

THE PRAXIS OF INTEGRATING VIRTUAL REALITY INTO VOCABULARY TEACHING TO YOUNG LEARNERS

Nia Kurniawati

*English Study Program, Faculty of Education and Teacher Training
Universitas Suryakencana, Cianjur Indonesia*
Email: nia@unsur.ac.id

Anisa Sofarini

*English Study Program, Faculty of Education and Teacher Training
Universitas Suryakencana, Cianjur Indonesia*
Email: anisa.sofarini@unsur.ac.id

Elis Homsini Maolida

*English Study Program, Faculty of Education and Teacher Training
Universitas Suryakencana, Cianjur Indonesia*
Email: elishomsini@unsur.ac.id

Rahmat Taufiq Dwi Jatmika

*International Administration and Business Study Program, Faculty of Applied Science
Universitas Suryakencana, Cianjur, Indonesia*
Email: r.jatmika@unsur.ac.id

APA Citation: Kurniawati, N., Sofarini, A., Maolida, E. H., & Jatmika, R. T. D. (2022). The praxis of integrating virtual reality into vocabulary teaching to young learners. *English Review: Journal of English Education*, 10(2), 371-380. <https://doi.org/10.25134/erjee.v10i2.6238>

Received: 07-02-2022

Accepted: 22-04-2022

Published: 30-06-2022

Abstract: In this digital age, using technology to teach English has become commonplace. This study focuses on the integration of virtual reality (VR) into vocabulary teaching to young learners. The aims of the study are finding out the teacher's classroom practices, the challenges, and the young learners' views of VR integration in learning vocabulary. In this study, a case study was applied in conjunction with observation, an open-ended questionnaire, and an interview to uncover the concerns. The respondents were an English teacher and 40 students of fifth grade at SDN 1 Cipanas, Cianjur. Despite the fact that the teacher was able to incorporate VR into her English classroom, there are also some challenges discovered during the practice. School readiness in terms of device availability, teacher's TPACK level, workloads, teaching media, and classroom managerial skills became the primary issues in the language instruction using VR. Furthermore, the proficiency, characteristics, and quantity of students in the classroom must also all be taken into account. To young learners, on the other hand, learning vocabulary using VR is engaging and entertaining, even if prolonged exposure to the VR lens causes headaches. It is recommended that policymakers pay greater attention to providing more supportive policies and improved facilities for TEYL practice in Indonesia.

Keywords: TEYL; vocabulary; virtual reality; TPACK; case study.

INTRODUCTION

For the past few decades, teaching English to young learners has been a common practice all around the world (Rixon, 2013) as evidenced by the growing number of policies that integrate English language learning in elementary schools. This policy is frequently driven by economic (Chang, 2012) and political goals (Kirkpatrick & Liddicoat, 2017), with the belief that the more citizens who speak

English for international engagement, the better for the economies and politics of the country.

This study understands young learners as individuals under the age of 18 (Ellis, 2014), approximately aged 5 to 10 years old (Ersöz, 2007). In this case, many believe that they, to a certain extent, can learn foreign languages more effectively than adults (Cook, 2008). This is why the policy on learning English earlier in elementary school level is highlighted.

In the context of Indonesian EYL practice, the idea of bringing English, as one of the foreign languages, to elementary schools' dates back to the 1980s. A survey revealed parents' strong belief in the importance of their children learning English, as well as the disappointing results of secondary students' English proficiency. The Presidential Decree Number 28 of 1990 included English in the elementary school curriculum (Kirkpatrick & Liddicoat, 2017), and it was later upgraded to a local content topic by the Ministry of Education and Culture's Decree Number 060 of 1993 (Iskandar, 2018). The policy suggested that schools might opt to teach English to grades 4, 5, and 6, or teach other topics like arts, dance, music, or sports that were more suited to their socioeconomic and geographical condition and needs (Zein, 2012).

Nevertheless, it is to note that young learners require extra pedagogical support to assist their English language acquisition in a formal setting. This is since formal language learning is influenced by social, individual, and environmental elements (Copland and Garton, 2014). In this case, Kimsesiz, Dolgunsöz, and Konca (2017) elaborated that social factors such as sociocultural class and the status of English in society play a role in this scenario. In addition, learners' attitude toward the target language, as well as their motivation to learn, are individual aspects. Meanwhile, the learner's parental background and attitudes toward language learning are environmental influences.

Regarding foreign language skills for young learners, it has been acknowledged that EFL vocabulary learning is very important to learn at young ages. Tomasello (2014) looked at this as a smaller linguistic lesson where objects are shown to young learners, then they must connect the term to what they hear and observe, also young learners relate the words to concrete entities. The young learners also map words onto concrete elements as another way of learning a word. In this case, young learners' experience of L1 or first language (Cameron, 2001) and the second language (L2)'s features and linguistic input, both are crucial (Cook, 2008). While word frequency is a useful criterion for selecting vocabulary, the ease with which a word's meaning may be shown and its appropriateness are equally essential considerations. The development of a child's first language vocabulary is inextricably linked to their conceptual

growth. Children may link new words to equivalent terms in their L1 for L1 and L2 relationships.

Teaching vocabulary to young learners may not be the same as teaching vocabulary to adult learners. Diptoadi, Mindari, and Tedjasuksmana (2018) explained that young learners have unique and interesting characteristics, thus teachers are required to have high creativity, make innovations and bring fresh ideas in teaching English at this level. They also highlight the importance of young learners' motivation in learning that they tend to acquire new things while playing. That is why they need to be facilitated with an interactive learning technique and application. During this process of learning vocabulary, their verbal efforts should be encouraged and supported with language activities that are engaging, interesting and motivating such as by using interactive technology.

The use of technology plays a major role in creating a more effective and innovative educational practice in the 21st century, known as the Industry Revolution 4.0 period (Sadiyoko, 2017). This era has given full attention to learning management, which aids students in improving their English skills through the use of new technology (Puncreobutr, 2016). As a result, students in Indonesia require a new breakthrough learning medium that can assist them in integrating their skills and based on their alpha generation nature. In this case, the Alpha generation tends to be visual learners who are primarily envisioning their material in order to aid them in retaining the information. Moreover, visualizing the information will assist them in focusing and attracting their interest in learning (Augusto, 2018).

This rapid advancement in technological integration has provided a better pattern for identifying new instructional approaches (Gilakjani, 2017), particularly in almost every language class (Ahmadi, 2018). In a number of teaching and learning milieus, technology is now widely regarded as a crucial instructional and supportive tool (Qizi, 2021). This is especially true when it comes to teaching English. In addition to teaching approaches, Susikaran (2013) argued that fundamental changes in classrooms have occurred because the chalk-and-talk method is insufficient for efficiently teaching English. Learners learn how to learn effectively in a well-planned classroom setting.

Moreover, technology provides a plethora of options for making teaching more engaging and beneficial in terms of advancement (Patel, 2013). Teachers in traditional classrooms stand in front of students and use a blackboard or whiteboard to deliver lectures, explanations, and instructions. With the advancement of technology, these methods must be modified. The use of multimedia texts in the classroom helps students learn new vocabulary and language structures (Ahmadi, 2018), for instance. Multimedia can be used to improve learners' linguistic knowledge by using print books, videos, and the internet. In response to this, Arifah (2014) claimed that learners can acquire information and use a variety of tools for analyzing and interpreting language and settings when they use print, video, or the internet. In this sense, Solanki and Shyamlee (2012) also argued that learners' visual and aural senses are both satisfied by technology.

The benefits of using technology in English language teaching and learning have been studied. However, the plus points of technology do not happen by accident; it is dependent on how teachers use it in their language classes (Bransford, Brown, & Cocking, 2000). Teachers should develop ways to employ technology as a beneficial learning instrument for their students, even if they have not studied technology and are not computer experts. As a result, a tech-savvy language instructor must constantly update and expand pedagogical and technological knowledge and skills to fulfill the current language instruction demand, particularly in teaching to young learners.

Given the rapid shift of new technologies, teacher education should focus on the three variables of content, pedagogy, and technology for teacher professional development. Although teachers are aware of and understand pedagogy, material, and technology, there is still a lack of understanding on how to combine them in collaborative curriculum design (Boschman, McKenney, & Voogt, 2014; Harrington, Driskell, Johnston, Browning, & Niess 2019). In order to support effective technology-enhanced education, the TPACK framework presents a new technique and paradigm for global teacher knowledge (Koehler & Mishra, 2009).

Although TPACK is not a novel paradigm for instructors to integrate technology, pedagogy, and content knowledge, putting it into practice is a

challenge for teachers as professionals. Teachers' three cores of knowledge, on the other hand, continue to be a concern. Pre-service teachers should be aware of and comprehend this teaching and learning paradigm for future classrooms in different areas. Mahdum (2015) conducted a TPACK research study in Pekanbaru, Indonesia, utilizing a self-assessment questionnaire to explore the use of TPACK among Senior High School EFL teachers. Cahyono and Kurnianti (2016) conducted another study that found that taking a TPACK-oriented teaching practice course can help Indonesian EFL teachers improve the quality of their EFL instructional designs and practices.

The idea of incorporating VR into language instruction is now gaining traction. Many of the activities in VR are a perfect fit for language instruction, as they create the conditions necessary for real communication to take place. For instance, educators have used Job Simulator to focus on procedural instructions (Bonner & Murphy, 2018).

While many of these VR applications seem perfectly suited for the creation of new and exciting lessons by teachers, there are still large hurdles that need to be overcome before more educational institutions can embrace VR in classrooms. The costs of implementation in classes, prolonged comfort, stability and continued availability of VR applications continue to be significant factors that work against the adoption of VR in education.

A number of academics have expressed interests in using VR in language education. The first study discovered that VR enhanced the students' learning because it provided authentic learning in the classroom and can be used alongside traditional and online learning methodologies. The second discovered that using VR for learning activities is enjoyable for both students and teachers. Furthermore, developers should be able to take a risk and do something essential by submitting prospective learning advantages (Frazier, Lege, & Bonner, 2021).

VR is a valuable tool for learning, however, there is a lack of education focused content for language learning needs. This article introduces the VR Application Analysis Framework to assist educators in scaffolding existing commercial off-the-shelf (COTS) applications for use in classroom activities through four key lenses: immersive capacity, cognitive load, purpose, and communicative capability. The framework is then

used to analyze the strengths and weaknesses of an example COTS VR application, Tilt Brush. This analysis, completed using the framework, is followed by three lesson plans for Tilt Brush that demonstrate how VR could be used in the language classroom (Santosa, Putra, Banjar, & Permana 2020).

Teaching English for young learners in Indonesia still invites controversies among the educators and psycholinguists that concern learners' development in thinking and communication. Because teaching English for young learners in Indonesia seems to force them to know the rules and forms of the sentence. In addition, some of the teachers who teach English for young learners have not the appropriate educational background that can teach the younger as well as the objective wish. Actually, there is not any regulation or decisions that obligate the school to teach English to young learners. It only depends on the school itself. In this paper, the writer would like to describe the teaching of English to young learners in Indonesia on the side of its implementation and also the pros and cons based on the second language acquisition experts (Nufus, 2019).

Another study discovered that English teachers in Indonesian Elementary Schools (ES) are divided into two groups: specialists and generalists. In Indonesia, there are 103,667 specialist PETs serving 147,536 elementary schools. The generalists, who are primarily homeroom teachers, substitute the position of English teachers due to insufficient number of those specialists. Generalist teachers teach a variety of courses in addition to English, and they only teach English to learners in their class. They may regard other subjects to be more essential than English because it is not their primary focus. These teachers typically struggle with devising English learning tasks and activities, learning materials, and appropriate evaluation since they have a limited command of the English language. Specialist teachers, on the other hand, typically have a broader range of English skills and teach English to students of all ages (Zein, 2012).

From the previous study it could be seen that not many studies conducted on the use of virtual reality in vocabulary teaching to young learners. Therefore, this study focuses on three important issues, including the practice, the challenges, and how the students perceive the use of virtual reality in vocabulary teaching to young learners.

METHOD

This case study follows a qualitative approach. Qualitative approach is chosen since it gives the author wide room to interpret the data from the teaching of English to young learners in the site. This qualitative research is focusing on describing the process of something considered suitable for discovering the answers to the research questions of this research, which is to elaborate the process of teaching-learning (Creswell, 2020). This is also a single instrumental case study where the researchers focus on an issue or concern, and then selects one bounded case to illustrate this issue (Yin, 2012).

This research was conducted in SDN 1 Cipanas involving 40 students of fifth grade and one English teacher. The data were collected from observation, interview, and questionnaire. Observation is the process of gathering firsthand information by observing people and places at the research site (Creswell, 2009). The classroom observation was functioned to determine the aspects to be observed in the form of a checklist. The observation checklist follows the TPACK framework to find out the teacher's praxis on the use of technology in her English classroom. The observation was also used in revealing the challenges the teacher and students face in the English classroom with the existence of VR in the learning process.

The interview was utilized to expose the challenge as well as the advantages of using VR in the process of learning English to young learners at the site. The respondents in the interview were the teacher and five selected young learners. Before using VR in her classroom, the teacher was interviewed. The students' interview was conducted following the second time they used VR in their English session. The interview was semi-guided mode with 5 questions. To get more in-depth data, the researcher also used an open-ended questionnaire sent to the teacher as well as the school's headmaster to dig more information about the profile of the teacher at the site, English teaching on a daily basis at SDN 1 Cipanas and the school's readiness for VR integration in learning process. This school was chosen since it is the one school in Cipanas that lists English as a local content and assigned English teachers to handle the class.

Qualitative data analysis consists of three concurrent flows of activity: data reduction, data display, and conclusion drawing/verification (Miles,

Huberman, & Saldana, 2014). Therefore, after collecting the data through observation, open-ended questionnaire, and interview, then the data was reduced, displayed and concluded based on the TPACK framework.

RESULTS AND DISCUSSION

As previously stated, there are three issues that will be addressed in this study. The first is about the practice of incorporating VR into English vocabulary teaching to young learners. The second is the challenges, and the last is the students' perceptions towards VR-supported vocabulary learning.

The integration of VR into vocabulary teaching to young learners

In answering the first issue, the researchers used observation as the main instrument. The observation followed the TPACK framework to find out the practice of vocabulary learning to young learners using VR.

The stages

Preparation

From the observation it was found that the teacher has designed the lesson quite well. The topic she chose is things at home. She used the VR video entitled VR 360 - Nobita House Tour 8K Video Quality. The time allotment was 35 minutes. She used drilling, TPR, and game as teaching techniques. She divided the teaching into three parts, pre-activity, main activity, and post-activity.

Practice

Observation #1: During the pre-activity, the teacher checked the students' understanding of the previous lesson and how it related to the lesson for that day. In checking students' understanding, she used a song of things at home that the students had learned some times before. Then, she taught the students to use the VR box. Students were allowed to bring smartphones to school that day, which was a departure from the usual policy of not bringing smartphones to school. The students then were divided into four groups, and asked to name their group.

Then, the teacher asked the students to answer some questions about the topic. At the first observation, the topic was about things at home. The teacher asked the students to google the 360°

video of Nobita's house. They explored Nobita's house via VR box in turn within the group. After they had finished observing the video, the teacher asked the students about the things they saw in Nobita's video. The teacher then made sure that the students comprehend the vocabularies that related to topic things at home such as door, wardrobe, window, pillow, etc.

To give the students various activities, the teacher asked the students to name the objects. One of the members of the group became the writer and the rest helped him/her to write by mentioning the target vocabulary. At the end, the teacher would give them a sign to stop, then the teacher checked if their writing was correct, and the group with the most correct answer won.

To assess the students' vocabulary comprehension to the lesson, the students were given multiple choice vocabulary tests. The test result shows that the average score is 83,5 out of 100. It means that the students learn the vocabularies by using Virtual Reality quite well.

Observation#2: The teacher had a different topic. The topic was sea creatures. The steps of learning for the topic were similar. In pre-activity the students were asked about the previous lesson, and whether they have learned the vocabularies about sea creatures. Then the teacher asked the students to repeat some words after her. After the students did the drilling, they were asked to browse the 360° video about sea creatures in turn. Then they were asked to match the vocabulary with the pictures. To assess the students' comprehension, the teacher gave the students vocabulary test, and the students' average score is 89,3 out of 100.

The techniques

In teaching vocabulary using VR, the teacher tried to combine the VR with various techniques. The first technique is TPR. James Asher's Total Physical Response (TPR) is thought to be an appropriate and successful strategy for teaching and consolidating English vocabulary to young learners (Ha & Hue, 2020). This method is appropriate for beginners or young learners since it is based on the process of learning a new language through physical movement in response to a command (Richards & Rodgers, 1999).

Then, the teacher drilled students into the vocabulary about things at home and sea creatures. Drilling is a technique for improving pronunciation

that involves copying and repeating words, phrases, and even entire sentences (Thornbury, 2006). From the observation, the teacher introduced a new word by constantly speaking it during the drilling phase. The kids finally remember the word after pronouncing it out loud multiple times. As a result, this exercise could be an appropriate approach to teach kids about foreign languages (Ernawati, Tsurayya, & Ghani, 2019).

A song was added in the teaching process by the teacher. Song is a great approach to get students interested in developing their English skills. Many prior studies have found that using music or song to give a lesson to children helps them develop strong practice habits, especially for those still in primary school (Hadi, 2019).

Most EFL learners find vocabulary learning to be time-consuming and demanding in terms of memorization and retention over a long period of time (Namaziandost, Alekasir, Dehkordi, & Tilwani, 2021; Waluyo & Bucol, 2021), and gamification may be an effective solution to address these issues and turn a tedious learning experience into a fun and enjoyable one (Kingsley & Grabner-Hagen, 2018). This supports what the teacher in study has done during her teaching practices using VR.

In using the VR specifically, the teacher asked the students to use their digital literacy by browsing the video that fit with the VR box, and of course using the VR box to observe the video of the lesson.

The requirements

Integrating virtual reality into vocabulary teaching certainly needs lots of effort. In integrating virtual reality into teaching of course it requires the devices themselves, in this case the virtual reality box and compatible smartphone, internet connection, and the teacher's TPACK. It is similar to other uses of technology for education. The teacher's pedagogical is crucial in selecting the suitable technique for teaching the content using any technology in education. The teacher is only required to handle technical things like how to use virtual reality, but also to select appropriate learning sources for teaching vocabulary in terms of students' proficiency level and background, and also how to practice it in the classroom.

The facts and the challenges

There are some facts as well as challenges faced by both the teacher and students. They are categorized into three groups; the school, the teacher, and the students' readiness.

The school readiness

The first is the challenge in integrating VR into vocabulary teaching. That is the school readiness in supplying VR headsets. The number of VR devices is not proportional to the number of students. One of the considerations that the school takes into account is the cost of the VR headsets.

In regards to cost, such as Google Cardboard, which still requires a smartphone, VR remains a luxury product outside the budgets of most educators. While prices have dropped significantly over the past 5 years, the prospect of buying entire class sets of even the cheapest all-in-one headsets remains prohibitive. In 2018, the cheapest headset, the Oculus Go, which does not require a PC or smartphone, costs ¥23,800 ([oculus.com/go/](https://www.oculus.com/go/)). While a capable device, surpassing cheaper smartphone powered headsets such as Google Cardboard, the Oculus Go has its drawbacks. Without positional tracking these cheaper devices may result in discomfort or motion sickness. They also lend themselves more towards passive experiences such as watching 360° videos rather than active participation experiences that benefit from object and scene interactions.

The facts and challenges about the teacher

The teacher was interviewed before the class. Some challenges were then discovered. The teacher admitted that teaching English at elementary level is very challenging. She should design her own syllabus and materials, and she used a worksheet from a certain publisher selected by the school as the guidance.

Moreover, time allotment and teaching media also become her main concerns. The time allotment is 35 minutes for one credit hour. English is allotted 2 credit hours in normal time per week, but since the pandemic time, the time allotment is only 35 minutes per week. The classroom is sufficient for children's study environment, but it lacks English exposure. There are many posters and realia for other subjects, but not for English.

The other challenge the teacher is facing is the large class and students' proficiency level. It almost happens in many schools in Indonesia that the

English proficiency level varies. Some students are fast learners while the others are slower ones. It is challenging for the English teacher to design material that would fit to all students. Besides, the typical Indonesian state school is big class. A class could have more than 40 students within. It requires the teacher to use her classroom managerial skill during the teaching.

There are some astonishing facts about the teacher's pedagogy and technology knowledge. The school has integrated computer use with English teaching. The students can learn English at a computer laboratory, and the teacher is used to gamifying the lesson assisted by technology. Therefore, the teachers are not too surprised to use VR in their teaching. She only needed a short amount of time to adjust her teaching material with the use of VR.

These findings actually have been estimated, since many studies have mentioned the fact that many elementary schools still list English lesson even though the curriculum does not put it as a priority to be taught at elementary level. The English teachers at the site mention that actually they expect the government to revise the policy and give place to English as it was in the previous curriculum.

Acknowledging the practice of teaching vocabulary in the classroom, the English teacher has demonstrated her TPACK at the most basic level. It is seen from the way she executed the teaching and learning activities that were not well-arranged. However, she had no problem using technology, in this case VR, into her teaching. She could adapt the material with the VR. In observation 1, the lesson was about the things at home. She combined the 360° video with the printed material, and could guide the young learners to experience the virtual environment via VR box and smartphone to visualize the vocabularies they are learning.

The students

This study enlisted the participation of 40 fifth-graders, aged around 11. They are generally from the alpha generation, who grew up with technology at home. As a result, they have no trouble dealing with VR. They can simply control the devices and look for VR-based videos. Nonetheless, as young learners, they have a short attention span and get

easily bored when the teacher ignores their curiosity.

In regards to young learners' short attention period (Scott & Ytreberg, 1990), they can collaboratively and individually be involved in physical activities and experiments (Diffily & Sassman, 2002). VR integration is undoubtedly useful, but it necessitates the usage of cellphones, which the school cannot offer. Students should be asked to bring their own smartphone from home as a solution. However, it is common knowledge that schools prevent kids from carrying smartphones to school, so it is a little ironic that students must rely on smartphones but are not permitted to bring them with them.

As it has been highlighted previously that the young learners have a very short attention span, easily get bored, and easily get distracted. Therefore, The English teacher should be very creative in designing different activities during the lesson. VR is very attractive but when the teacher has no creativity in using it in the learning process, it will be useless.

The students' views

There are some points that the students show on their views towards the VR integration. The students perceived that learning vocabulary with VR is engaging and entertaining. They assumed that, by using VR, they could see the real objects taught by the teacher. Simply speaking, it helps them visualize the vocabulary and as a result, it could ease them to memorize the vocabulary. Notably, learning English using VR is something new to them. This meets young learners' nature of fulfilling curiosity. The limited number of VR, in fact, did not distract the students' involvement in experiencing VR to learn English vocabulary. They were excited in taking turns to use VR, task sharing, and support one another in games created by the teacher.

Despite some merits perceived, there are complaints from some students. They felt headaches when they were exposed to the device lens for a longer time.

CONCLUSION

There are some conclusions that can be taken from this current research. First, Virtual Reality could support the teaching of vocabulary to young learners. It helps students visualize the vocabulary,

and gives them the sensation of being with the real objects. However, it needs lots of effort in terms of facilities. As the teacher's TPACK is at basic level, they need to improve their capacity (TPACK) to keep up with technological advancement.

ACKNOWLEDGMENT

We would extend our sincerest gratitude to *Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi* for funding this research program on MBKM policy and research-based community service for private universities. We also would like to extend our appreciation to: (1) *Direktorat Jenderal Riset dan Teknologi Pendidikan Tinggi*. (2) *Dinas Pendidikan Kabupaten Cianjur*. (3) 15 elementary schools in Cipanas Kabupaten Cianjur. (4) Rector of Universitas Suryakencana. (5) Vice Rectors of Universitas Suryakencana. (6) SDN 1 Cipanas. (7) Academic Community of Universitas Suryakencana. (8) Research and Community Service Team. (9) And all parties that could not be mentioned one by one for supporting this study.

REFERENCES

- Ahmadi, M. R. (2018). The use of technology in English language learning: A literature review. *International Journal of Research in English Education*, 3(2), 115-125.
- Arifah, A. (2014). Study on the use of technology in ELT classroom: Teachers' perspective. M.A. Thesis, Department of English and Humanities, BRAC University, Dhaka, Bangladesh.
- Augusto, T. (2018). Study on the alpha generation and the reflections of its behavior in the organizational environment. *Quest Journals Journal of Research in Humanities and Social Science*, 6(1), 9-19.
- Bonner, E., & Murphy, P. (2018). The experimental classroom: Promoting a genre-based pedagogy through virtual reality. Presented at *JALICALL 2018*. Nagoya, Aichi, Japan.
- Boschman, F., McKenney, S., & Voogt, J. (2014). Understanding decision making in teachers' curriculum design approaches. *Educational technology research and development*, 62(4), 393-416.
- Bransford, J., Brown, A., & Cocking, R. (2000). *How People Learn: Brain, Mind, Experience, and School*. Washington, DC: National Academic Press.
- Cahyono, B. Y., Kurnianti, O. D., & Mutiaraningrum, I. (2016). Indonesian EFL teachers' application of TPACK in in-service education teaching practices. *International Journal of English Language Teaching*, 4(5), 16-30.
- Cameron, L. (2001). *Teaching Languages to Young Learners*. Ernst Klett Sprachen.
- Cook, V. (2008). *Second Language Learning and Language Teaching*. Routledge.
- Copland, F., & Garton, S. (2014). Key themes and future directions in teaching English to young learners: introduction to the Special Issue. *ELT Journal*, 68(3), 223-230
- Chang, S.-Y. (2012). Young learner English language policy and implementation: international perspectives edited by Janet Enever, Jayne Moon and Uma Raman. *World Englishes*, 31(3), 406-408. <https://doi.org/10.1111/j.1467-971x.2012.01766.x>
- Creswell, J. (2020). Second edition qualitative inquiry & research design choosing among five approaches. In *Design: Choosing Among Five Approaches* (Vol. 3, Issue June).
- Creswell, J. W. (2009). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (3rd ed.). Sage Publication, Inc.
- Diffily, D., & Sassman, C. (2002). *Project-Based Learning with Young Children*. Heinemann.
- Diptoadi, V. L., Mindari, R., & Tedjasuksmana, H. (2018). Teachers' implementation of teaching techniques for young learners. *CELTA: A Journal of Culture, English Language Teaching & Literature*, 18(1), 19-46.
- Ellis, G. (2014). 'Young learners': clarifying our terms. *ELT Journal*, 68(1), 75-78.
- Ernawati, E., Tsurayya, H., & Ghani, A. R. A. (2019). Multiple intelligence assessment in teaching English for young learners. *REID (Research and Evaluation in Education)*, 5(1), 21-29.
- Ersöz, A. (2007). *Teaching English to Young Learners*. Ankara, Turkey: EDM Publishing
- Frazier, E., Lege, R., & Bonner, E. (2021). Making Virtual Reality accessible for language learning: Applying the VR application analysis framework. *Teaching English with Technology*, 21(1), 131-143.
- Gilakjani, A. P. (2017). A review of the literature on the integration of technology into the learning and teaching of English language skills. *International Journal of English Linguistics*, 7(5), 95-106.
- Ha, N. D. N., & Hue, N. T. T. (2020). Teaching English vocabulary to young learners through total physical response method. *Social Sciences*, 10(2), 26-40.
- Hadi, M. S. (2019). The use of song in teaching English for junior high school student. *English Language in Focus (ELIF)*, 1(2), 107-112.

- Harrington, R. A., Driskell, S. O., Johnston, C. J., Browning, C. A., & Niess, M. L. (2019). Technological pedagogical content knowledge. In *TPACK* (pp. 324–346). <https://doi.org/10.4018/978-1-5225-7918-2.ch016>
- Iskandar, I. (2018). English as local content subject in Indonesian primary schools: Teachers' view and its impacts on teaching delivery. *SSRN Electronic Journal*, December. <https://doi.org/10.2139/ssrn.3019248>
- Kimsesiz, F., Dolgunsöz, E., Konca, M.Y. (2017). The effect of project based learning in teaching EFL vocabulary to young learners of English: The case of pre-school children. *International Journal of Languages' Education and Teaching*, 5(4), 426-439.
- Kingsley, T. L., & Grabner-Hagen, M. M. (2018). Vocabulary by gamification. *The Reading Teacher*, 71(5), 545-555. <https://doi.org/10.1002/trtr.1645>
- Kirkpatrick, A., & Liddicoat, A. J. (2017). Language education policy and practice in East and Southeast Asia. *Language Teaching*, 50(2), 155–188. <https://doi.org/10.1017/S0261444817000027>
- Koehler, M., & Mishra, P. (2009). What is technological pedagogical content knowledge (TPACK)?. *Contemporary Issues in Technology and Teacher Education*, 9(1), 60-70.
- Mahdum, M. (2015). Technological pedagogical and content knowledge (TPACK) of English teachers in Pekanbaru, Riau, Indonesia. *Mediterranean Journal of Social Sciences*, 6(5), 168-168.
- Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). *Qualitative Data Analysis: A Methods Sourcebook and The Coding Manual for Qualitative Researchers*. Thousand Oaks, CA: SAGE.
- Namaziandost, E., Alekasir, S., Dehkordi, E. S., & Tilwani, S. A. (2021). An account of EFL learners' vocabulary learning in a mobile-assisted language environment: The case of Rosetta Stone application. *Computer-Assisted Language Learning Electronic Journal (CALL-EJ)*, 22(1), 80-110. <https://www.callej.org/journal/22-1/Namaziandost-Alekasir-Dehkordi-Tilwani2021.pdf>
- Nufus, T. Z. (2019). Teaching English to young learners in Indonesia (pros and cons). *English Language in Focus (ELIF)*, 1(1), 65. <https://doi.org/10.24853/elif.1.1.65-70>
- Patel, C. (2013). Use of multimedia technology in teaching and learning communication skill: An analysis. *International Journal of Advancements in Research & Technology*, 2(7), 116-123.
- Puncreobutr, V. (2016). Education 4.0: New challenge of learning. *Journal of Humanities and Social Sciences*.
- Qizi, K. D. S. (2021, February). The use of technology in english language learning. In *Euro-Asia Conferences* (pp. 124-127).
- Richards, J. & Rodgers, T. (1999). *Approaches and Methods in Language Teaching*. Cambridge University Press.
- Rixon, S. (2013). *British Council Survey of Policy and Practice in Primary English Language Teaching Worldwide*. London: British Council.
- Sadiyoko, A. (2017). Industri 4.0: Ancaman, tantangan atau kesempatan? Sebuah intropeksi menyambut kemajuan teknologi saat ini. *Scientific Oratationson Dies Natalis Fakultas Teknologi Industri*.
- Santosa, M. H., Putra, M. A. M., Banjar, I. D. A. O. V. J., & Permana, I. K. A. P. A. (2020). Developing virtual reality-based English learning media for teaching young learners in EFL context. *Can Technology Enhance Language Learning? Revisiting the Real Practices*, 9–18.
- Scott, W. A., & Ytreberg, L. H. (1990). *Teaching English to Children*. London: Longman
- Solanki, D., & Shyamlee1, M. P. (2012). Use of technology in English language teaching and learning: An analysis. *International Conference on Language, Medias and Culture IPEDR* vol. 33. IACSIT Press, Singapore. 150-156.
- Susikaran. (2013). The use of multimedia in English language teaching. *Journal of Technology for ELT*, 3(4).
- Thornbury, S. (2006). *AZ of ELT*. Macmillan Educ.
- Tomasello, M. (2014). *The New Psychology of Language: Cognitive and Functional Approaches to Language Structure*. (Vol. 1). Psychology Press
- Waluyo, B. & Bucol, J. L. (2021). The impact of gamified vocabulary learning using Quizlet on low-proficiency students. *Computer-Assisted Language Learning Electronic Journal (CALL-EJ)*, 22(1), 158-179. <https://www.callej.org/journal/22-1/Waluyo-Bucol2021.pdf>
- Yin, R. K. (2012). A (very) brief refresher on the case study method. *The Applications of Case Study Research*.
- Zein, S. (2012). The contexts of English language teaching at primary level in Indonesia. *Journal of Teaching and Education*, 1(3), 85–90.

Nia Kurniawati, Anisa Sofarini, & Elis Homsini Maolida

The praxis of integrating virtual reality into vocabulary teaching to young learners