



ENHANCING LANGUAGE LEARNING THROUGH REASONED IMITATION IN THE USE OF NUMERICAL RESOURCES IN THE FLE CLASSROOM

William Anderson Hutapea¹, Jhoni Maslan², Marice³

^{1,3}Universitas Negeri Medan

²Universitas Methodist Indonesia

E-mail: william@unimed.ac.id

Accepted :

17 June 2025

Published :

20 June 2025

Corresponding Author:

William Anderson Hutapea

Email Corresponding :

william@unimed.ac.id

ABSTRACT

This study explores students' perspectives on the integration of artificial intelligence (AI) in the course *Exploitation des Ressources Numériques en Classe du FLE*, within the French Language Education Program at Universitas Negeri Medan. The course emphasizes the linguistic use of numerical and digital resources to support French as a Foreign Language (FLE) instruction. Using a descriptive quantitative method, data were collected from second-semester students via questionnaires. The findings show that students positively view AI as a language support tool, particularly in idea generation, text translation, and teaching material development. AI encourages reasoned imitation, where learners not only replicate but also critically adapt AI-generated content for language teaching purposes. However, students also expressed concerns about excessive dependence on AI, emphasizing the importance of critical thinking, ethical use, and the teacher's role in guiding proper language application. Technical issues such as limited internet access and device availability were also reported. In conclusion, students demonstrate a constructive yet cautious attitude toward AI in language learning. The study highlights the need to promote responsible and reflective use of AI in exploiting numerical resources to enhance linguistic competence in FLE classrooms.

Keywords: *Artificial Intelligence (AI), French as a Foreign Language (FLE), Reasoned Imitation, Numerical Resources, Language Learning*

1. INTRODUCTION

In the last decade, artificial intelligence (AI) has emerged as a pivotal element in reshaping various domains of human activity, including the sphere of higher education (Blahopoulou, 2025; Vargas et al., 2020; Lesia Viktorivna et al., 2022). The increasing application of AI in learning environments brings transformative potential in personalizing language instruction, streamlining teaching strategies, and enhancing access to digital linguistic resources. AI's ability to process linguistic data, adapt to individual learner profiles, and perform repetitive academic functions

positions it as a strategic solution to modern pedagogical needs, particularly in language education where tailored input and feedback are critical (Fiialka et al., 2024) Wei, 2023).

Within the specific domain of foreign language pedagogy, particularly in French as a Foreign Language (FLE – Français Langue Étrangère), AI introduces a renewed didactic approach (Mavropoulou, 2023). No longer just a tool, AI now functions as a dynamic language assistant that delivers immediate linguistic feedback, supports authentic French language use, and provides adaptive learning materials. In the *Exploitation de Ressources Numériques en Classe du FLE*

Vol 8, No 2 (2025): ESTEEM

course offered by the French Language Education Program at Universitas Negeri Medan (UNIMED), students are directly engaged with AI-based resources as part of their instructional design tasks. This context provides a fertile ground to analyze how AI interacts with the process of language learning, especially in developing communicative competence and language-teaching creativity.

Nevertheless, a thorough understanding of how students interpret and experience AI in academic and linguistic contexts remains underexplored. Their perspectives encompass more than technical efficiency they also include emotional responses, ethical considerations, and challenges in engaging with AI-mediated language content. Without recognizing these learner voices, institutions risk implementing AI in ways that may be misaligned with actual classroom language dynamics and learner needs.

Hence, this study seeks to investigate students' perceptions regarding the use of AI in the *Exploitation de Ressources Numériques en Classe du FLE* course. It focuses on how students interact with AI in enhancing language learning through reasoned imitation a process where learners critically and selectively adapt AI-generated materials into their own language practice. The study aims to uncover student expectations, levels of acceptance, and challenges encountered, offering valuable insights for optimizing digital pedagogy and improving language learning outcomes in FLE instruction.

The term "imitation intelligence," as a semantic parallel to artificial intelligence, refers to the technological capacity to simulate human cognitive functions, including language understanding, learning, and decision-making (Russell & Norvig, 2019; Chen et al., 2020). Within educational contexts, AI contributes to various language-learning functions, such as intelligent tutoring systems, real-time feedback via

chatbots, and automated assessments (Luckin et al., 2016). These features align with the linguistic goals of FLE education by enhancing learners' ability to understand and produce language more autonomously.

Integrating AI in foreign language education facilitates individualized learning paths, fosters learner engagement, and supports more strategic use of digital linguistic content (Chatterjee & Bhattacharjee, 2020; Alharbi, 2023; Pokrivcakova, 2019). AI enables access to adaptive learning resources that align with the learner's level of linguistic proficiency. In the case of FLE, or *Français Langue Étrangère*, instruction targets non-native speakers of French, aiming to develop their communicative competence in diverse contexts. The *Exploitation de Ressources Numériques en Classe du FLE* course is designed to train future educators in utilizing digital tools to develop engaging and pedagogically sound language-learning experiences. According to McKay (2018) and Narimane and Mounir (2023), achieving creative and effective language instruction requires innovation in media, methods, and technologies. Digital tools such as interactive apps and automated linguistic assessment platforms are thus integral to modern FLE didactics. Emphasize that technology-enhanced instruction strengthens communicative learning objectives and boosts student motivation in language classrooms (Melvina et al., 2021; Jaya et al., 2025; Dash, 2022).

Learner perception is a key determinant in the successful adoption of AI in language learning contexts (Meisani & Purnawarman, 2019; Melvina et al., 2021; Sabgini & Triastama Wiraatmaja, 2022). Students who view AI positively are more likely to integrate it effectively and benefit from its features (Anwer et al., 2018; Yang & Kyun, 2022). Nonetheless, potential challenges such as overdependence, digital confusion, and ethical uncertainty may arise, particularly among learners lacking sufficient

Vol 8, No 2 (2025): ESTEEM

digital or language literacy (Holmes et al., 2022). In FLE settings, perceptions of AI are shaped not only by its technical capacity but also by its ability to support interactive, authentic, and context-rich language use (Zawacki-Richter et al., 2019). Therefore, exploring how students perceive AI's role in supporting reasoned linguistic imitation and numerical resource usage becomes crucial for understanding its impact on language learning outcomes.

2. METHODS

This research adopts a quantitative approach to explore how students at the State University of Medan (UNIMED) perceive the application of reasoned imitation in utilizing digital/numerical resources for language learning within the *Exploitation de Ressources Numériques en Classe du FLE* course. The selection of this approach is grounded in its capacity to produce objective, measurable insights into learners' perceptions crucial for evaluating the degree of acceptance, as well as identifying possible pedagogical barriers. This aligns with the principles of Social Measurement Theory, which highlights the importance of using standardized instruments to quantify social constructs such as attitudes and perceptions (Babbie, 2020).

Participants in this study consisted of students who had completed the aforementioned course and were selected through random sampling techniques to ensure population representativeness. Data collection employed a closed-ended questionnaire using a five-point Likert scale, a method deemed effective for gauging attitudinal tendencies and learner preferences in a structured format (Miles & Huberman, 2019). The questionnaire was distributed via Google Form, and students were instructed to respond based on their authentic learning experiences involving AI-supported numerical resource use.

The collected data were then subjected to descriptive statistical analysis, to portray a

general overview of learner perceptions, and inferential analysis, to test hypotheses and identify patterns or relationships between the relevant variables. As noted by Priadana and Sunarsi (2021), this analytical process strengthens the validity of interpretation in quantitative educational research by enabling statistically grounded conclusions.

3. RESULTS AND DISCUSSION

This study aims to investigate how students perceive the integration of artificial intelligence (AI) in the course *Exploitation de Ressources Numériques en Classe du FLE*, particularly in relation to reasoned imitation as a pedagogical strategy. Data were collected from 14 active students enrolled in the French Language Education program. A significant majority (92.9%) reported having used AI tools such as ChatGPT, Gemini, or Grammarly even prior to taking the course. This indicates that most students were already familiar with AI in their daily lives, making it easier for them to engage with these tools within a formal classroom context that promotes guided modeling or imitation for learning enhancement.

The data reveal that the most common purpose for using AI tools was to generate learning ideas, with 42.9% of respondents selecting "Often" and 21.4% selecting "Very often," totaling 64.3% who used AI frequently for this purpose. A similar pattern appeared in the use of AI for text translation or correction, where 42.9% reported using it "Often" and 21.4% "Very often." These findings align with Kukulska-Hulme (2020), who emphasized the role of AI in supporting language production and revision, especially in environments that combine autonomous learning with collaborative scaffolding, such as reasoned imitation tasks.

As for the use of AI in designing interactive teaching materials, responses were more varied, though still led by the categories "Sometimes" (42.9%) and "Often" (35.7%). This suggests a budding interest in the pedagogical application of AI, even if it is not yet widespread. This finding resonates with the study by Chen et al. (2020), which emphasized that successful implementation of AI in instructional design is often

Vol 8, No 2 (2025): ESTEEM

mediated by users' digital literacy and their confidence in navigating technology-rich tasks. In contrast, the use of AI for learning evaluation design was less prevalent, with only 35.7% selecting "Sometimes" and 21.4% "Rarely." Moreover, regarding its role in enhancing students' understanding of digital pedagogy, 57.1% chose "Sometimes," indicating that while students are beginning to recognize AI's pedagogical potential, its integration in deeper instructional reflection remains limited. This is consistent with Alharbi (2023), who argue that for AI to serve as a meaningful educational resource, it must be embedded within sound pedagogical reasoning rather than treated as a mere technological add-on.

Analysis of the Likert scale data shows that students generally hold positive attitudes toward AI in language learning. The highest average score (4.29) was observed in the item stating that AI helps them understand course content more effectively. This implies that AI tools contribute significantly to concept clarification in the context of numerical resource exploitation in the FLE classroom. This aligns with Holmes et al. (2019), who asserted that AI can personalize learning pathways and offer instant feedback, thereby improving learners' comprehension in a differentiated learning environment that encourages active imitation of effective examples.

Students also valued AI's function in accelerating the creation of teaching materials, with a notable average score of 3.93. This suggests that students perceive AI not only as a cognitive aid but also as a productive resource in supporting their role as future educators, particularly in media development. This finding supports Zawacki-Richter et al. (2019), who highlighted AI's contribution to streamlining both creative and administrative tasks in higher education settings. However, this score has not reached its maximum potential, implying that the benefits of AI may still be underutilized, possibly due to limited opportunities to practice reasoned or reflective usage.

Students' confidence in applying AI in the classroom scored moderately (3.50), indicating a neutral stance somewhere between trust and hesitation. This suggests

the need for more structured training and mentorship to support students in operationalizing AI tools effectively in foreign language education. Yin et al. (2021) emphasized that while learners may have positive perceptions, this does not automatically translate to the technical or pedagogical skills required for effective implementation, reinforcing the need for techno-pedagogical guidance in AI adoption.

An intriguing item in the questionnaire addressed the role of lecturers in promoting active and ethical AI usage, which received an average rating of 3.71. This indicates that students perceive moderate support from instructors in guiding AI integration, especially with regard to academic integrity and responsible digital practices. Although this figure is positive, it does not reach the "strongly agree" category, which might reflect variability in how different lecturers approach ethical discourse and critical AI use. According to Holmes et al. (2021), ethical literacy must be embedded in curriculum design, with lecturers serving as key agents in fostering students' reflective and responsible engagement with AI tools.

Lecturer encouragement plays a pivotal role in shaping how students perceive and use AI. Given the ethical dilemmas associated with AI—such as plagiarism, dependency, and bias—a critical pedagogical stance becomes essential. As Holmes et al. (2021) noted, lecturers who explicitly address the ethical dimensions of AI empower students to move beyond instrumental usage, fostering a reflective and values-based approach to technology in education. This is further supported by Selwyn (2019), who emphasized the importance of questioning how and why technology is used in higher education, not just how to use it. In this context, the lecturer becomes not only a technology facilitator, but also a moral educator amid the ongoing digital transformation.

Interestingly, students expressed low concern about AI replacing their creative identity as future teachers, with an average score of only 2.64. This suggests that AI is largely seen as a complementary tool, rather than a threat to human originality or teaching roles. This reflects the concept of AI as augmentation rather than replacement—an

Vol 8, No 2 (2025): ESTEEM

idea supported by Brynjolfsson and McAfee (2017), who argued that technology should serve to amplify human capabilities, not render them obsolete. Within the context of reasoned imitation, this means students see AI as a guide or model to be emulated thoughtfully, without diminishing their own creative autonomy.

Discussion

This research explores students' perspectives on the use of artificial intelligence (AI) within the Exploitation de Ressources Numériques en Classe du FLE course, particularly focusing on how AI supports reasoned imitation as a pedagogical approach. The study involved 14 active students from the French Language Education program. Notably, 92.9% had already used AI tools such as ChatGPT, Gemini, or Grammarly prior to the course, indicating a high level of digital familiarity that facilitated their adaptation to AI-supported learning environments emphasizing guided imitation.

Findings reveal that students primarily used AI tools to generate learning ideas, with 64.3% indicating frequent use ("Often" and "Very often"). Similarly, AI was widely employed for text translation and correction, with the same percentage of frequent use. These trends echo Kukulska-Hulme's (2020) findings on AI's role in enhancing language output and revision especially when embedded within collaborative and guided practices like reasoned imitation.

In terms of designing interactive learning materials, student responses were more dispersed, though the majority fell into "Sometimes" (42.9%) and "Often" (35.7%) categories, pointing to a growing but not yet dominant interest in using AI for instructional design. This aligns with Chen et al. (2020), who argued that effective AI use in education depends on users' digital competence and their ability to engage in complex, tech-mediated tasks. Conversely, the use of AI in developing assessment tools was less prominent, with lower frequencies reported ("Sometimes" 35.7%; "Rarely" 21.4%). Regarding AI's contribution to understanding digital pedagogy, 57.1% of students selected "Sometimes," suggesting that while students are beginning to see AI's

instructional value, its deeper integration into pedagogical reasoning is still developing. This corresponds with Alharbi (2023), who stress the importance of embedding AI within thoughtful teaching strategies rather than using it superficially.

The analysis of Likert scale responses shows that students generally hold positive attitudes toward AI in the FLE classroom. The highest average score (4.29) was for the belief that AI helps clarify course content, underscoring its effectiveness in supporting comprehension during digital resource exploitation. This supports Holmes et al. (2019), who highlighted AI's ability to personalize learning and provide timely feedback, which aligns well with the imitation of effective models in a reasoned, reflective manner.

Students also appreciated AI's role in speeding up the development of teaching materials, with an average score of 3.93. This suggests they view AI not only as a tool for cognitive support but also as a valuable resource for content creation, especially in preparing digital media. This reinforces Zawacki-Richter et al.'s (2019) assertion that AI can streamline both creative and administrative tasks in education. However, the fact that the score is not at its maximum suggests a need for further opportunities to practice reasoned and reflective use of AI.

Confidence in using AI tools in classroom contexts scored moderately (3.50), reflecting a neutral position between trust and uncertainty. This indicates the necessity of more structured training to help students apply AI meaningfully in language education. Yin et al. (2021) emphasize that while learners may be open to AI, they often lack the pedagogical and technical skills for effective implementation—highlighting the importance of guided support in developing AI competence through reasoned practice.

An item evaluating instructors' role in promoting responsible and ethical AI use scored 3.71 on average. This reflects moderate student agreement that their lecturers are facilitating ethical engagement with AI, though there is room for improvement. Holmes et al. (2021) argue that ethical literacy must be central to course design, with educators playing a key role in fostering students' critical and principled use of AI tools.

Vol 8, No 2 (2025): ESTEEM

The importance of lecturer guidance is especially pronounced given AI's ethical challenges such as potential plagiarism, overreliance, or algorithmic bias. As Holmes et al. (2021) and Selwyn (2019) suggest, instructors must go beyond teaching technical skills to instill reflective and ethical attitudes toward technology use. In this context, the instructor is not just a technological mediator but also a moral guide within an increasingly digital learning environment.

Interestingly, students expressed little concern about AI threatening their creative identity as future teachers, with this item receiving the lowest average score (2.64). This suggests students view AI as a supportive tool that complements rather than replaces their creativity and instructional roles. This perception aligns with the augmentation perspective discussed by Nasikhin and Shodiq (2021), which sees AI as enhancing human potential rather than replacing it. Within the scope of reasoned imitation, students appear to approach AI as a model to be thoughtfully emulated one that aids learning while still preserving their own agency and originality.

4. CONCLUSION

This study highlights that students at Universitas Negeri Medan (UNIMED) generally perceive the use of artificial intelligence (AI) in the Exploitation of Numerical Resources in the FLE Class positively, yet with a thoughtful and critical stance. The majority had prior experience with AI-based tools before enrolling in the course and recognized their value in enhancing language learning particularly in generating ideas, translating texts, and developing learning materials. However, students also reported key barriers, such as unstable internet access, insufficient technical know-how, limited device quality, and apprehensions about overdependence on AI. These challenges underscore that while AI can serve as an effective cognitive support tool, its pedagogical success still heavily relies on human guidance, especially in fostering reasoned imitation practices.

In line with these findings, the integration of AI in foreign language

learning—particularly in digital resource-oriented courses should be approached gradually and contextually. This process must be supported by robust techno-pedagogical training, improvement in digital infrastructure, and the active involvement of instructors as facilitators who model ethical, reflective, and creative AI usage. When implemented with care, AI can serve not only as a functional aid but also as a catalyst for deeper learning, enabling students to engage in meaningful, model-based learning while preserving their pedagogical agency.

Future studies should explore how AI-facilitated reasoned imitation can be systematized within foreign language curricula to foster higher-order thinking and language production. Longitudinal research may investigate how students' attitudes and competencies evolve over multiple semesters of AI integration. Additionally, comparative studies across institutions or cultural contexts could offer insights into how local variables such as infrastructure readiness or teaching culture influence the effectiveness of AI in language education. Finally, there is a need for research into AI's role in cultivating learner autonomy and professional identity among pre-service language teachers, ensuring that the use of AI empowers rather than diminishes their creative and pedagogical capacities.

5. REFERENCES

- Alharbi, W. (2023). AI in the Foreign Language Classroom: A Pedagogical Overview of Automated Writing Assistance Tools. *Education Research International*, 2023, 1–15. <https://doi.org/10.1155/2023/4253331>
- Anwer, M., Tatlah, I. A., & Butt, I. H. (2018). Effect of Cooperative Learning on Students' Achievement in English Tenses. *PJE: Pakistan Journal of Education*, 35(2), 103–108. <https://doi.org/https://doi.org/10.30971/pje.v35i2.1017>
- Babbie, E. (2020). *The practice of social research* (15th ed.). Boston: CENGAGE Learning Custom Publishing.

Vol 8, No 2 (2025): ESTEEM

- Blahopoulou, J., Ortiz-Bonnin, S. (2025). Student perceptions of ChatGPT: benefits, costs, and attitudinal differences between users and non-users toward AI integration in higher education. *Educ Inf Technol*. <https://doi.org/10.1007/s10639-025-13575-9>
- Brynjolfsson, E., & McAfee, A. (2017). *Machine, Platform, Crowd: Harnessing Our Digital Future*. W. W. Norton & Company.
- Chatterjee, S., Bhattacharjee, K.K. Adoption of artificial intelligence in higher education: a quantitative analysis using structural equation modelling. *Educ Inf Technol* 25, 3443–3463 (2020). <https://doi.org/10.1007/s10639-020-10159-7>
- Chen, L., Chen, P., & Lin, Z. (2020). Artificial Intelligence in Education: A Review. *IEEE Access*, 8, 75264–75278. <https://doi.org/10.1109/ACCESS.2020.2988510>
- Dash, B. B. (2022). Digital Tools for Teaching and Learning English Language in 21st Century. *International Journal Of English and Studies*, 4(2), 8–13. <http://dx.doi.org/10.47311/IJOES.2022.4202>
- Fiialka, S., Kornieva, Z., & Honcharuk, T. (2024). The use of ChatGPT in creative writing assistance. *XLinguae*, 17(1), 3–19. <https://doi.org/10.18355/XL.2024.17.01.01>
- Holmes, W., Bialik, M., & Fadel, C. (2021). *Artificial Intelligence in Education: Promises and Implications for Teaching and Learning*. Center for Curriculum Redesign.
- Holmes, W., & Tuomi, I. (2022). State of the art and practice in AI in education. *European Journal of Education*, 57, 542–570. <https://doi.org/10.1111/ejed.12533>
- Jaya, A., Hartono, R., Wahyuni, S., & Yulianto, H. J. (2025). From silent to supreme: The transformative power of project-based learning on language learners. *Multidisciplinary Reviews*, 8(8), 2025258. <https://doi.org/10.31893/multirev.2025258>
- Kukulska-Hulme, A. (2020). Mobile-assisted language learning [Revisited]. *Language Learning & Technology*, 24(2), 157–163.
- Lesia Viktorivna, K., Andrii Oleksandrovych, V., Iryna Oleksandrivna, K., & Nadia Oleksandrivna, K. (2022). Artificial Intelligence in Language Learning: What Are We Afraid of. *Arab World English Journal*, 8, 262–273. <https://doi.org/10.24093/awej/call8.18>
- Luckin, R., Holmes, W., Griffiths, M., & Forcier, L. B. (2016). *Intelligence Unleashed: An Argument for AI in Education*. London: Pearson
- Mavropoulou, Eleni. (2023). Exploitation de l'intelligence artificielle dans l'enseignement du français langue étrangère sur objectifs spécifiques: une étude de cas. *Revue des Arts, Linguistique, Littérature & Civilisations*, 63-70. <https://doi.org/05-Art.-eleni-mavropoulou-2-pp.63-70.pdf>
- McKay, Sandra Lee. (2018). English As an International Language: What It Is and What It Means For Pedagogy. *RELC Journal*, 49(1), 9–23. <https://doi.org/10.1177/0033688217738817>
- Meisani, D. R., & Purnawarman, P. (2019). Young Learners' Perceptions on the Implementation of Online English Proficiency Test. *NOBEL: Journal of Literature and Language Teaching*, 10(1), 71–86. <https://doi.org/10.15642/nobel.2019.10.1.71-86>
- Melvina, Lengkanawati, N. S., & Wirza, Y. (2021). The Use of Technology to Promote Learner Autonomy in Teaching English. *Proceedings of the*

Vol 8, No 2 (2025): ESTEEM

- Thirteenth Conference on Applied Linguistics (CONAPLIN 2020)*, 546(Conaplin 2020), 315–321. <https://doi.org/10.2991/assehr.k.210427.048>
- Miles, M. B., & Huberman, A. M. (2019). Qualitative data analysis: An expanded sourcebook, 2nd ed. In *Qualitative data analysis: An expanded sourcebook, 2nd ed.* Sage Publications, Inc.
- Narimane, B., & Mounir, D. (2023). Promouvoir L'écriture Créative à L'aune Numérique Pour Une Innovation Pédagogique En Classe De Fle. *Algerian Scientific: Journal Platform*, 13(3), 709–719. <https://asjp.cerist.dz/en/article/235695>
- Nasikhin, N., & Shodiq, S. (2021). Different Perspective of Religious Education in Islamic Theology and West Theology. *Jurnal Al-Fatih*, 4(2), 328–342.
- Pokrivcakova, S. (2019). Preparing teachers for the application of AI-powered technologies in foreign language education. *Journal of Language and Cultural Education*, 7(3), 135–153. <https://doi.org/10.2478/jolace-2019-0025>
- Priadana, M. S., & Sunarsi, D. (2021). Metode penelitian kuantitatif. Tangerang Selatan: Pascal Books.
- Russell, S. J., & Norvig, P. (2019). *Artificial Intelligence: A Modern Approach*. Pearson.
- Sabgini, K. N. W., & Triastama Wiraatmaja. (2022). The Pre-Service Teachers' Perception On Integrating Technology in Teaching English For Young Learners. *Project (Professional Journal of English Education)*, 5(4), 706–722.
- Selwyn, N. (2019). *Should robots replace teachers? AI and the future of education*. Polity Press.
- Vargas, M., Nuñez, T., Alfaro, M., Fuertes, G., Gutierrez, S., Ternero, R., Sabattin, J., Banguera, L., Duran, C., & Peralta, M. A. (2020). A project based learning approach for teaching artificial intelligence to undergraduate students. *International Journal of Engineering Education*, 36(6), 1773–1782.
- Wei, L. (2023). Artificial intelligence in language instruction: impact on English learning achievement, L2 motivation, and self-regulated learning. *Frontiers in Psychology*, 14. <https://doi.org/10.3389/fpsyg.2023.1261955>
- Yang, H., & Kyun, S. (2022). The current research trend of artificial intelligence in language learning: A systematic empirical literature review from an activity theory perspective. *Australasian Journal of Educational Technology*, 38(5), 180–210. <https://doi.org/10.14742/ajet.7492>
- Zawacki-Richter, O., Marín, V.I., Bond, M. *et al.* Systematic review of research on artificial intelligence applications in higher education – where are the educators?. *Int J Educ Technol High Educ* 16, 39 (2019). <https://doi.org/10.1186/s41239-019-0171-0>