGUAGE EXAM QUESTIONS USING ARTIFICIAL INTELLIGENCE: A CASE STUDY

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## ABSTRACT

This paper explores the application of artificial intelligence (AI) in generating classroom foreign language tests, aiming to identify the challenges and opportunities encountered during item creation. Employing a case study, a qualitative research method, this study used data from a single subject to investigate the process of generating classroom assessment items using an AI system in a real-world setting. The findings highlighted several opportunities and challenges faced by the participant when utilizing AI. Analysis of the feedback revealed three major benefits of using AI: practicality, customization, and efficiency. Conversely, four significant challenges were identified: readability, validity, insufficient data for other languages, and issues of ownership.

## KEYWORDS

Artificial intelligence, assessment, exam questions, foreign language teaching and readability.



## INTRODUCTION

Assessment is a crucial element in the educational and business sectors' training and selection systems. It provides valuable feedback to both teachers and students regarding the effectiveness of language instruction, identifies areas of difficulty, and informs decisions about student placement in various language courses (Ferrara et al., 2017; Freddi, 2021). Additionally, it plays a vital role in the development and refinement of language curricula. In the context of additional or foreign language assessment, it helps teachers gauge their learners' current language proficiency and pinpoint areas needing further instruction, thereby identifying students' strengths and weaknesses (Brown & Abeywickrama, 2010; Purpura, 2016). This process offers teachers crucial insights into which language skills their students have mastered and which areas require more focus to improve their language abilities. Despite the critical information provided by language assessments, teachers often spend considerable time creating assessment items aligned with the syllabus and content prescribed by their institutions or their country's Ministry of Education. These items, which might include multiple-choice questions, reading comprehension tasks, or spoken language activities (Hughes & Hughes, 2020), are labor-intensive to develop. This involves analyzing the current and target needs of learners to ensure the most accurate and efficient evaluation of student language proficiency. Nonetheless, the time and effort invested by teachers in this process are seen as essential for accurately assessing and

supporting teaching and learning, ultimately contributing to the future success of their learners.

In my view, the integration of AI in educational assessment represents a groundbreaking advancement that has the potential to revolutionize the way we evaluate and enhance learning. While the benefits such as increased efficiency, customization, and practicality are substantial, it is crucial to address the challenges head-on to maximize the positive impact of AI. Issues like readability, validity, data availability for diverse languages, and ownership must be thoroughly researched and managed. By doing so, we can harness the full potential of AI in education, ensuring that it not only supports teachers and students but also fosters a more adaptive and inclusive learning environment.

## LITERATURE REVIEW

Artificial Intelligence - 'Artificial Intelligence' is described as the "science and engineering of making intelligent machines, especially intelligent computer programs" (McCarthy et al., 2006: 2). AI refers to machine intelligence capable of performing human-like tasks and activities (Eaton et al., 2021). Essentially, AI is a platform designed to think, reason, and act similarly or even superior to humans. Recent technological advancements have introduced a wide range of applications in the education sector, from task design to automated assessment (Gardner et al.,

2021; Gonzalez-Calatayud et al., 2021; Levy & Stockwell, 2006; Stephenson & Harvey, 2022). Students, teachers, and researchers are increasingly using technological tools to enhance writing, such as writing assistants (e.g., Grammarly), paraphrasing tools (e.g., QuillBot), research assistants (e.g., Elicit), and reference and citation checkers (e.g., Reciteworks) (Godwin-Jones, 2022; Zhang & Zou, 2022). Beyond these applications, AI is also employed in automated essay scoring systems and adaptive tests, which adjust the number and order of questions based on the test-taker's responses—two key applications of AI in educational assessment (Gardner et al., 2021). Furthermore, AI can aid learners and teachers by personalizing instruction, helping students master content more quickly and effectively (Baker et al., 2019). The potential of modern technology in education is vast, and it will continue to profoundly influence how we learn and teach (Kilickaya & Kic-Drgas, 2023).

### Language Test Creation using AI

AI can generate automated items without human intervention, producing a wide range of content, including blog posts, writing summaries, and feedback, which has increased the use of AI in language teaching and learning (UNESCO, 2021; Yanhua, 2020). This technology enables teachers to perform more advanced tasks such as automated grading of essays and oral proficiency assessments in writing and speaking classes (Borade & Netak, 2021; Kessler, 2023; Langenfeld et al., 2022; Yu et al., 2022; Yunjiu et al., 2022). AI technology extends beyond intelligent language

tutoring and feedback provision to facilitate interactions between learners and computers in both text and spoken forms. From my point of view, the integration of AI into language teaching and assessment offers tremendous potential to transform educational practices. The automation of item creation and assessment tasks not only enhances efficiency but also allows educators to focus more on personalized instruction and meaningful interactions with students. While there are challenges to address, such as ensuring the accuracy and fairness of AI-generated assessments, the benefits far outweigh the drawbacks. Embracing AI in education can lead to more effective teaching methods and a deeper understanding of language use and learning patterns. As we continue to refine these technologies, their role in education will undoubtedly become even more pivotal, offering unprecedented opportunities for both teachers and learners.

### METHODOLOGY

Research design - The current study is a case study, a qualitative research method involving an in-depth, detailed examination of a specific instance or phenomenon within its real-life context. This approach aims to investigate a problem "in situ," within its natural environment, the language classroom (Creswell, 2007). The study has an ethnographic character (Jones & Smith, 2017), utilizing observation as a key tool. The research aimed to provide a comprehensive analysis of an individual's experience, feelings, and perceptions to explore, analyze, and explain





complex social phenomena. Case studies allow researchers to gain a thorough understanding of a single person, group, or event by collecting and analyzing data from multiple sources. A crucial aspect of the study design was the meticulous analysis of collected data and the researcher's active involvement in group activities during the research (Dumont, 2023). By examining a single case in detail, researchers can uncover patterns, trends, and insights that may be applicable to other cases and contexts (Griffie, 2012; Mackey & Gass, 2022). In this study, the methodology used is both vital and innovative, as it allows for tracing a new phenomenon from the teacher's perspective, focusing on the authentic use of AI in education.

### Data Collection and Analysis

Data were gathered through a journal maintained by the author while creating exam questions for the course. The journal included the following questions: a) What are the learning objectives of this course, and how can AI be utilized to create questions that align with these objectives? b) How did the use of AI allow you to tailor your assessment items to the specific needs of your course and curriculum? c) What opportunities or benefits did you encounter using AI to create the questions? d) What are the potential limitations or challenges of using AI for creating assessment questions, and how can these be mitigated or addressed? e) Any other comments or suggestions?

The participant began documenting responses to these questions in the journal two weeks before

each assessment period, including the midterm and final exams. The content analysis method was applied to analyze the data collected from the journal (Coffey & Atkinson, 1996). The researcher's responses were coded and categorized based on the journal questions. A total of 78 entries, comprising 4,006 words, were analyzed over a four-week period. These categories were then examined to identify any patterns or trends. The analysis results were subsequently used to draw conclusions and make recommendations.

### CONCLUSION

Language assessment plays a crucial role in helping teachers and learners evaluate educational practices, identify areas of difficulty, and tailor instruction to meet individual learner needs. This study aimed to explore the challenges and opportunities associated with using AI to create language assessment questions. Conducted as a case study with a single participant, the research delved into their experiences and perceptions. The findings highlighted several benefits of using AI, such as practicality, customization, and efficiency in generating assessment questions. However, challenges such as readability, validity, lack of data for other languages, and issues of ownership were also identified. Despite the advantages, human intervention remains necessary to ensure the validity and quality of AI-generated questions.

Limitations of the Study and Suggestions for Further Research



This study's scope was limited by its single-case design, which restricts the generalizability of its findings. Additionally, the potential for researcher bias exists, as the researcher's opinions and perspectives could have influenced the study. The data was confined to the participant's contributions and available journals, which may not provide a comprehensive view. The time frame of the research may have also limited its ability to capture the complex dynamics involved in using AI to prepare questions, including pre-reading questions and possible answers (Attali et al., 2022; Henrickson, 2021; Killawala et al., 2018; Taylor, 2022). As AI-generated content becomes more prevalent, from music to artwork, significant legal questions about intellectual property rights arise. Future research should investigate the ownership and copyright protection (Zurth, 2021) of AI-generated assessment questions. Additionally, exploring how teacher revisions to AI-produced questions affect ownership and other issues, such as equity (Stephenson & Harvey, 2022) and AI-based cheating (Fyfe, 2022), will be crucial. Further studies could also examine the productive, disruptive, or destructive roles AI might play in the field of education.

## REFERENCES

1. Darvishi, A., Khosravi, H., Sadiq, S., & Gasevic, D. (2022). Incorporating AI and Learning Analytics to Build Trustworthy Peer Assessment Systems. *British Journal of Educational Technology*, 53 (4), 844-875. <https://doi.org/10.1111/bjet.13233>
2. Dumont, G. (2023). Immersion in Organizational Ethnography: Four Methodological Requirements to Immerse Oneself in the Field. *Organizational Research Methods*, 26 (3), 441-458. <https://doi.org/10.1177/10944281221075365>
3. Eaton, S. E., Mindzak, M., & Morrison, R. (2021, May 29 - June 3). Artificial Intelligence, Algorithmic Writing & Educational Ethics [Paper Presentation]. Canadian Society for the Study of Education Societe canadienne pour l'etude de l'education, Edmonton, AB, Canada. <http://hdl.handle.net/1880/113569>
4. Ferrara, S., Lai, E., Reilly, A., & Nichols, P. D. (2017). Principled Approaches to Assessment Design, Development, and Implementation in A. A. Rupp & J. P. Leighton (Eds.), *The Handbook of Cognition and Assessment: Frameworks, Methodologies, and Applications*. 41-72. Hoboken: Wiley and Sons. <https://doi.org/10.1002/9781118956588.ch3>
4. Freddi, M. (2021). Reflection on Digital Language Teaching, Learning, and Assessment in Times of Crisis: A View from Italy. In N. Radic, A. Atabekova, M. Freddi & J. Schmied (Eds.), *The World Universities' Response to COVID-19: Remote Online Language Teaching*, 279-293. Research-publishing.net. <https://doi.org/10.1017/rpnet.2021.52.1278>
5. Fyfe, P. (2022). How to Cheat on Your Final Paper: Assigning AI for Student Writing. *AI &*



- Society. <https://doi.org/10.1007/s00146-022-01397-z>
6. Garcia-Penalvo, F. J., Corell, A., Abella-Garcia, V., & Grande-de-Prado, M. (2021). Recommendations for Mandatory Online Assessment in Higher Education During the COVID-19 Pandemic. In D. Burgos, A. Tlili, & A. Tabacco (Eds.), *Radical Solutions for Education in a Crisis Context: COVID-19 as an Opportunity for Global Learning* (pp. 85-98). Berlin: Springer. [https://doi.org/10.1007/978-981-15-7864-3\\_7](https://doi.org/10.1007/978-981-15-7864-3_7)
  7. Gardner, J., O'Leary, M., & Yuan, L. (2021). Artificial intelligence in educational assessment: "Breakthrough? or buncombe and ballyhoo?" *Journal of Computer Assisted Learning*, 37(5), 1207-1216. <https://doi.org/10.1111/jcal.12577>
  8. Griffee, D. T. (2012). An introduction to second language research methods: Design and data. Dale T. Griffee. TESL-EJ Publications. [http://www.tesl-ej.org/pdf/ej60/sl\\_research\\_methods.pdf](http://www.tesl-ej.org/pdf/ej60/sl_research_methods.pdf)
  9. Godwin-Jones, R. (2022). Partnering with AI: Intelligent Writing Assistance and Instructed Language Learning. *Language Learning & Technology*, 26(2), 5-24. <http://doi.org/10.125/73474>
  10. Mackey, A., & Gass, S. M. (2022). *Second Language Research: Methodology and Design* (3rd ed.). Oxfordshire: Routledge. ISBN 9781032036632