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The Role of Machine Translation in Translation Education: An Evaluative Study of Artificial Intelligence Tools

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دور الترجمة الآلية في تعليم الترجمة: دراسة تقييمية لأدوات الذكاء الاصطناعي

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Abstract
It is important to note that the current study aims to find out how machine translation tools that use artificial intelligence (AI) characteristics affect the rendering of samples during training. Theoretically, this work introduces ideas like machine translation (henceforth MT), machine translation education, and artificial intelligence from the perspectives of Yuxuan (2025), Kruk, K."u."na (2024), Bahdanau et al. (2016), Chiu et al. (2023), and Fengqi. Besides, it is required to evaluate the applicability of the chosen machine translation tools that use AI components with those of machine translation tools that do not. The study's analysis focuses on the rendering project. Additionally, students are interviewed to find out how they feel about AI and machine translation instruments used in their rendering instruction. The study's findings are reached after the results are examined qualitatively.**Keywords:** (MT, AI, Translation Training, Translation Education)

الملخص

تهدف الدراسة الحالية إلى استقصاء أثر أدوات الترجمة الآلية المعتمدة على تقنيات الذكاء الاصطناعي في تدريب الطلبة على الترجمة. ويتناول الإطار النظري عرضًا لمفاهيم الترجمة الآلية، والذكاء الاصطناعي، وتعليم الترجمة الآلية، وذلك استنادًا إلى دراسات فنغ تشي ويوي شوان (٢٠٢٥)، وكروك وكالوجنا (٢٠٢٤)، وتشيو وآخرين (٢٠٢٣)، وبهداناو وآخرين (٢٠١٦).ويرتكز التحليل على مشروع ترجمي طُلب فيه من الطلبة مقارنة مدى قابلية توظيف أدوات الترجمة الآلية المختارة القائمة على الذكاء الاصطناعي مع أدوات الترجمة الآلية التي لا تعتمد على هذه التقنيات. كما جرى تحليل مقابلات الطلبة للوقوف على آرائهم بشأن استخدام أدوات الترجمة الآلية المدعومة بالذكاء الاصطناعي في تدريبهم على الترجمة. وقد خضعت النتائج لتحليل نوعي على حد سواء. وفي ضوء ذلك، تم استخلاص جملة من الاستنتاجات.

الكلمات المفتاحية: (الذكاء الاصطناعي، الترجمة الآلية، تدريب الترجمة، تعليم الترجمة.)

1. Introduction

It is crucial to note that translators work in a world that is evolving quickly, and MT and AI are crucial to this process. The conditions of perpetual change have the capacity to create challenges that did not previously exist. To help aspiring translators find their place in the cutthroat job market, new approaches to education are needed. In addition to their language proficiency, translators are now expected to have IT knowledge as well as proofreading and post-editing abilities. What is the best way to teach this common skill? This investigation's goal is to ascertain the answers to the aforementioned questions. According to the work of Chiu -et al. (2023), Bahdanau et- al,. (2016), Fengqi, Yuxuan (2025), and Kruk, K."u."na (2024), the current study theoretically discusses AI and MT as well as the teaching of machine translation.The precise analysis of the current study relies on the translation project in which students are requested to compare the applicability of the selected machine translation instruments employing AI with those Machine Translation instruments that are not suitable

with AI. Similarly, interviews of the subjects of the study are subjected to examinations according to their beliefs about AI and the above-mentioned instruments in the samples' rendering training. The results of the study are investigated qualitatively.

The aim of the study

The current study aims to investigate the effect that tools of machine translation utilising the components of AI have on the samples' translation training. Therefore, the aim of the current study is given below:

1. To assess how well the chosen AI-powered machine translation technologies work in comparison to those that are not.
2. To investigate students' perspectives on AI and technologies of MT in their rendering training

The problem of the study

The problem of the current study is concentrated on the tasks of rendering without analysing the distinct language skillfulness. Additionally, the current study discussed briefly the samples' enthusiastic view of the AI generation, which should also be looked into to discover suitable solutions that could help students' rendering enhancement and help them grasp both their emotions positively and negatively.

2. Literature review

This subsection has to do with definitions concerning MT and the usage of AI in the aspect of education and teaching of translation.

2.1 The Concept of AI

AI is indicated that "technology that helps computers and machines to mimic human learning, cognition, problem decision making, solving, autonomy and creativity " (www.ibm.com). As a result, artificial intelligence (AI) is concerned with computer methods that can carry out activities that are completed by humans and innovative entities (Chiu et.al., 2022). As a result, the idea of AI should resemble human thought processes and take precedence over computer-generated answers. AI is seen as a necessary component of human existence and has developed so organically that it is hard to imagine living without it. Translation, language instruction, language acquisition, education, and many other fields can benefit from its application. Technology has a significant impact on rendering, as evidenced by machine translation tools that are accessible online and their lengthy history (Hutchins 2006)It is crucial to remember that the purpose of machine translation (MT) was to translate terms from ST into TT literally (Moorkens et. al., 2018). A translator's follow-up human assistance was necessary for such a rendition. Because MT translates text automatically according to software of computer (Rothwell et .al. 2023), human interaction is restricted to the post-editing of the rendered text produced by the machine instruments. The possibilities with the Computer-Assisted Translation (hensforth CAT) are diverse as it enables translators in the process of rendering by offering them functionalities such as glossary or memory of translation, or period-based (Rothwell et. al. 2023, p. 11). This can be purposeful for the cultural, linguistic, and terminological choices translators must make. Similarly, the emergence of Neural Machine Translation (henceforth NMT), which replaces conventional MT with its sophisticated, statistical AI rendering that relies on neural networks, illuminates the field of translation (Forcada, 2017). This transition has compelled a move toward MT (Bouras 2024) and studying and teaching English (Klimova et. al., 2023)Accordingly, the appearance of NMT performs as this example"building and training a single, large neural network that reads a sentence and outputs a [relevant] translation" (Bahdanau et .al. 2015, p 1). Therefore, the appearance of NMT is capable of managing sentences, larger fragments of text can be a thorny area for it.

2.1. AI and MT in the Aspect of Education

Education is one field where MT and AI are advancing quickly. AI can improve the learning process (Yang et. al. 2021), and learners of language might profit from modern technology that can help individuals become more proficient in the language by giving them instantaneous feedback and readily available tools (An et al. 2023). According to Chhetri et al. (2024), one of the advantages of AI is that it provides students with training that is customised to their circumstances, making the learning process more appealing and engaging. Such a process is an immediate response to the anticipations of the current young age born with technology that is available for the integration and invention of AI with information technology (IT) (Odacioglu et al. 2024). It appears that the effect of MT and AI-assisted instruments on instruction, language acquisition, and rendering could not be overlooked (Ohashi,. 2024). The application of AI in the field of education has gained traction (Martin et. al. 2023)AI has the potential to be used in educational settings. Comparisons between MT and humans, as well as analyses of digital feedback vs students' professions, might be used in relation to language learning and instruction (Chiu et. .al. 2023). AI is useful for improving and honing pronunciation and talking abilities (Liu & Hung, 2016). AI helped pupils refine their intonation and pitch, which was useful for accurately pronouncing

sounds. This is a reasonable substitute for conventional teaching techniques, especially when it comes to challenges with correct pronunciation.Students can practice speaking and pronunciation abilities using interactive solutions (Fang,. 2025, p. 38), which presents learning more inspiring and interesting. This is said to be the reason why AI may help teachers by giving them more adaptable tools that they could use on a daily basis in the classroom. Advantages of AI-equipped machine translation tools, including ChatGPT, are reported to enhance writing, reading, and speaking skills. Song and Song (2023) note that it is useful for students who are employing ChatGPT to improve their writing abilities. Previous studies by Pawlicka et al. (2024), Hitsuwari et al. (2023), and Herbold et al. (2023) also found that using AI-guided prompting improved writing abilities. Correction in the aspect of writing (Sun,. Liu,. Moratto,. 2025, p. 101) and translation (Kruk, .Kałużna, .2024; Fang, .2025; Chen, .2025) might be made easier by such an AI technique.Students who used Grammarly to improve their grammatical accuracy also valued real-time feedback. According to Dizon and Gayed (2021), students who utilised the Grammarly app produced more grammatical errors than those who did not. Learning from our own mistakes is more enjoyable when we have an AI helper that can quickly fix students' linguistic blunders. Similar advantages were noted by students who expanded their vocabulary using neural network translation technologies. It was discovered that students who use neural machine translation systems employed more complicated terminology in their appointments (Lo 2023).The instrument that shows word equivalents and gives learners immediate feedback makes learning new phrases seem more accessible. The rendering and instructional translation processes have also shown the value of AI. AI-assisted rendering is quicker and effective. Naturalness and fluidity can be enhanced with NMT tools (Kruk, Kałuňna, 2024) Additionally, AI is stated to increase uniformity and accuracy in the translation process. (Fang, 2025, p. 37) Even aspects of the rendering process's efficiency and quality show how AI improves translation (Sun, Liu, Moratto, 2025, p. 4). Thus, the necessity of integrating AI-assisted translation into Translation Education (Chen 2025; Jiang 2025) appears to be clarified. Despite the aforementioned advantages, it is impossible to overlook the fact that translations produced with AI might contain specific translational errors. Among the shortcomings are cultural mistranslation, semantic distortion, and context loss (Doshi 2024, p. 2). Barad (2024), who highlighted the issue of culture and context in AI-assisted approximations, expressed a similar viewpoint. Separate from cultural issues, specialised vocabulary is another aspect of translation that AI may struggle with (Boluwatife, Oni, 2025), especially at a suitably increased level of discipline. Even though AI has two aspects to the translation process, positively and negatively, it is considered a tool that may increase the efficiency of human translators (Dusmamatovna, Razakova, 2025, p. 23), suggesting that AI's benefits exceed its drawbacks. However, there is a chance that students will grow accustomed to the AI-recommended solutions, which could result in an over-reliance on AI (Fang 2025, p. 39) and the development of complacency and laziness among students because it is unnecessary to use creativity to find a suitable answer if the machine can do it for us. Given how quickly technology is developing, it seems inevitable that schooling and students' educational requirements will evolve. The only way we can keep up with the rapid advancement of technology is to figure out how to make the most of it. Whether we choose them or not, the changes take place in the classroom. Despite visual technical problems in education and teachers' lack of digital literacy (Jiang 2025), the process has already started and will continue in the years to come. Aside from human translation proficiency, post-editing and machine translation should be prioritised in the education of translation (Sun, Liu, Moratto, 2025, p. 9). Regarding the aforementioned characteristics, there are considered ethical issues (Boluwatife, Oni, 2025) that ought to be controlled by legislation but aren't being addressed at the moment.

The practical framework

3.1 Data collection

This study is qualitative; ten undergraduate students from the University of Tikrit / College of Arts, majoring in Translation Field, who studied Translation, took part in this study. The study's samples ranged in age from 20 to 22. There are 9 female pupils and 11 male subjects in the group. For suggestions on how to enhance their human rendering, the selected subjects were questioned to examine two Neural Machine Translation (henceforth NMT) instruments (Deeple and ChatGPT) and two MT instruments (online dictionaries).

3.2 Research questions

The purpose of this study is to examine the applicability in terms of its usefulness or application in teaching students to translate, as well as to look at how machine translation tools that use neural networks affect students' translation assignments. To achieve the aforementioned objective, the following research topics were proposed:

1. How can AI and MT help students learn to translate?
2. How useful are MT tools that use AI compared to rendering tools that don't include neural networks?

3.4 Data analysis

The present study's results are qualitatively analysed. The students' questionnaire responses were analysed using a qualitative technique in order to satisfy the statistical inquiry. The methodology employed an inductive approach, directly utilising the data to create themes and sub-themes that represented the most often provided responses by students. The topics covered included the function of AI-based tools in translators' jobs, the advantages and disadvantages of NMT tools, and the emotions related to their use.

3.5. Qualitative results

3.5.1 AI-based Technologies' Function in Translators' Jobs

This section provides information about how students use AI-based tools in their translation work. In a similar vein, it presents the viewpoint of the instructor by suggesting ways to fulfil the demands of the classroom. It focuses on the benefits and risks of using these tools for teaching and learning translation. In particular, students learn how helpful the NMT tools are for fixing punctuation, word searches, and grammatical errors.

Such support is helpful in an effort to create clear and cohesive translation, which is still a struggle for translators despite the use of sophisticated technology tools. Students are proud to contribute to the service's technological advancements and are aware of the alternatives the NMT instruments give for language development and rendering. The following is a summary of the chosen students' ideas:

No.(1)

Opinions of three students :

"Using AI and machine translation tools is today's privilege"

Opinions of three students :

"These tools are a large library in which we can find what we need most, if we can gather our thoughts and create a question to which we need an answer ."

Opinions of two students :

"These tools can be a valuable addition to translation education when combined with traditional methods ."

Opinions of two students :

"They could be helpful in a teaching process, but the direct relationship between a teacher and student is more important ."

Discussion:

Students give answers that may be provided in the translation classroom as part of the university curriculum in their remarks about the use of AI-based tools. Calculating the translation generated by the AI-based instruments with that of their human partners. This kind of method promotes analytical quality evaluation of the translations based on real cases and allows for critical thinking.

No.(2)

It is worth noting that due to the AI-based tools being readily available, students turn to them rather than exerting initiative to find their own answers. This saves time and effort, but they are rejected as unoriginal and unimaginative. Because the machine's ready-made, instantaneous rendering makes them appear shiftless, pupils view such an item as a danger. As a consequence, they are unable to identify errors in such translation because they take for given everything the computer has stored. Their demands also revolve around the translator's dubious job prospects. The following represents the views of the chosen students on this matter:

Opinions of four students :

"These tools can still make some mistakes, for example, change the context or the meaning of the sentence".

Opinions of six students :

"AI-generated translations make all the work sound the same; it can influence the translation industry and take jobs away from humans, in a negative way and take people's jobs ."

3.5.2 Disadvantages and Advantages of NMT Instruments

This feature outlines the learning and teaching process of translation. Concerning the advantages, even though they understand how crucial post-editing is to getting the finest translation, they portray the AI-generated translations as economical, reducing the need for a human translator's assistance.

To explain the above-mentioned perspectives, the chosen students' opinions are presented as follows:

Opinions of three students :

"AI-based tools can translate large volumes of text in a second."

Opinions of two students :

"NMT tools automatically raise the quality of average translations ."

Opinions of five students :

"One of the biggest advantages of AI is that the result is obtained immediately."

Students point out that if the entire task is certified to AI, there is no need for a human translator while enumerating the disadvantages of NMT technologies. Students argue that this kind of spectacle would discourage them from improving their own translation abilities, which could hinder and delay the process of self-improvement for future translators and undermine their confidence. Among other things, students complain that AI-generated translation does all the placement for them, leaving little room for their own human input. This makes it difficult for them to find answers and demotivates them throughout the process. The outcome is that they evolve into lazy and over-reliant on technology, which, over time, may become addicted. Some of the students' opinions are shown below to verify the information:

Opinions of three students :

"NMT tools can change the translations in a way that what we get is a completely different text ."

Opinions of four students :

"Over-reliance on AI can lead to skill erosion, and blind trust in AI can lead to awkward translations ."

Opinions of three students :

"Not only might translators have more problems with finding a job , but also various texts might lose quality ."

Conclusions

To sum up, this study sought to determine the relevance of the NMT instruments in comparison to the conventional MT instruments, as well as the role and influence of the NMT instruments on students' rendering training. The findings indicate that NMT tools can be critical in providing a teacher-based supplementary classroom benefit by demonstrating AI-generated rendering solutions that can be compared and analysed against human translation, as well as motivating students toward independent self-development away from the classroom.The qualitative findings demonstrate that NMT tools generate neutral, negative, and positive emotions; the majority of students view AI technologies as helpful for translators. The qualitative results show that NMT tools have neutral, negative, and positive feelings; the majority of students believe that AI tools are useful for translators; and the results show that the criteria of context were where NMT tools were least applicable. From the collected findings, several implications for instruction may be deduced. The NMT tools may be effectively implemented in the classroom with the teacher's assistance to assist students in creating their rendering projects and honing their grammar. However, they can also be used independently to help students with their specific language and translate products outside of the classroom setting. AI has changed the role of instructors and interpreters, who now need to adjust to a world that is always changing. Our role is to mould the current state of change in a way that will benefit our students and future translators.

References

An, X., Chai, C. S., Li, Y., Zhou, Y., Yang, B.(2023) "Modelling Students' Perceptions of Artificial Intelligence Assisted Language Learning". Computer Assisted Language Learning: 1-22.

Bahdanau, Dzmitry, Cho, KyungHyun, Bengio, Yoshua.(2014) "Neural Machine Translation by Jointly Learning to Align and Translate". ArXiv: 1-15. https://www.researchgate.net/publication/265252627_Neural_Machine_Translation_by_Jointly_Learning_to_Align_and_Translate#fullTextFileContent

Barad, Dilip. "Guidelines for Using Generative AI in Translation Studies". Dilip Barad's Lab: 1-5. https://www.researchgate.net/publication/387486712_Guidelines_for_Using_Generative_AI_in_Translation_Studies

Boluwatife Oni, Samuel.(2025) "The Impact of AI on the Translation Industry". https://www.researchgate.net/publication/391050035_The_Impact_of_AI_on_the_Translation_Industry

Bouras, Sana.(2025) "AI and Language Translation: Is AI the Future of Translation

Chhetri, Sejal, Prasad, Dheeraj Kumar, Shah, Rahul, Prasad, Dhiraj Jaiswal.(2017) "A Review on Language Learning and Translation Support with Artificial Intelligence (AI)". AEFICS: 1-12. https://www.researchgate.net/publication/389949944_A_Review_on_Language_learning_and_translation_support_with_Artificial_Intelligence_AI#fullTextFileContent

Chiu, Thomas K. F., Sun, Jerry Chih-Yuan, Ismailov, Murod. (2022). "Investigating the relationship of technology learning support to digital literacy from the perspective of self-determination theory". Educational Psychology, 2022.https://doi.org/10.1080/01443410.2022.2074966

Chiu, Thomas K. F., Xia, Qi., Xia, Qi., Zhou, Xinyan., Chai, Ching Sing., Cheng, Miaoting. (2023)"Systemic literature review on opportunities, challenges, and future research recommendations of

artificial intelligence in education". Computers and Education: Artificial intelligence 4 (2023) 100118. https://doi.org/10.1016/j.caeai.2022.100118
Dizon, G., Gayed, J. M.(2021). "Examining the Impact of Grammarly on the Quality of Mobile L2 Writing". JALT CALL Journal 17, no. 2: 74-92, 2021.https://doi.org/10.29140/jaltcall.v17n2.336
Doshi, Arham.(2024) "The Loss in AI Translation". Research Archive of Rising Scholars,.https://doi.org/10.58445/rars.1453
Dusmamatovna, Shahnoza., Razakova, Shaxnoza.(2025) "The Impact of AI on Human Translation: Complement or Competition". The American Journal of Philology 2 (2): 22-32, . https://www.researchgate.net/publication/396426715_The_Impact_of_AI_on_Human_Translation_Complement_or_Competiton
Fang, Liwei.(2025) "AI-Powered Translation and the Reframing of Cultural Concepts in Language Education". Academic Journal of Sociology and Management, Vol. 3, No. 3, 2025. https://doi.org/10.70393/616a736d.323937 https://www.researchgate.net/publication/391806147_AI-Powered_Translation_and_the_Reframing_of_Cultural_Concepts_in_Language_Education
Giralt, M., Benini, S., Murray, L., et al. (2023)."Towards the Integration of Digital Citizenship in Foreign Language Education Concepts, Practices, and Training". Alsic 26, no 1, 2023.https://doi.org/10.4000/alsic.6904
Hitsuwari, Jimpei, Ueda, Yoshiyuki, Yun, Woojin, Nomura, Michio. (2023) "Does human-AI collaboration lead to more creative art? Aesthetic evaluation of human-made and AI-generated haiku poetry". Computers in Human Behaviour, Volume 139, February, 107502. https://www.sciencedirectcom/science/article/abs/pii/S0747563222003223
https://doi.org/10.1016/j.chb.2022.107502
https://doi.org/10.1051/shsconf/202522201008
Hutchins, J.(2006). "Machine Translation: History", in Encyclopedia of Language & Linguistics, ed.Brown Keith (Elsevier Science, 2006).https://doi.org/10.1016/B0-08-044854-2/00937-8 Ibm. "Artificial intelligence".. https://www.ibm.com/think/topics/artificial-intelligence
Jiang, Kehan.(2025) "Challenges and suggestions for the application of artificial intelligence to the evaluation of English translation teaching in colleges". SHS Web of Conferences 222, 01008 .
Kikteva, Zlata, Trautsch, Alexander. (2023) "AI, write an essay for me: A large-scale comparison of human-written versus ChatGPT-generated essays". Computer Science, Computation and Language, 2023. https://www.arxiv.org/abs/2304.14276
Klimova, Blanka, Pikhart, Marcel, Poláková, PolákováPetra. (2016)." A Systematic Review on the Use of Emerging Technologies in Teaching English as an Applied Language at the University Level". AI&Learning: 1-14.
https://www.researchgate.net/publication/367051573_A_Systematic_Review_on_the_Use_of_Emerging_Technologies_in_Teaching_English_as_an_Applied_Language_at_the_University_Level#fullTextFileContent
Kruk, Mariusz., Kałużna, Agnieszka.(2024). "Investigating the Role of AI Tools in Enhancing Translation Skills, Emotional Experiences, and Motivation in L2 Learning". European Journal of Education, 2024. https://doi.org/10.1111/ejed.12859
Liu, S.-C., Hung, P.-Y.(2016). "Teaching Pronunciation with Computer-Assisted Pronunciation Instruction in a Technological University". Universal Journal of Educational Research 4, no. 9: 1939-1943, 2016.https://doi.org/10.13189/ujer.2016.040902
Lo, S. (2023) ."Neural Machine Translation in EFL Classroom Learners' Vocabulary Improvement, Immediate Vocabulary Retention and Delayed Vocabulary Retention". Computer Assisted Language Learning: 1-20.
Martin, Florence., Zhuang, Min., Schaefer, Darlene.(2023). "Systematic review of research on artificial intelligence in K-12 education (2017-2022)".Computers and Education: Artificial intelligence 6 (7): 100195, 2023.https://doi.org/10.1080/09588221.2023.2207603
Moorkens, Joss. (2018). "Translators' perceptions of literary post-editing using statistical and neural machine translation". Translation Spaces 7 (2): 240-262, 2018. https://doi.org/10.1075/ts.18014.mooNASA. "Artificial intelligence". 2025. https://www.nasa.gov/what-is-artificial-intelligence/
Odacıoğlu, Mehmet Cem.(2024). Revolutionising Translation Studies: Synthesising Translation with AI and IT Innovation. AKTİF YAYINEVİ, 2024.
Ohashi, Louise. (2024)."AI in Language Education: The Impact of Machine Translation and ChatGPT". In book: Artificial Intelligence in Education: The Intersection of Technology and Pedagogy. Springer,

2024.https://doi.org/10.1007/978-3-031-71232-6_13
https://www.researchgate.net/publication/386328691_AI_in_Language_Education_The_Impact_of_Machine_Translation_and_ChatGPT
Pawlicka, Aleksandra., Pawlicki, Paweł., Kozik, Rafał., Andrychowicz-Trojanowska, Agnieszka., Choraś, Michał.(2024). "AI vs linguistic-based human judgement: Bridging the gap in pursuit of truth for fake news detection". Information Sciences, Volume 679, September 121097. https://www.sciencedirectcom/science/article/abs/pii/S0020025524010119https://doi.org/10.1016/j.ins.2024.121097
Profession?" A vailable at: https://doi.org/10.70088/kc9vk395
Rothwell, Andrew., Moorkens, Joss., Fernández-ParraMaría., Drugan, Joanna., Austermuehl, Frank.(2023). Translation Tools and Technologies. Routledge,. https://doi.org/10.4324/9781003160793-1
Song, C., and Song, Y.(2023). "Enhancing Academic Writing Skills and Motivation: Assessing the Efficacy of ChatGPT in AI-Assisted Language Learning for EfL Students". Frontiers in Psychology 14: 1260843, 2023. https://doi.org/10.3389/fpsyg.2023.1260843
Sun, Sanjun, Liu, Kanglong, Moratto Riccardo.(2025) Translation Studies in the Age of Artificial Intelligence. Routledge,.https://doi.org/10.4324/9781003482369
Yang, S. J., Ogata, H., Matsui, T., Chen, N. S.(2021) "Human-Centred Artificial Intelligence in Education: Seeing the Invisible Through the Visible". Computers and Education: Artificial Intelligence 2: 100008.https://doi.org/10.1016/j.caeai.2021.100008