Advances in Social Science, Education and Humanities Research, volume 443
International Conference on Science and Education and Technology (ISET 2019)

TPACK Goes to Fourth Grade: Lessons from Learning English Through *Raz Kids* Program

Pratiwi Amelia
Universitas Negeri Semarang
Semarang, Indonesia
pratiwiamelia@students.unnes.ac.id

Dwi Rukmini
Universitas Negeri Semarang
Semarang, Indonesia

Januarius Mujiyanto
Universitas Negeri Semarang
Semarang, Indonesia

Dwi Anggani L. Bharati
Universitas Negeri Semarang
Semarang, Indonesia

***Abstract*-While current technology is massively used, still it is debatable whether technology brings good or harm for young learners in primary school. To fill this gap, this study investigated how the teachers use technology while teaching English using *Raz Kids* Program. This study aimed to empower the students' engagement in learning English and provides recommendations for teachers on how this knowledge can be converted into best practice in the classroom. This study was a case study, which conducted in Semarang International Primary School. The participants were one expatriate teacher and one local (Indonesian) teacher who taught English for fourth grades' students, and twelve four grade students who come from different nationalities. Data sources included interviews, video-recorded, and document sites. The findings from in-depth qualitative information analysis revealed that technology develops the teachers' technological and pedagogical skills. Findings also found high quality and quantity of interactive electronic book provides on *Raz Kids* enhance the students' engagement and develop the students' reading experience.**

Keywords: ***TPACK, learning English,* Raz Kids, *teachers, primary school***

I. INTRODUCTION

The uses of technology integration as a tool of learning in education are commonly used in classrooms in attempts to enhance the students 'learning. Some scholars argue that technology is vital for primary students since it successfully leads students' learning optimization. The digital story makes English more fun and authentic for students with multimodal tools on the digital book, which offer a variety of images and sounds. It can also improve the creativity and high-order thinking of the students [1]. Teaching English to children in primary schools is part of the school curriculum [2]. Technology can be used successfully as both a cognitive and an educational tool. Technology in education opens up a new area of knowledge and can change some of the current educational methods [3]. It can be useful in the classroom by promoting curiosity, helping communicate, creating teaching tools and helping students to express themselves [4].

In addition, some scholars agree that the use of technology able to develop the 21th-century skills and knowledge which is needed by the students for their future. It reconstructs the educational curricula and bridges the existing gap in teaching and learning technologies [5]. It can be useful in the classroom by promoting curiosity, helping communicate, creating teaching tools and helping students to express themselves [6]. Working with ICT allows more opportunities for young students to work creatively with ideas and to engage in higher-order thinking [8]. Thus, students need to be able to make effective use of these technologies in the digital world. Some of the scholars question the benefits of using technology to encourage the students' motivation, engagement, and achievement in learning.

In the other hand, some of the scholars question the benefit of using technology in the classroom. It does not solve the students 'difficulties, but it might help them to improve their skills and reach their potential [9]. Besides, while using technology, the students still need to decode words like a textbook and also they have to learn how to navigate and familiar with the features of the platform or any computer program they use. Also, it can bring harms because many additional tools and features on the application usually have much additional content in which it could distract the students to focus while learning the materials. Working with ICT allows more opportunities for young students to work creatively with ideas and to engage in higher-order thinking [10]. Thus, students need to be able to make effective use of these technologies in the digital world. Some of the scholars question the benefits of using technology to encourage the students' motivation, engagement, and achievement in learning. Technology is just a supporting tool.

The investigation of technology integration in this study were rooted though the idea of TPCAK (Technological Pedagogical Content Knowledge). TPACK contains teacher's knowledge of the content knowledge (CK), pedagogical knowledge (PK),

pedagogical content knowledge (PCK), and the teacher's knowledge to integrate blended learning to the students (TPACK) [11]. With this framework, the teachers help the students to understand and adopt a new way of learning to develop their competencies. This concept is crucial for current and future directions of the students in order to get ready in the era of digital technologies. Thus, this study focused on answering the following research questions:

1. What are the indicators of teachers' TPACK in their design of teaching English with the help of *Raz Kids* Program?
2. What are the indicators of teachers' TPACK in the teachers' actual teaching with the help of *Raz Kids* Program?

II. METHOD

This study employed a case study to investigate the teachers' practice using technology integration [12]. The unit analyses were teachers' lesson preparation and teachers' classroom actual teaching. This study followed a case analysis to categorised each layer of interview and observation which taken from the teachers pre-teaching, while teaching and post-teaching lesson.

A. *Study Context*

The study was conducted in Semarang Multinational Primary School during October 2019 to January 2020. This study explored the use of interactive *Raz Kids*, which offers hundreds of e-books to read and to practice for primary students. The *Raz-Kid* provides multiple resources of fiction and non-fiction texts to facilitate individualized reading instruction, which can be used inside the classroom, and as home learning for students. *Raz Kids* has many features that allow the teacher to monitor and assess students' individualized lessons and improvement. It also provides quizzes that test multiple components of reading skills. The feature allows the teachers to records the students' activities on *Raz Kids* while the students at home. *Raz Kids* Program is a part of the school's project to develop the students' competences in the 21st-century. Figure 1 showed the overview of the login page on the *Raz Kids*. Log in page consists of there kinds of user features: students' log in features, the teachers' log in features, and the parents' log in features which they can log in after typing the user username and password.

Figure 1. Log in Page on *Raz Kids* Program

Figure 2 showed the overview of *Raz Kids* Program. After logging into the program leads the user to the home page, which consists of three kinds of features: reading room, level up, and assessment. The reading room consists of hundred online digital books. Level up features consists of the students' level reading achievement from time to time. The assessment features on *Raz Kids* consists of teachers' instruction in which the teachers can assign some instruction to the students' and asses the students' progress.

Figure 2. Home Page *Raz Kids* Program

B. *Participants*

Because the context of this research relies on the use of technology in the primary classroom; thus, the research site and participants in this research were chosen purposefully. The study participants were an expatriate teacher who had ten years of teaching experience and an Indonesian teacher who had five years of teaching experience. Both participants are teachers who taught at the fourth grade and have four years' experience of teaching English through *Raz Kids*. The expatriate teacher is the primary teacher in the fourth-grade classroom, while the Indonesian teacher as co-teacher.

Before observing, the school principal's approval was addressed first. After getting the approval, the meeting with the school management was scheduled to inform about the study details and arranged the schedule to meet both expatriates and local teachers in person. Both teachers were explained briefly on the details of the purpose of the study. After the participants read the participant' information sheet, they signed the consent form to confirm that they already understood about the research in details and they agreed to participate. The consent form was also provided research ethics and permission to record lessons to observe how they teach English by using *Raz Kids*.

C. *Data Collection Procedure*

In terms of the research procedure, the instruments were used in this study were observation, video-recorded, and in-depth interviews to record the teachers' teaching practices. Interview aimed to gain detailed information on teachers'

lesson plan and actual teaching. There is two-phase of interviews; the first is a pre-teaching interview (before classroom observation) and post-teaching interview (after classroom observation). The post-teaching interview will be based on the video which has been recorded from the teachers' classroom. Observation aimed to get evidence of the teachers' ICT integration when developing their teaching materials. The observation was developed in the form of a checklist and notes. While, the video was used to examine the evidence of TPACK in teachers' design, actual teaching, and reflections [ocak].

In teacher education, video study as a method was used to examine and improve the teaching practice. The video data are also beneficial for enabling repeated analysis by the researchers [12]. A week before the video recording, consent forms for the video recordings were collected from the students. The teachers introduced visitors as the researchers during the lesson break, and let them introduce themselves and briefly explain the study purpose. The students were told that the videos would not be made public and that only the researchers and the teachers had access to them. The camera was located at the corner of the classroom, with a wide-angle that allowed the whole classroom to be filmed. It was also placed in the back of the classroom so as not to attract the attention of the students.

III. RESULTS AND DISCUSSION

A. *The Indicators of TPACK in teachers' lesson design*

The first research question attempted to answer the indicators of TPACK in teachers' lesson plan. Thus, the teachers' lesson plan design process were examined through a semi-structured interview. The investigation was under the themes of technology selection, curriculum planning, lesson preparation, and assessment as explained below:

Technology Selection. The teachers' TPACK indicators were identified when teachers made clear statements about their emphasis and concern when selecting technology, lesson plan design, strategy teaching to make it fit with technology and content of materials, and also assessment. The result of the interview found that the factor affecting teachers to choose *Raz Kids* as a tool of learning English because *Raz Kids* has a strong alignment with the school' curriculum and learning goal. The teachers agreed that *Raz Kids* is the best program to enhance the students' reading comprehension and has a significant role in students' literacy skills.

Curriculum Planning. The teachers stated that curriculum planning was vital in designating their teaching objectives, organizing the topics, and implementing the teaching methods and strategies. Setting instructional goals determined based on the curriculum. Teachers believed the methods and strategies that fit the content had an important place in their lesson design.

Lesson Preparation. Based on the pre-teaching interview, the teachers reported that *Raz Kids* helped the students to prepare the lesson. Also, it helped the students to get various information and knowledge from the text they read on *Raz Kids.* Technology also enables the teachers to send the materials and instruction before the lesson given to them. Besides, the teachers can send the weekly plan designed by teachers before teaching. Thus, the parents can also easily monitor what activities the students do in each day in a week.

Assessment. Both teachers agreed that *Raz kids* as education platforms help them to assess the reading comprehension, fluency, and spelling which might not be found in another platform. The teachers also can easily monitor the students' activity inside or outside the classroom. The results indicated that *Raz kids* offered a complete platform for learning and allowed teachers to assess the students' reading activity individually.

B. *The indicators of teachers' TPACK observed in teachers' actual teaching on English classroom*

The classroom teaching sessions were examined through video-recorded to identify observed TPACK indicators within the second research question. To confirm, the evidence of teachers' TPACK in the classroom, the post-teaching interviews have complemented the data observed in the teachers' actual teaching. Findings from classroom teaching and post-teaching interviews merged to concentrate on five themes: technological knowledge on lesson launch, teaching methods and approaches, technology-enhanced classroom management, troubleshooting, and assessment.

Technological Knowledge. The teachers' technological knowledge on lesson launch emerged on the first 5 to 10minutes of classroom teaching as preparation before the teachers start using the *Raz Kids.* The first action of emerging teachers' technological knowledge arouses when the teachers switched on the tablet and initiate the program. Then the teachers checked the internet connection on the students' tablet/laptop. While navigating the program on their tablet, the teachers guided the students to open their tablet or laptop. Before continue to the main activities, the teachers checked and helped the students' tablet connection. After that, all the students' tablet was ready with an internet connection, the teachers asked the students to clicked on *Raz Kids* program and helped the students' problem when navigating it. The teachers also guided the students to insert their username and password individually. In summary, it can be said that teachers have sufficient knowledge of technological knowledge, which can be seen from

the teachers' lesson launch behaviours.

Table 1. The Indicators of Teachers TPACK from Teachers' Actual Teaching Performance

TPACK Component	Indicators
Technological Knowledge on Lesson Launch	Switch on the tablet and connect to the internet
	Checking and helping the students' connect to the internet
	Initiating and log in to *Raz Kid* account
	Helping the students to log in to *Raz Kids*
	Helping the students' navigate their tablet/laptop
Technology-Enhanced Strategy	Implementing tablet/laptop-based learning
	Visualizing the students' abstract concepts
	Sharing files of weekly teaching plan to the parent
	Sharing files to other devices
	Using Google docs to share files
	Using online education platforms
Technology-enhanced classroom management	Checking the connection status of student tablets or laptop
	Checking the students' tablet or laptop for disconnect status
Troubleshooting	Asking for IT instructor help
Assessment	Monitoring the students' individual activity on *Raz Kids*
	Assessing the students' reading comprehension, and fluency using *Raz Kids*

Technology Enhanced Strategy. The classroom videos were analyzed to display the teachers 'teaching strategies in using technology in their actual teaching. The result revealed that the Technology-Enhanced Strategy was found on the implementation of tablet/laptop-based learning through *Raz Kids* program. The teachers visualized the students' abstract concepts through multimodal resources both digital and a non-digital media. The indicator of teachers' TPACK also emerged on the open system on *Raz Kids* which enable the teachers to send the teaching activity and the students' progress of learning through *Raz Kids*.

Technology-enhanced teachers' classroom management. Teachers used various strategies to manage their classrooms. The indicator was found when the teachers checked the connection status of student tablets, checked the system notification for disconnected students, walked around to check the students' reading progress. According to the interview data, teachers reported that *Raz Kids* help the teachers to manage the class easier.

Troubleshooting. Troubleshooting included the teachers' strategies for dealing with the problems emerged during teachers' actual teaching when using *Raz Kids* in their classrooms. The observed and reported problems that teachers faced were unavailable student devices, broken tablet or laptop software, and network disconnection. Unavailability of students' tablets was the major problem that the teachers faced in tablet-based teaching. The possible reasons reported were the devices being low on memory or out of charge. The proposed solutions were sharing tablets with classmates, keeping the duration of tablet-based education shorter, and sharing documents online for later access. In connection problems,

Assessment. The teachers reported various assessment techniques provided under *Raz Kids* such as helping the teachers to assess and monitor the students' learning progress, giving the test, conducting online quizzes and giving rewards for the students who increased the level up of reading. In addition to the use of *Raz Kids*, all teachers stated that they used *Raz Kids* to send and receive quizzes for making the assessment easy.

IV. CONCLUSIONS

This study implemented a case study to examine the indicators of TPACK and the teachers' TPACK based on the actual situation in class. Teaching English using technology in primary students has a big role in affecting teachers' practice in classrooms. Thus, teachers need to control and maintain students' activity when using technology. So, technology can bring both good and harm to education, it depends on how we use it. If it is used in the right way, it will benefit both teachers and learner. It must be followed by teachers or parent control in order to get its advantage. In this study, data had been limited by the number of participants. Future research can expand the number of participants to get and develop the scope of research to get more insightful data.

V. ACKNOWLEDGMENT

The authors' gratitude to the school principal, the English teachers, and the students who were voluntarily involved in the project. We are grateful to the Ministry of Research and Technology of the Republic of Indonesia and STKIP Muhammadiyah Bangka Belitung for financial support.

REFERENCES

[1] Lestariyana, R. P. D., & Widodo, H. P. (2018). Engaging young learners of English with digital stories: Learning to mean. Indonesian Journal of Applied Linguistics, 8, 488-494. doi: 10.17509/ijal.v8i2.13314

[2] Widodo, H. P. (2016). Engaging young learners of English in a genre-based digital storytelling project. Cambridge: Cambridge University Press Language Teacher Research.

[3] Nilüfer Atman Uslu & Yasemin Koçak Usluel (2019): Predicting technology integration based on a conceptual framework for ICT use in

education, Technology, Pedagogy and Education,
DOI: 10.1080/1475939X.2019.1668293

[4] Neokleous, G. (2019). Interpreting technologically fluent classrooms: digital natives' attitudes towards the use of technology in primary schools in Norway. In C. N. Giannikas, E. Kakoulli Constantinou & S. PapadimaSophocleous (Eds), Professional development in CALL: a selection of papers (pp. 117-129). Research-publishing.net. https://doi.org/10.14705/rpnet.2019.28.874

[5] Gilakjani, P. Abbas, (2013). Factors Contributing to Teachers' Use of Computer Technology in the Classroom. Universal Journal of Educational Research 1(3): 262-267. DOI: 10.13189/ujer.2013.010317

[6] Bruce, B., & Levin, J. (2001). Roles for new technologies in language arts: inquiry, communication, construction, and expression. In J. Jenson, J. Flood, D. Lapp, & J. Squire (Eds.), The handbook for research on teaching the language arts. NY: Macmillan

[7] Buabeng-Andoh, C. (2012). Factors influencing teachers' adoption and integration of information and communication technology into teaching: A review of the literature. International Journal of Education and Development using Information and Communication Technology, 8, 136–155.

[8] McDonald, K., & Hannafin, R. (2003). Using web-based computer games to meet the demands of today's high stakes testing: A mixed-method inquiry. Journal of Research in Technology in Education, 35, 459–472.

[9] Van Wyk, G. and Louw, A. "Technology-Assisted Reading for Improving Reading Skills for young South African Learners." The Electronic Journal of e-Learning Volume 6 Issue 3 2008, pp. 245 – 254

[6] McClanahan, B., Williams, K., Kennedy, E. et al. A Breakthrough for Josh: How Use of an iPad Facilitated Reading Improvement. TECH TRENDS 56, 20–28

[7] Chen, Ya-Ling; Fan, Sitong; and He, Zhongyuan, "Exploratory Research: The Effects of Electronic Books on College Students" (2012). MBA Student Scholarship.

[9] Mahboubeh Taghizadeh & Zahra Hasani Yourdshahi (2019): Integrating technology into young learners' classes: language teachers' perceptions, Computer Assisted Language Learning, DOI: 10.1080/09588221.2019.1618876

[10] Jones, S., & Chapman, K. (2017). Telling stories: Engaging critical literacy through urban legends in an English secondary school. English Teaching: Practice & Critique, 16, 85-96. DOI: 10.1108/ETPC-02-2016-0031

[11] Koehler, M. J. (2006). *Teachers College Record*, *108*(6), 1017–1054. https://doi.org/10.1111/j.1467-9620.2006.00684.x

[12] Yin, R. K. (2003). Case study research: Design and methods. (3rd ed.). Thousand Oaks, CA: Sage.

[13] Derry, S. J., Pea, R. D., Barron, B., Engle, R. A., Erickson, F., Goldman, R., ... Sherin, B. L. (2010). Conducting video research in the learning sciences: Guidance on selection, analysis, technology, and ethics. Journal of the Learning Sciences, 19(1), 3-53. https://doi.org/10.1080/10508400903452884