

ENGLISH TEACHER INTEREST IN UTILIZING ENGLISH APPS IN TEACHING

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Article Info

Article History:

Received 01 August 2023

Revised 23 September 2023

Accepted 09 October 2023

Available online 19 October
2023

Abstracts

Artificial intelligence-based English apps, both web-based and mobile-based, have recently been massive. They offer users huge benefits especially for non-native students to enhance their English skills. Such applications should assist Indonesian students since English is a foreign language. This research aims to find out how interested English teachers are in utilizing apps in teaching and what factors influence it. This qualitative research is carried out with a semi-structured interview method that involves 9 English teachers from 7 schools spread across some areas in East Java Province. Embracing junior and senior high school levels is because English is a compulsory subject based on the current curriculum in Indonesia, Kurikulum Merdeka. Using thematic content analysis, the research reveals that only one English teacher employs English apps for supporting the teaching and learning of English while the remaining ones preserve traditional ways and media. The low interest in applying the English apps is because of some factors: 1) inadequate facilities like school computers and Wi-Fi, 2) no mobile phone for students in some schools, especially Islamic boarding schools, and 3) lack of teacher knowledge about certain good English apps. Hopefully, this research contributes to better knowledge and awareness about the importance of utilizing artificial intelligence such as English apps in teaching English to gain better education in the sophisticated era.

Keyword:

English Apps, Teacher Interest, Teaching English

Introduction

Teachers have crucial roles in the teaching and learning process to transfer new knowledge to their students (Ayanwale et al., 2022). To meet the development of the times, teachers should use appropriate ways with an advancing era. Today, most teachers consider technology integral to high-quality education (O'Bannon & Thomas, 2014). In the U.S., teachers utilize mobile devices and mobile apps as a part of a vast range of classroom applications (Lai, Khaddage, and Knezek, 2013). In Nigeria, schools have implemented Artificial Intelligence (AI) education from early childhood to high school (Sanusi et al., 2022; Touretzky et al., 2019). Whereas China has AI education named Squirrel AI. It uses an algorithm providing 70% of teaching suggestions for students while the other small percentage of the suggestions is from human resources (Cochrane, 2022). Those are small examples of countries' awareness to recognize AI as part of the education system and student learning process. The use of AI impacts learning evolution in general from the teacher as a sole influence on learning to transition to being a facilitator and a coach (Srinivasan, 2022). Technology is constantly being developed and improved upon. We agree that gadgets have crept into all aspects of our lives. It is vital for teachers as agents of change to be familiar

with educational technology to get rid of the minor skill of the current tools to understand the complex network of their students. With the advent of technology, teachers should involve technology itself in the teaching and learning process otherwise students get bored and are less motivated since the ways and tools are outdated. In another crucial portion, by involving modern instruments means that students get acquainted with innovation and train them to think creative, the two beneficial characters for their future (Asad et al., 2021).

Indonesia is heading toward the 5.0 era. Society and the education field should have digital skills (Sugidiyanto, 2022). Laksana Tri Handoko, Head of the National Research and Innovation Agency (BRIN) remarked that Indonesia already has a National Strategy for Artificial Intelligence 2020-2045, which is a milestone for AI application in Indonesia. In line, Nadiem Anwar Makariem, the Minister of Education, Culture, Research, and Technology, has called that the development of Science and the global situation will accelerate the application of AI in various fields and will have a massive impact on the world of work in the future, and education will also become more personal as students will be able to develop themselves based on their interests and skills (Hani, 2021). Kurikulum Merdeka which is initiated by Nadiem Makariem embraces technology and AI as supporting tools for better quality education (Haury, 2023).

Based on research in 2018 by Cambridge International, Indonesian students use technology and the Internet more than many other countries even they top the second rank of utilizing desktop computers, behind the United States. Despite that, it is recorded that Indonesian education is considered in low level compared to other countries around the world. This country, which is called the lungs of the earth, is still struggling to provide better education for its people. According to 2016 research conducted by the World Bank, Indonesians' literacy level is lower than other people in the Southeast Asian Countries, where 55% of citizens completed the schools are illiterate. One of the main factors is because many teachers fail to bestow effective teaching (Alifiaberizky, 2021).

Effective teaching is considered as a dynamic and developmental process. Teachers should continuously grow as they connect new knowledge and information with what they already know as well as construct to change their beliefs regarding new paradigm in order to keep up with the times (Lumpkin, 2020). Today is digital age bringing tremendous impact on changing from the traditional teaching and learning to modern ones by using technology, AI, and smart tools, for instance YouTube, Facebook, WhatsApp, and applications both web-based and mobile-based (Dhillon et al., 2021).

In a review of AI for learning, including in English subject, there is good influence on students' learning performance and motivation. Web-based applications and mobile-based application are quite well-known examples of AI. Cake, Orai, Memrise, Duolingo, etc are some of generous options for the teachers take to dealing with students' difficulties in learning English (Tu, 2021). Research proved that utilizing such as applications is effective in gaining students' motivation and learning gains (Ateş & Garzón, 2022). The teachers' interest is the key in using such as English apps in teaching and learning process. Without teachers' interest, students may not know the apps let alone take advantage of them. Its significance has been mentioned by the Minister of Education, Culture, Research and Technology (Haury, 2023), and has been called in the new curriculum in Indonesia, Kurikulum Merdeka (Kemendikbudristek, 2022).

This research aims to know how Indonesian English teachers' interest in utilizing English applications in teaching, and what factors effect it. The research about students' interest or teachers' perception of using AI is ubiquitous while the research about Indonesian English teachers' interest in using English applications in their teachings has not been conducted yet. However, this research result may support the data of previous research in the same fields.

In terms of a research about teachers' intention using mobile application in teaching Science, Ateş & Garzón (2022) found that in Turkey, teaching Science using mobile applications is effective, but some teachers hesitate to take advantage of it. In the matter of AI and learning English, Zaitun et al. (2021) investigated the use of Bookwidgets to attract students' interest in learning English. The Bookwidgets is a content creation tool to create interactive learning so that students are involved in making teaching materials. By using online survey to Indonesian junior high school students, they discovered that students' interest in learning English climbs to around 40% after being introduced to Bookwidgets. In the southeastern United States, research which involved more than 1000 teachers in various ages, examined teacher perceptions based on age matters in using mobile phones in the classrooms. The research revealed that teachers aged under 32-49 were enthusiastic about using their mobile phones in classroom activities. Conversely, ones who aged 50 and above were less eager to exert the features for teaching (O'Bannon & Thomas, 2014).

The results from the former research are the essential data strengthening this research. It bears the result that may benefit teachers in considering English apps as supporting tools for teaching and learning success in English subject in respect of rapid growth of technology. In addition, it can give advantage for other researchers to develop it or take the potential data for further prospective research.

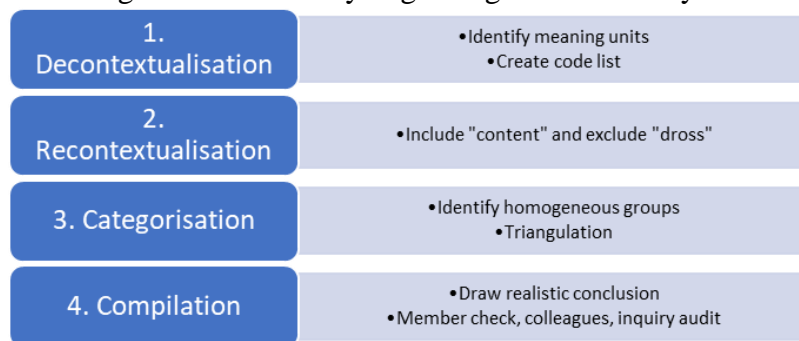
Methods

This is qualitative research, which deals with collecting and analyzing non-numerical data (Aspers & Corte, 2019). It is used to support a researcher in understanding a given phenomenon (Lester et al., 2020). The occurring phenomenon which becomes the researcher's focus is English teachers' interest and the influencing factors in employing English apps in teaching English in the age of Artificial Intelligence. Hence, the researcher invites 9 English teachers from 7 schools in East Java, Indonesia: 1) MAN 2 Kota Kediri, 2) MA Ma'arif Pare, 3) SMA Darul Falah Blitar, 4) SMA Ar-Rohmah "Boarding School" Dau Malang, 5) MTsN 1 Pare, 6) MTs Hidayatullah Blitar, and 7) SMP Darul Falah Blitar. The interview happened in March-June 2023 in their schools.

Since the researcher wants to ask probing and open-ended questions on topics for members of a small group, 10 English teachers, she employs the semi-structured interview. It contains loosely structured questions to give interviewees more chance to express themselves (Adosi, 2020), so that the conversation can meander around the topics and may satisfy the how and why questions (Adams, 2015).

To analyze the data, the researcher uses thematic and content analyses. By using thematic analysis, she can identify similar words, phrases and/or the relationships by shifting and sorting through the data set (Miles & Huberman, 1994). Two steps are carried out: 1) reading the whole transcripts from interviews, giving meaning, the patterns and coding, and 2) create concepts, ideas and connect them (Sitasari, 2022). Content analysis is also conducted to make sense of the content of interviewees' messages since it focuses on meaning and content by making replicate and valid inferences from what they express (Gheyle & Jacobs, 2017). The goal is to link the results to their context and environment with four stages (Bengtsson, 2016), as shown below.

Figure 1. Data Analyzing Using Content Analysis



Results and Discussion

The Participants

The used interview type in this research is semi-structured which involves 9 English teachers from 7 schools. Those schools are chosen as representatives from school level, school status, area, and ministry type. The researcher gets the sole data from the participants in comfortable one-by-one conversations carried out in March-June 2023 in their schools.

Table 1. English Teachers as Participants

No.	Name	School Name	School Address	School Level	School Status	Ministry Type
1	Latifah	Madrasah Aliyah Negeri 2 Kota Kediri (MAN 2 Kota Kediri)	Jl. Letjend Suprpto No.58 Banjaran, Kota Kediri, East Java 64124	Senior High School	State	The Ministry of Religious Affairs (Kemenag)
2	Sulaiman	Madrasah Aliyah Negeri 2 Kota Kediri (MAN 2 Kota Kediri)	Jl. Letjend Suprpto No.58 Banjaran, Kota Kediri, East Java 64124	Senior High School	State	The Ministry of Religious Affairs (Kemenag)
3	Nurul	Madrasah Aliyah Negeri 2 Kota Kediri (MAN 2 Kota Kediri)	Jl. Letjend Suprpto No.58 Banjaran, Kota Kediri, East Java 64124	Senior High School	State	The Ministry of Religious Affairs (Kemenag)
4	Yayuk	Madrasah Aliyah	Jl. Gede II, Pare, Kab.	Senior High	Private	The Ministry of Religious Affairs

		Ma'arif Pare (MA Ma'arif Pare)	Kediri, East Java 64211	School		(Kemenag)
5	Yulfa	Sekolah Menengah Atas Darul Falah Blitar (SMA Darul Falah)	Pundensari, Jeblog, Talun, Kab. Blitar, Esat Java 66183	Senior High School	Private	The Ministry of Education, Culture, Research, and Technology (Kemdikbudristek)
6	Putri	Sekolah Menengah Atas Ar- Rohmah "Boarding School" Dau (SMA Ar- Rohmah Putri "Boarding School" Dau)	Jl. Jambu, Semanding, Sumbersekar, Kec. Dau, Kab. Malang, Esat Java 65151	Senior High School	Private	The Ministry of Education, Culture, Research, and Technology (Kemdikbudristek)
7	Laily	Madrasah Tsanawiyah Negeri 1 Pare (MTs.N 1 Pare)	Jl. Stadion Chanda Bhirawa 01 Tukungrejo, Pare, Kab. Kediri, East Java 64212	Junior High School	State	The Ministry of Religious Affairs (Kemenag)
8	Anjar	Madrasah Tsanawiyah Hidayatullah Blitar (MTs Hidayatullah Blitar)	Sananwetan, Kota Blitar, East Java 66112	Junior High School	Private	The Ministry of Religious Affairs (Kemenag)
9	Muna	Sekolah Menengah Pertama Darul Falah Blitar (SMP Darul Falah Blitar)	Pundensari, Jeblog, Talun, Kab. Blitar, East Java 66183	Junior High School	Private	The Ministry of Education, Culture, Research, and Technology (Kemdikbudristek)

School Environment

School environment can be defined as everything related to students' pedagogical activities inside and outside classroom in which can generate academic, social, cultural, affective and physical spaces (Saldarriaga & Moreno, 2022). Effective learning can only take place when school environment provides a feasible and enjoyable atmosphere (Harinarayanan & Pazhanivelu, 2018).

To gain successful learning for students, each school has different efforts associated with school policies and school types. For state schools like MAN 2 Kota Kediri and MTsN 1 Pare, a highly disciplined environment can be easily achieved. Since they are supported by government funds, they get adequate facilities for teaching and learning. Moreover, those two schools are favorite state schools whose students experienced a strict selection to become their students (Latifah, Sulaiman, Nurul & Laily, Personal communication, March 19, 2023).

The condition can be different with the private schools in varied discipline ranges. For MA Ma'arif Pare and MTS Hidayatullah Blitar as private non-boarding schools, they must struggle more to form students' disciplined mentality because there is no selection in student registration. The schools do not get government funds as much as the state schools so that they must earn many students. This becomes one of the reasons why the schools cannot do much in enforcing highly disciplined schools. The school facilities are also inadequate, such as student computers and laboratories (Yayuk & Anjar, Personal communication, April 17, 2023).

Although the same as private schools, boarding schools have slightly different tones. SMA Ar-Rohmah Putri "Boarding School" Dau, SMA Darul Falah Blitar, and SMP Darul Falah Blitar require their students to stay in school dormitory. The rules of the schools and the boarding schools revolve around and influence each other. Students are educated more in manners, especially for their teachers and elders. In the boarding schools, the highest leader is not a principal but a head of Islamic Boarding School. The students get more Islamic lessons than in the private non-boarding schools. Their study time is more since they must study at school in the morning till noon and learn Islamic subjects at night. Since they are in a same place almost 24 hours with boarding schoolteachers and caretakers, those students obtain more motivation to be disciplined besides being bound by regulations and being aware of supervision (Putri, Muna, Yulfa, Personal communication, May 20, 2023).

Teaching Equipment

Teaching equipment covers classroom furniture, spatial organization, and learning tools (Leščešen et al., 2021). To obtain fulfillment of the set tasks, teachers should adapt to the specific equipment of a particular teaching area (Lukić et al., 2019).

Based on the information from the participants, those schools have similar facilities about students' chairs and tables, and teachers' chairs and tables. About LCD projector, the state schools: MAN 2 Kota Kediri and MTsN 1 Pare outstanding in having LCD projector in each class while the private schools vary, MTS Hidayatullah Blitar and MA Ma'arif Pare have one for all classes. Teachers can take it when they need it for teaching and learning in classrooms. SMP and SMA Darul Falah have more than one meanwhile, SMA Ar-Rohmah Putri "Boarding School" which is bigger than the other private schools have more than one LCD projectors placed in some classes, in a hall, and in teachers' office. The spatial organization about students sitting in classrooms in all schools is the same. It is in rows, groups or circles depending on the materials learned and methods used.

The English teachers still use books as the main learning tools for students. In MAN 2 Kota Kediri, MA Ma'arif Pare, and MTsN 1 Pare, the teachers employ YouTube videos and

Websites to support teaching and learning. Students are allowed to bring hand phones and use them for learning. Wi-Fi or wireless networking technology is provided. Sometimes, the teachers use language laboratory to practice speaking and listening. The circumstance is a bit different with MTs Hidayatullah Blitar where students are allowed to bring hand phones, but the school does not provide Wi-Fi. Students are permitted to access their hand phones at schools only if needed or something urgent. Conversely, SMA Ar-Rohmah Putri “Boarding School” Dau, SMP and SMA Darul Falah Blitar forbid their students to bring hand phone at schools. If there is something urgent or needed, they can ask permission to use offices’ hand phones to contact their parents, and vice versa. In other words, the English teachers in the three boarding schools do not utilize hand phones as one of learning tools yet they provide school computers to support teaching and learning. The Wi-Fi is provided only for teachers and school staffs.

The Teachers Perspective on English Apps

Teachers’ perspective is led by their knowledge and role, which results wisdom and effects on how teachers see their students’ knowledge, experience, development and possibilities (Petrinko, 2019), including choosing and determining what tools involved in teaching and learning process. A current and modern tool which can be considered is English apps. It is an online platform or tool which is supported by AI to improve its user’s English skills. It usually offers different aspects, such as listening, reading, writing, speaking, pronunciation, grammar or vocabulary (Farrah & Abu-Dawood, 2018).

The teachers have different perspective on using English apps for their teaching aid. For Sulaiman, an English teacher at MAN 2 Kota Kediri, utilizing English apps can motivate and encourage his students to learn more about the materials. He usually uses Elsa Speak, an English application focusing on pronunciation, to help students to improve their pronunciation. He believes that the better pronunciation is the better speaking and self-esteem. Speaking is the most difficult English skill for his students (Sulaiman, Personal communication, March 19, 2023).

Although at the same school, Latifah and Nurul have slightly different opinion with Sulaiman. They agree that speaking is the most problem and teachers need more efforts to overcome. They choose to practice speaking more in classroom instead of using English apps. They do not employ it because of lacking information about good and appropriate English apps, and the concern of students’ misuse accessing internet connection in classroom (Latifah & Nurul, Personal communication, March 19, 2023).

Laily, an English teacher at MTsN 1 Pare, states almost the same as the second perspective that she is not sure about the students’ accomplished by using English apps. She alarms that the apps would not fit with the current English materials based on the new curriculum used today, *Kurikulum Merdeka*. Hence, she prefers to use books than the apps (Laily, Personal communication, March 19, 2023).

Yayuk, an English teacher at MA Ma’arif Pare, and Anjar, an English teacher at MTs Hidayatullah Blitar, do not use English apps as well in different reason. Yayuk does not use the apps because of insufficient knowledge about the appropriate English apps for teaching and learning. Meanwhile, Anjar does not employ the apps because of no Wi-Fi provided for students, and not all students have hand phones. In addition, school computers are not enough for all students (Yayuk & Anjar, Personal communication, April 17, 2023).

Contrasting with students’ condition above in case of allowance in bringing hand phones, at SMA Ar-Rohmah “Boarding School” Dau, SMP and SMA Darul Falah Blitar, students are not allowed to bring hand phones. This effects on English teachers’ choice to

rely on books as the main equipment for teaching and learning. Moreover, insufficient school computers for all students are another reason why the teachers do not take advantage from English apps for teaching and learning (Putri, Muna, Yulfa, Personal communication, May 20, 2023).

Analysis

English apps both website-based and mobile phone-based have become ubiquitous in education. They give benefits for students in knowledge augmentation, tailored learning experience, improved engagement, and access to study online materials (Ahmed, 2022). Many English apps can be accessed freely without payment if internet connection is provided.

The English apps is the advantageous supporting tools for students in improving their English skills. Therefore, many teachers in other countries have taken advantages the tools because of perceived benefits for students' engagement and motivation, including in learning English (Griffith et al., 2020).

Schools have different circumstances from one another, which can lead to distinct rules, regulations, and learning tool selection. Teachers' experience and knowledge also have massive effect on what and how students learn. Utilizing English apps can be a choice in improving students' English skills however it depends on teachers' interest. In analyzing the teachers' interest, the researcher uses thematic and content analysis simultaneously to recognize important data based on the theme to answer the questions in this research about how interest teachers in utilizing English apps are, and what factors influence it. Both analyses go through coding as the researcher arranges as below.

Table 1. Code and Theme Regarding Teachers' Interest in English Apps and Its Factors

Code & Theme	Description
School facilities, such as computers and Wi-Fi	Some schools have adequate facilities to access English apps while the others do not
School regulations	Some schools allow their students to bring hand phones and use them for learning while the others do not
Teaching and learning tool	Books still become the main tool for teaching and learning for majority English teachers
Teachers' knowledge and experience in using English apps	Most of English teachers have insufficient knowledge about English apps benefit
Teachers' perspective about English apps for learning	Only small percentage believe in English apps benefits while the others are not sure and have no idea
Teacher number using English apps as learning school tool	Only one person

Conclusion

Based on thematic and code analysis, it can be inferred that East Java English teachers' interest in involving English apps in teaching and learning process is still low. It is just one of the nine teachers who intends to use English apps as learning tools. Some factors drive the teachers' low interest: 1) inadequate school facilities for accessing English apps, 2) school regulations forbid students to bring handphone, and 3) teachers' inadequate knowledge about English apps benefits for learning.

This fact is very different from the situation where students are very familiar with gadgets. Teachers are no longer the only source of learning. The times are developing, and technology is advancing. The rapid development of AI can also have a positive impact on student learning. English apps powered by AI can make a great positive contribution if they are appropriate for use, and schools with teachers encourage students to take benefit from it.

References

- Adams, W. C. 2015. "Conducting Semi-Structured Interviews." In *Handbook of Practical Program Evaluation: Fourth Edition* (Issue August 2015). <https://doi.org/10.1002/9781119171386.ch19>
- Adosi, C. 2020. "Qualitative Data Collection Instruments: the Most Challenging and easiest to use." *Institute for Educational Planning and Administration, September, 0–7*. <https://www.researchgate.net/publication/344251614>
- Ahmed, R. April 30, 2022. What are the Advantages of Learning Apps for Students Nowadays? <https://elearningindustry.com/what-are-the-advantages-of-learning-apps-for-studentsnowadays#:~:text=Knowledge%20augmentation%2C%20tailored%20learning%20experiences%2C%20improved%20engagement%2C%20access.access%20are%20all%20advantages%20of%20a%20learning%20app.>
- Alifiaberizky. February 8, 2021. Indonesia's Future of Education Technology. <https://medium.com/with-bright-indonesia/indonesias-future-of-education-technology-ffd3a4f7eb81>
- Asad, M. M., Aftab, K., Sherwani, F., Churi, P., Moreno-Guerrero, A. J., & Pourshahian, B. 2021. "Techno-Pedagogical Skills for 21st Century Digital Classrooms: An Extensive Literature Review." *Education Research International, 2021*. <https://doi.org/10.1155/2021/8160084>
- Aspers, P., & Corte, U. 2019. "What is Qualitative in Qualitative Research." *Qualitative Sociology, 42*(2), 139–160. <https://doi.org/10.1007/s11133-019-9413-7>
- Ayanwale, M. A., Sanusi, I. T., Adelana, O. P., Aruleba, K. D., & Oyelere, S. S. 2022. "Teachers' readiness and intention to teach artificial intelligence in schools." *Computers and Education: Artificial Intelligence, 3*. <https://doi.org/10.1016/j.caeai.2022.100099>
- Bengtsson, M. 2016. "How to plan and perform a qualitative study using content analysis." *NursingPlus Open, 2*, 8–14. <https://doi.org/10.1016/j.npls.2016.01.001>
- Cochrane, Reuben. September 11, 2022. How AI in China is Reducing Inequalities. <https://borgenproject.org/ai-education-in-china/>
- Dhillon, S., Singh, M., & Kumar, R. 2021. "Paradigm shift in education through ICT." *The Journal of Oriental Research Madras, October 3, 2021, 3–25*. <https://doi.org/10.4324/9780429425882-1>
- Farrak, A. professor D. M., & Abu-Dawood, A. K. 2018. "Using Mobile Phone Applications in Teaching and Learning Process." *International Journal of Research in English Education, 3*(2), 48–68. <https://doi.org/10.29252/ijree.3.2.48>
- Gheyle, N., & Jacobs, T. 2017. "Content Analysis: a short overview." *Internal Research Note* (Issue December). <https://doi.org/10.13140/RG.2.2.33689.31841>
- Griffith, S. F., Hagan, M. B., Heymann, P., Heflin, B. H., & Bagner, D. M. 2020. "Apps as Learning Tools: A Systematic Review." *Pediatrics, 145*(1), 1–14.

<https://doi.org/10.1542/PEDS.2019-1579>

- Hani, Aineena. November 9, 2021. Indonesia Deploys Artificial Intelligence to Accelerate Economy and Digital Transformation. <https://opengovasia.com/indonesia-deploys-artificial-intelligence-to-accelerate-economy-and-digital-transformation/>
- Harinarayanan, S., & Pazhanivelu, G. 2018. "Impact of School Environment on Academic Achievement of Secondary School Students at Vellore Educational District." *International Journal of Education*, 7(1), 13–19. <http://www.shanlaxjournals.in>
- Haury, A.M. April 27, 2023. Pemanfaatan Kurikulum Merdeka di Tengah Maraknya Teknologi AI. <https://retizen.republika.co.id/posts/212684/pemanfaatan-kurikulum-merdeka-di-tengah-maraknya-teknologi-ai#:~:text=Pada%20kurikulum%20merdeka%20hendaknya%20para%20guru%20mengatur%20pembelajaran,kecerdasan%20buatan%20juga%20dapat%20menjadikan%20penunjang%20dalam%20pembelajaran>
- Lai, K. W., Khaddage, F., & Knezek, G. 2013. "Blending Student Technology Experiences in Formal and Informal Learning." *Journal of Computer Assisted Learning*, 29(5), 414–425
- Laily. 2023. Interview on "English teacher interest in utilizing English apps in teaching" at MTsN 1 Pare.
- Latifah, Sulaiman, Nurul. 2023. Interview on "English teacher interest in utilizing English apps in teaching" at MAN 2 Kota Kediri.
- Leščešen, I., Ivanović Bibić, L., Đukičin Vučković, S., Hercik, J., & Kotorčević, L. 2021. "The Importance of Teaching Equipment in Geography Classrooms." *Journal of the Geographical Institute Jovan Cvijić SASA*, 71(3), 325–332. <https://doi.org/10.2298/IJGI2103325L>
- Lester, J. N., Cho, Y., & Lochmiller, C. R. 2020. "Learning to Do Qualitative Data Analysis: A Starting Point." *Human Resource Development Review*, 19(1), 94–106. <https://doi.org/10.1177/1534484320903890>
- Lukić, A., Ivanović Bibić, Lj., Đukičin Vučković, S., Milanković Jovanov, J., Ivkov-Džigurski, A., & Konečnik Kotnik, E. 2019. "The Role of Homeroom and Geography Teachers in the Obligatory Administration in Elementary Schools." *Journal of the Geographical Institute "Jovan Cvijić" SASA*, 69(1), 67–74. <http://dx.doi.org/10.2298/IJGI1901067L>
- Lumpkin, A. 2020. "Effective Teaching and Learning—A Five-Step Process." *Journal of Education and Culture Studies*, 4(3), p32. <https://doi.org/10.22158/jecs.v4n3p32>
- Miles, M. B., & Huberman, A. M. 1994. *An Expanded Sourcebook: Qualitative Data Analysis* (2nd ed.). Sage.
- Muna & Yulfa. 2023. Interview on "English teacher interest in utilizing English apps in teaching" at SMP Darul Falah Blitar.
- O'Bannon, B. W., & Thomas, K. 2014. "Teacher Perceptions of Using Mobile Phones in the Classroom: Age Matters!" *Computers and Education*, 74, 15–25. <https://doi.org/10.1016/j.compedu.2014.01.006>
- Petrinko, E. 2019. "Teachers' Perspective on Wise Education." *Journal of Teacher Education for Sustainability*, 21(1), 67–75. <https://doi.org/10.2478/jtes-2019-0005>
- Putri. 2023. Interview on "English teacher interest in utilizing English apps in teaching" at SMA Ar-Rohmah "Boarding School" Dau.

- Saldarriaga, A. M. V., & Moreno, J. A. V. 2022. "The School Environment and Its Impact on the Teaching-Learning Process in Educational Institutions." *International Journal of Psychosocial Rehabilitation*, 24(June), 3957–3971. <https://doi.org/10.37200/IJPR/V24I10/PR300402>
- Sanusi, I. T., Oyelere, S. S., & Omidiora, J. O. 2022. "Exploring Teachers' Preconceptions of Teaching Machine Learning in High School: A Preliminary Insight from Africa." *Computers and Education Open*, 3, Article 100072
- Sitasari, N. W. 2022. "Mengenal Analisa Konten dan Analisa Tematik dalam Penelitian Kualitatif Forum Ilmiah." *Forum Ilmiah*, 19(1), 77–84. https://digilib.esaunggul.ac.id/public/UEU-Journal-23188-11_2248.pdf
- Srinivasan, V. 2022. "AI & Learning: A Preferred Future." *Computers and Education: Artificial Intelligence*, 3. <https://doi.org/10.1016/j.caeai.2022.100062>
- Sugidiyanto, Rahman. August 23, 2022. Indonesia Menuju Era 5.0, Apa Bedanya dengan 4.0. <https://akurat.co/indonesia-menuju-era-50-apa-bedanya-dengan-40>.
- Touretzky, D., Christina, G.-M. C., Breazeal, C., Martin, F., & Seehorn, D. 2019. "A year in K-12 AI Education." *AI Magazine*, 40(4), 88–90, 2019.
- Zaitun., Hadi, M. S., & Lestari, D. R. 2021. "Using Book Widgets to Attract Students' Interest in Learning English." *JOLLT Journal of Languages and Language Teaching*, 9(4), pp. 504-511. DOI: <https://doi.org/10.33394/jollt.v%vi%i.4007>