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Teachers' Practices in Using Educational Mobile Applications to Teach English

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Abstract

English language learning has shifted with the development of technology in education. Learning can also be done through easy access from a mobile phone. Educational mobile applications bridge the teaching learning processes effectively. This study aims to investigate the teachers' practices in using educational mobile applications to teach English in senior high school in Semarang. This study utilize case study approach to achieve the objectives of the study. Questionnaire, interview, document analysis, and classroom observation were applied to investigate the teachers' practices in using educational mobile applications in relation to multimedia learning theory and the Technological Pedagogical Content Knowledge (TPACK) theory. An evaluation rubric was used to find out the effectiveness of the educational mobile applications the participants used in teaching. Then a compatibility checklist was used to find out the compatibility of the educational mobile applications with the current curriculum, the 2013 curriculum. The findings revealed that the teachers were aware of multimedia learning when they chose to use certain educational mobile applications to teach English. They also possessed what the TPACK suggested. Therefore, they had the tools they needed to integrate technology into their classrooms. The study showed that from the five educational mobile applications the teachers used, Google Classroom was the most effective, whereas Goggle Drive was the least effective. The other three, 360 Video, YouTube, and Google Slides could, meanwhile, be considered effective apps. In case of compatibility of the educational mobile apps with the 2013 curriculum, it could be said that all of the educational mobile applications were compatible with the curriculum since they were applicable in classroom settings.

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INTRODUCTION

Today's 21st century learners' learning process should be more engaging and challenging to help them cope with their future lives later. In accordance with that, teachers should be able to use technology to enhance language learning all over the world today. As stated by Mundy, Kupczynski, and Kee (2012) and Motteram (2013) that technology is very much part of language learning throughout the world at all different levels. Technology-enhanced classrooms have been found to promote discovery learning, learner autonomy, and learner-centeredness. Therefore, we use technology to help students to visualize, simulate, solve real-world problems, collaborate, research, and design whenever possible (Hamilton, 2015; Sonego, et.al, 2016). In other words, technology will surely help students learn things autonomously. The use of technology can take students outside of the structures of the classroom, and the students can take the outside world into the classroom which empowers students to enhance their learning experiences.

There are five factors stated in the decree the Decree of Ministry of Education and Culture Number 69 Year 2013. They are internal factor, external factor, mind-set improvement, curriculum management, and material development. The internal factor deals with the condition of education in Indonesia today regarding the massive growth of human resources by year 2045. The biggest challenge is how to transform these productive human resources into competence and skilful human resources. The external factors are the challenges regarding the globalization era and communication technology development in which it will definitely affect the way teachers teach. Mind-set improvement should be done by teachers as well as stakeholders. Teachers should adapt the way they teach as well. They should be able to apply student-centred approach, use interactive media, apply network and active learning, enhance group work, use multimedia, focus on individual needs, apply multidiscipline, and critical learning. Therefore, todays' teachers should be able to cope with these challenges which might not be an easy thing to deal with.

In short, teachers and students can explore more and personalise their teaching and learning which in the future will surely improve their performances. Technology lends itself very well to personalised and independent learning where students can work at their own paces, complete interactive exercises rigorously in class or at home and receive immediate feedback. Gaining points for their efforts and being able to compare their scores with their classmates is motivating for them too and adds an element of engaging gamification to their learning (Dale, 2014; Costley, 2014)

Technology has been used to both assist and enhance language learning. Teachers have incorporated various forms of technology to support their teaching, engage students in the learning process, provide authentic examples of the target culture, and connect their classrooms in Indonesia to classrooms in other countries where the target language is spoken. Further, some technology tools enable teachers to differentiate instruction and adapt classroom activities and homework assignments, thus enhancing the language learning experience. Mobile learning programs can enable language educators to expand language-learning opportunities to all students, regardless of where they live, the human and material resources available to them, or their language background and needs. In sum, technology continues to grow in importance as a tool to assist teachers of foreign languages in facilitating and mediating language learning for their students.

While technology can play an important role in supporting and enhancing language learning, the effectiveness of any technological tool depends on the knowledge and expertise of the qualified language teacher who manages and facilitates the language learning environment. In some cases, however, school administrators have permitted technology to drive the language curriculum and have even used it to replace

certified language teachers. Language technology companies have made claims about their products' abilities to help students learn languages. Anyhow, there is currently no definitive research to indicate that students will acquire a foreign language effectively through technology without interaction with and guidance from a qualified language teacher.

Indonesia is "the sleeping digital technology giant of Asia". The population of Indonesia which reaches 250 million is a large market. Indonesian smartphone users are also growing rapidly. The digital marketing research agency, Emarketer, estimates that in 2018 there will be more than 100 million active smartphone users in Indonesia. With this amount, Indonesia will become the country with the fourth largest active smartphone users in the world after China, India and America (Rahmayani, 2015). Consequently, smartphones will dominate human life on all fronts. Many things can be replaced by the use of smartphones, such as meeting up, shopping, buying food, and many more things.

Application of wireless technologies and easy for use and control mobile and other high-tech devices are very well accepted by young generation and this way education become attractive for the learners. Therefore integration of mobile and advanced technologies in learning process has become a very important part of the development and implementation of advanced forms of education and future research in this field will be very critical issue for delivery of adaptive, flexible, attractive and mobile education. Based on the explanation above, research that investigate how teachers perceive, choose, analyse, and integrate the use of educational mobile applications is still needed.

This research is in the scope of investigating teachers' practice which covers teachers' plan and implementation in using educational mobile applications in public senior high schools in Semarang. This study also focuses on investigating whether the use of educational mobile applications in their classrooms is effective in teaching English at senior high school level and that the use of educational mobile applications is compatible with the current curriculum which is the 2013 curriculum.

This current issue needs to be discussed further since English education in Indonesia has come to the point where technology in an inseparable part of the curriculum. As stated in the Decree of Ministry of Education and Culture Number 69 Year 2013 regarding the 2013 Curriculum Structure for High School that the use of technology should be integrated in the teaching and learning processes in the classrooms for all subjects.

Furthermore, the integration of technology using educational mobile apps allows new types of learning activities to be implemented as they are enough flexible to the EFL students. Moreover, most students possess mobile devices of their own. Mobile devices can be used as a mobile learning tool which will make the learning process more flexible (Hsu & Ching, 2013; Musahrain, 2014; Mahon, 2014). In this situation, students do not have to attend a special place to undergo the learning process. They can just do it from their homes or wherever they are. In that case, why not use the devices more on educational matters rather than use them just for fun like playing mobile games. Also, learning English will be more fun and enjoyable for students.

Specifically, today's students are young generation and they are digital native by nature. Therefore, teachers should be able to provide tools as well as facilities so that their students will be able to enhance their learning. Moreover, large-scale studies need to be done in order to understand its strengths and weaknesses in teaching specific aspects of language (Costley, 2014; Hamilton, 2015; Basal, et.al, 2016)

There are numerous advantages in using mobile devices as means for providing learning experiences, including: (1) ease of use: learners use a familiar device which is used in a daily basis and he is not required to become accustomed with a new tool, thus removing cognitive load and improving the speed at which learners perform tasks; (2) availability of content at anytime; learners are not limited to scheduled

learning sessions, but instead they freely allocate the time at which they will access the learning materials. (3) portability: while distance education and indeed mobile learning allows access to content at any time, mobile learning also enables access to content literally anywhere since they always carry their smart mobile devices with them. Also, situated learning is possible to happen at the location where training or support is needed. (4) collaborative learning: the communication capabilities through a wireless network that are inherent on the mobile devices such as instant messages, SMS, voice calls, shared calendars, access to forums, etc. are well suited for cooperative learning activities and content sharing.

Furthermore, the developments in Information and Communication Technology (ICT) have become an integral part of personal and social lives and also influence professional careers (Juniu, 2006; Hamilton, 2015; Khubyari & Narafshan, 2016; Jojo & Mohapi, 2017). Therefore, this advancement has led teachers, syllabus and material designers to consider the possibility of integrating technology into the mainstream curriculum development. Therefore, integrating technology such as Mobile Assisted Language Learning (MALL) is needed to prepare our students to face their future lives.

According to the 2013 curriculum, Indonesian high school should integrate the use of technology in the ELT classrooms. Therefore, I want to know whether high school's teachers in Semarang use technology, especially educational mobile applications in teaching English in their classrooms and the strategies they apply in implementing the use of educational mobile applications as well as how teachers evaluate the use of educational mobile applications. Moreover, I also want to know how effective is the use of educational mobile applications to teach English in high school level and that the use of educational mobile applications is compatible with the current curriculum.

METHODS

This study used Vygotsky's constructivism followed by Mayer's multimedia learning and Koehler and Mishra's TPACK. The constructivist theory assumes that learners construct their own understanding and knowledge of the world through experiencing things and reflecting on those experiences. Constructivists believe that learning occurs when one constructs both mechanisms for learning and his or her own unique version of the knowledge, colour by background, experiences, and aptitudes (Roblyer, 2006).

Whereas the multimedia learning may be viewed as response strengthening in which multimedia environments are used as drill-and-practice systems, information acquisition in which multimedia messages serve as information delivery vehicles, or as knowledge construction in which multimedia messages include aids to sense-making. While the Technological Pedagogical Content Knowledge (TPACK) framework suggests that teachers need to have deep understandings of each of the above components of knowledge in order to orchestrate and coordinate technology, pedagogy, and content into teaching.

The use of educational mobile application to teach English in senior high school was analysed under the theoretical framework underpin this study. Moreover, the compatibility of the use of educational mobile application in the target schools was analysed using the 2013 curriculum.

Therefore, case study research design was the best way to describe or illustrate an existing phenomenon. In other words, case study research describes and reveals problem, situation, event or even actual fact. It is to reconstruct the concept of educational case study as a prime strategy for developing educational theory which illuminates educational policy and enhances educational practice.

In investigating teachers' practices in using educational mobile applications to teach English, qualitative approach was used. Qualitative research refers to a study process

that investigates a social human problem where the researcher conducts the study in a natural setting and builds a whole and complex representation by a rich description and explanation as well as a careful examination of informants' words and views (Creswell, 2012). Case study design is conducted in a natural setting with the intention to comprehend the nature of current processes in a previously little-studied areas, it allows the researcher to grasp a holistic understanding of the phenomenon under investigation (Creswell, 2012). Case study has demonstrated its appropriateness to generate a well-founded interpretive comprehension of human or technology interaction in the natural social setting. Consequently, from an interpretive perspective, the researcher can obtain sufficient material from the selected case(s) for subsequent analysis.

This research was conducted in two phases. The study began with a survey in order to find out the participants or respondents for this study. The survey was conducted to sixteen senior high school English teachers in Semarang to find out if they integrate the use of technology especially educational mobile applications to teach English in their classroom. Then, it was explored with a few of them to obtain their practices in using educational mobile applications through questionnaire, interview and classroom observation.

RESULTS AND DISCUSSION

Good Teachers' Practices in Using Educational Mobile Applications

The result showed that all of the participants felt that using mobile applications somehow made the teaching process easier. It also enhanced learners' critical thinking, promoted innovation and problem-solving skills of the learners. Moreover, it enhanced collaborative learning among learners, as well as students' autonomous learning. they said that they confidently used different ICT devices in teaching and –the type of apps they use in teaching was largely dependent on the lesson objectives and activities. They also chose ICT tool based on the curriculum or subject policies at school. Then, they were boldly agreed that technology integration should be promoted in teaching and learning. The teachers were aware that educational mobile applications they used in the teaching and learning processes were one kind of multimedia. The educational mobile applications that they used in teaching were actually technology for presenting material in both visual and verbal forms.

Multimedia technology was devices used to present visual and verbal material. While multimedia learning could be defined as learning from words and pictures (Mayer, 2009). Therefore multimedia learning happened in the teachers' practices since they carried out multimodal communication. In this case, students were exposed to more than just one kind of communication. Therefore, apps could serve many kinds of learners. Whether the students were auditory or visual learners, they could learn through the same type of app. it could be assumed that an application such as Google Slides could be used to expose students to multimodal communication. Furthermore, the use of educational mobile apps could help students understand the materials better, the apps were suitable with the materials given and the apps were effective for the lesson. However, on three other statements, the teachers differed in planning. Two of them mentioned the duration of the use of educational mobile apps in their lesson plan, described the use of the apps clearly and that the apps were used to evaluate the students' understanding while the other one did not.

The findings revealed from the guideline were that all of the plans stated that the educational mobile apps used delivery media (e.g. speaker and computer screen), presentation mode (e.g. words and pictures), and sensory modalities (e.g. auditory and visual). Also, there was evidence of student-centered approach and response strengthening environments (e.g. drill and practice systems), and information acquisition was present in which multimedia messages serve as information delivery vehicles. Likewise, there was a knowledge construction in

which multimedia messages included aids to sense-making and that the activities promoted meaningful learning (e.g. good retention and good transfer performance).

The results also showed the TPACK that was conveyed from the lesson plans. The lesson promoted digital technologies such as the Internet, digital video, interactive whiteboards, and software programs. In addition to that, teacher knew well about the content they were going to teach and how the nature of knowledge was different for various content areas. Also, they used methods and processes of teaching and included knowledge in classroom management, assessment, lesson plan development, and student learning. Moreover, the teachers blended both content and pedagogy with the goal being to develop better teaching practices and they understood that, by using a specific technology, they could change the way learners practice and understand concepts in a specific content area. Teacher acquired the knowledge of how various technologies could be used in teaching, and understood that using technology might change the way teachers taught. The last statement showed that teacher possessed the knowledge required for integrating technology into their teaching in any content area. Also, teachers had an intuitive understanding of the complex interplay between the three basic components of knowledge (CK, PK, TK) by teaching content using appropriate pedagogical methods and technologies.

In this study, all teachers had sufficient background knowledge and similar attitude about the educational mobile applications they used. They felt that using educational mobile applications somehow made the teaching learning processes in the classroom easier. Moreover, the use of applications promoted students' critical thinking, innovation, problem-solving skills as well as collaborative learning and autonomous learning. In applying the applications, the teachers used media or tools such as interactive whiteboard or LCD projector in delivering their lessons. Gadgets were allowed to use during the lesson. The internet was also allowed to be used by the students so that they can solve task collaboratively. The teachers adjusted the applications they used with the lesson objectives and activities. The choice of applications they used should be the ones that could increase students' confidence in learning. Technology integration should have been promoted at schools already. In their practices, there was evidence of multimedia learning since students were not only exposed to words but also pictures and sounds. Multimedia technology was devices used to present visual and verbal material. Therefore, they could be able to learn from textual, audio, and visual materials. Multimodal communication also applied in the practices.

The technical skills possessed by the teachers were sufficient for the teachers to be able to use the different technology available which was in line with the previous study conducted by Zhang (2016). Thus, they had the technological knowledge needed to be able to apply certain educational technology. It could be said that even though the teachers focussed on using applications in their classrooms, they did not take for granted the content knowledge which was English. They applied various strategies to develop their understanding of English. They knew how to assess their students' performance as well as their students' learning in multiple ways. They also knew how to organize and manage their classes. They even applied various approaches in teaching English using technology as well as adapting their teaching styles to different learners. Therefore, they combined technology, content and teaching approaches to enhance their students understanding of the subject.

In the teachers' practices, the combination of technology, content, and teaching approaches were seen during the teaching learning process. There was evidence that the educational mobile applications they use helped their students to engage more in the process. Bu using applications, they could change the way learners practice and understand concepts in a specific content area. The teachers planned their lesson in detail dealing with the use of educational mobile applications. From the

findings it could be seen that they had different applications to choose and different style in writing their plans. In their plans, they included the type of applications they use, how to integrate it into the lesson and whether the applications helped students to absorb the material better. In accordance with previous study conducted by Dudek, Kettler, & Reddy (2018), the finding showed that teachers state the methods they use as well as the process of teaching which included knowledge in classroom management, assessment, lesson plan development, and student learning.

There were five applications that the teachers use in their practices. They were 360 video, YouTube, Google Classrooms, Google Drives, and Google Slides. All of the applications were quite common for students since they knew how to use them. The teachers showed good understanding of the applications they use. Moreover, the applications they use were suitable with the objectives they wanted to achieve. In their practices, students seemed to enjoy the English class they have with the use of applications. They were challenged to explore their critical thinking, communication, collaboration, and creativity during the practices. It implied that the teachers engaged really well with the use of technology especially educational mobile applications in their teaching practices.

Adequate Effectiveness in Using Educational Mobile Applications to teach English in Senior High School

The following descriptions showed the findings of the effectiveness on the use of educational mobile applications to teach English. The findings were revealed from the rubric for evaluating the educational mobile applications used in the teachers' practices.

360 video

The findings revealed that based on the functionality, 360 video met each criteria. It could accommodate any size class with the flexibility to create smaller sub-groups or communities of practice. It was a user-friendly interface app. Moreover, technical support or help was readily available. The app also allowed users to communicate through different channels (audio, visual or textual).

For the accessibility of the MobApp, there was one criterion that needed serious concerns. For the standard of accessibility, the app was easy to access. It was designed to address the needs of diverse users, their various literacies, and capabilities, thereby widening opportunities for participation in learning. It also could be used for free. On the contrary, proper use of the application required specialized equipment like VR toolbox which should be purchased at significant price.

The technical category revealed that the MobApp could be embedded into an LMS and users could effectively utilize the application with any standard, up-to-date operating system. Furthermore, users could effectively utilize the application with any standard, up-to-date browser and users did not need to download additional software or browser extensions.

Regarding the mobile design, the application could be accessed, either through the download of an app or via a mobile browser, regardless of the mobile operating system and device. Design of the mobile application fully took into consideration the constraints of a smaller-sized screen. There was little to no functional difference between the mobile and the desktop version, regardless of the device used to access it. Likewise, there was no difference in functionality between apps designed for different mobile operating systems.

Unfortunately, the app could not be access without internet connection. In case of privacy, data protection, and rights, the application did not require the creation of an external account or additional login, such that no personal user information was collected and shared. Also, users maintained ownership and copyright of their intellectual property or data and the user could keep data private and decide if/or how data was to be shared. However, for achieving, saving, or exporting data was not applicable for this app.

In matter of social presence, this app had the capacity to support a community of learning

through both asynchronous and synchronous opportunities for communication, interactivity, and transfer of meaning between users. Meanwhile, instructors could control learner anonymity and the application provided technical solutions for holding learners accountable for their actions. Moreover, the application was widely known and popular. It was likely that most learners were familiar with the application and had basic technical competence with it.

In case of teaching presence, this application had no support for instructor's ability to be present with learners via active management, monitoring, engagement, and feedback. Likewise, the application did not support the collection of learning analytics. The application was adaptable to its environment: easily customized to suit the classroom context and targeted learning outcomes.

Regarding the cognitive presence, the application enabled functional improvement to engagement in the targeted cognitive task(s). Whereas, the use of the application easily facilitated learners to exercise higher order thinking skills even though there were no opportunities for formative feedback on learning.

YouTube

The findings showed that the application can be scaled to accommodate any size class with the flexibility to create smaller sub-groups or communities of practice and it had a user-friendly interface and it was easy for instructors and students to become skilful with in a personalized and intuitive manner. There was technical support and /or help and aided users in troubleshooting tasks or solving problems experienced. Whereas, it allowed users to communicate through different channels (audio, visual, textual) but was limited in its ability to provide non-sequential, flexible/adaptive engagement with material and all aspects of the application can be used free of charge.

Regarding the accessibility, the application met accessibility guidelines. It was also designed to address the needs of diverse users, their various literacies, and capabilities, thereby widening opportunities for participation in learning. Moreover, proper use of the application does not require equipment beyond what was typically available to instructors and students (computer with built-in speakers and microphone, internet connection, etc.)

In matter of technical issue, the application could be embedded (as an object via HTML code) or fully integrated (e.g. LTI-compliant applications) into an LMS while maintaining full functionality of the application. Users could effectively utilize the application with any standard, up-to-date operating system and utilized the application with any standard, up-to-date browser. Furthermore, users do not need to download additional software or browser extensions.

In case of mobile design, the application could be accessed, either through the download of an app or via a mobile browser, regardless of the mobile operating system and device. There was little to no functional difference between the mobile and the desktop version, regardless of the device used to access it. No difference in functionality between apps designed for different mobile operating systems. But it could only be access online.

Regarding privacy, data protection, and rights, the application did not require the creation of an external account or additional login and users maintained ownership and copyright of their intellectual property or data. Moreover, the user could keep data private and decided if or how data was to be shared. The archiving, saving, and exporting data were not applicable.

In the social presence category, the application had the capacity to support a community of learning through both asynchronous and synchronous opportunities for communication, interactivity, and transfer of meaning between users while instructors could control learner anonymity. The application provided technical solutions for holding learners accountable for their actions. Whereas learners' familiarity with the application was likely mixed, some would lack basic technical competence with its functions.

In matter of teaching presence, the application had easy-to-use features that would significantly improve an instructor's ability to be present with learners via active management, monitoring, engagement, and feedback. Limited aspects of the application could be customized to suit the classroom context and learning outcomes. Unfortunately, the instructors were unable to monitor.

Regarding cognitive presence, the application enabled functional improvement to engagement in the targeted cognitive task(s). Moreover, it might engage learners in higher order thinking skills (given significant consideration to design, facilitation, and direction from instructor). But there were no opportunities for formative feedback on learning (i.e. lacking opportunities for tracking performance, monitoring improvement, testing knowledge on a regular basis).

Google Classroom

The findings revealed that this application met all the criteria. It worked well for all the 8 categories. Regarding its functionality, the application could be scaled to accommodate any size class with the flexibility to create smaller sub-groups or communities of practice. It had a user-friendly interface and it was easy for instructors and students to become skilful within a personalized and intuitive manner. There was technical support and/or help documentation was readily available and aided users in troubleshooting tasks or solving problems experienced and its provider offered a robust support platform. It allowed users to communicate through different channels (audio, visual, textual) and allowed for non-sequential, flexible/adaptive engagement with material.

In case of accessibility, the application met accessibility guidelines. It was designed to address the needs of diverse users, their various literacies, and capabilities, thereby widening opportunities for participation in learning. Proper use of the application did not require equipment beyond what was typically available to instructors and students (computer with built-in speakers and microphone, internet connection, etc.). All aspects of the application could be used free of charge.

In matter of technical support, the application could be embedded (as an object via HTML code) or fully integrated (e.g. LTI-compliant applications) into an LMS while maintaining full functionality of the application. Users could effectively utilize the application with any standard, up-to-date operating system. and could effectively utilize the application with any standard, up-to-date browser. Moreover, users did not need to download additional software or browser extensions.

Regarding the mobile design, the application could be accessed, either through the download of an app or via a mobile browser, regardless of the mobile operating system and device. Design of the mobile application fully took into consideration the constraints of a smaller-sized screen. There was little to no functional difference between the mobile and the desktop version, regardless of the device used to access it. No difference in functionality between apps designed for different mobile operating systems. It offered an offline mode like core features of the application could be accessed and utilized even when offline, maintaining functionality and content.

In matter of privacy, data protection, and rights, the use of the application did not require the creation of an external account or additional login, such that no personal user information was collected and shared. Users maintained ownership and copyright of their intellectual property or data and they could keep data private and decide if or how data was to be shared. Likewise, users could archive, save, or import and export content or activity data in a variety of formats.

In case of social presence, the application had the capacity to support a community of learning through both asynchronous and synchronous opportunities for communication, interactivity, and transfer of meaning between users. Furthermore, instructors could control learner anonymity. It also provided technical solutions for holding learners accountable for their actions. It was

widely known and popular, it was likely that most learners were familiar with the application and had basic technical competence with it.

This application worked well with teaching presence. It had easy-to-use features that would significantly improve an instructor's ability to be present with learners via active management, monitoring, engagement, and feedback. Also, it was adaptable to its environment which was easily customized to suit the classroom context and targeted learning outcomes. In addition, instructor could monitor learners' performance on a variety of responsive measures. These measures could be accessed through a user-friendly dashboard.

In matter of cognitive presence, the application enhanced engagement in targeted cognitive task(s) that were once overly complex or inconceivable through other means. The use of the application easily facilitated learners to exercise higher order thinking skills (given consideration to design, facilitation, and direction from instructor). Through the application, learners could regularly receive formative feedback on learning (i.e. they can track their performance, monitor their improvement, test their knowledge).

Google Drive

The findings showed that from the functionality category it could be scaled to accommodate any size class with the flexibility to create smaller sub-groups or communities of practice. It had a user-friendly interface and it was easy for instructors and students to become skilful with in a personalized and intuitive manner. Technical support and/or help documentation was readily available and aided users in troubleshooting tasks or solving problems experienced. It allowed users to communicate through different channels (audio, visual, textual) but was limited in its ability to provide non-sequential, flexible/adaptive engagement with material.

Regarding the accessibility, the application met accessibility guidelines. It had some limited capacity to address the needs of diverse users, their various literacies, and capabilities. Proper use of the application did not require equipment beyond what was typically available to instructors and students (computer with built-in speakers and microphone, internet connection, etc.). All aspects of the application could be used free of charge.

In matters of technical, the application can be embedded or fully integrated into an LMS while maintaining full functionality of the application. Users could effectively utilize the application with any standard, up-to-date operating system, utilize the application with any standard, up-to-date browser and did not need to download additional software or browser extensions.

Regarding mobile design, the application could be accessed, either through the download of an app or via a mobile browser, regardless of the mobile operating system and device. Design of the mobile application fully took into consideration the constraints of a smaller-sized screen. There was little to no functional difference between the mobile and the desktop version, regardless of the device used to access it. No difference in functionality between apps designed for different mobile operating systems. It offers an offline mode in which the core features of the application could be accessed and utilized even when offline, maintaining functionality and content.

Dealing with privacy, data protection, and rights, the use of the application did not require the creation of an external account or additional login, such that no personal user information was collected and shared. Users' maintained ownership and copyright of their intellectual property or data and the user could keep data private and decide if or how data was to be shared. Moreover, users could archive, save, or import and export content or activity data in a variety of formats.

Regarding social presence, the application had the capacity to support a community of learning through both asynchronous and synchronous opportunities for communication, interactivity, and transfer of meaning between users. Also, instructors could control learner anonymity and it provides technical solutions

for holding learners accountable for their actions. It was widely known and popular since it was likely that most learners were familiar with the application and had basic technical competence with it.

In matters of teaching presence, the application had limited functionality to effectively support an instructor's ability to be present with learners via active management, monitoring, engagement, and feedback. Limited aspects of the application could be customized to suit the classroom context and learning outcomes. Unfortunately, it did not support the collection of learning analytics.

Dealing with cognitive presence, the application acted as a direct application substitute with no functional change to engagement in the targeted cognitive task(s). It likely did not engage learners in higher order thinking skills (despite significant consideration to design, facilitation, and direction from instructor). There were no opportunities for formative feedback on learning (i.e. lacking opportunities for tracking performance, monitoring improvement, testing knowledge on a regular basis).

Google Slides

The findings revealed that based on its functionality, the application could be scaled to accommodate any size class with the flexibility to create smaller sub-groups or communities of practice. The application had a user-friendly interface and it was easy for instructors and students to become skilful within a personalized and intuitive manner. The technical support and/or help documentation was readily available and aided users in troubleshooting tasks or solving problems experienced. It was restrictive in terms of the communication channels employed (audio, visual, textual) and presented information sequentially in a rigid, inflexible format.

Regarding the accessibility, the application met accessibility guidelines. It was designed to address the needs of diverse users, their various literacies, and capabilities, thereby widening opportunities for participation in learning. Proper use of the application did not require equipment beyond what was typically available to instructors and students (computer with built-in speakers and microphone, internet connection, etc.). Moreover, all aspects of the application can be used free of charge.

In matters of technical, the application could be or fully integrated into an LMS while maintaining full functionality of the application. Users could effectively utilize the application with any standard, up-to-date operating system as well as utilize the application with any standard, up-to-date browser. Users did not need to download additional software or browser extensions.

In case of mobile design, the application could be accessed, either through the download of an app or via a mobile browser, regardless of the mobile operating system and device. Design of the mobile application fully took into consideration the constraints of a smaller-sized screen. There was little to no functional difference between the mobile and the desktop version, regardless of the device used to access it. No difference in functionality between apps designed for different mobile operating systems. It also offers an offline mode in which core features of the application could be accessed and utilized even when offline, maintaining functionality and content.

In matters of privacy, data protection, and rights, the use of the application did not require the creation of an external account or additional login, such that no personal user information was collected and shared. Users maintained ownership and copyright of their intellectual property or data and could keep data private and decide if / how data is to be shared. Users could also archive, save, or import and export content or activity data in a variety of formats.

Dealing with social presence, the application had the capacity to support a community of learning through both asynchronous and synchronous opportunities for communication, interactivity, and transfer of meaning between users. Instructors could control learner anonymity. It provided technical solutions for holding learners accountable for their actions. Learners' familiarity with the

application was likely mixed; some would lack basic technical competence with its functions.

Regarding teaching presence, the application had not been designed to support an instructor's an instructor's ability to be present with learners via active management, monitoring, engagement, and feedback. Limited aspects of the application could be customized to suit the classroom context and learning outcomes. It did not support the collection of learning analytics.

In case of cognitive presence, the application enhanced engagement in targeted cognitive task(s) that were once overly complex or inconceivable through other means. Use of the application easily facilitated learners to exercise higher order thinking skills (given consideration to design, facilitation, and direction from instructor). Unfortunately, there were no opportunities for formative feedback on learning (i.e. lacking opportunities for tracking performance, monitoring improvement, testing knowledge on a regular basis).

The findings showed that not all of the educational mobile applications used in the practices were effective to be used as teaching tools which in line with the previous study conducted by Parvin & Salam (2015). The effectiveness of the applications were revealed through the functionality, accessibility, technical, mobile design, privacy, data protection and rights, social presence, teaching presence, and cognitive presence.

The findings showed that 360 video was effective in its function as a media for students to get better understanding and to give more experience. This app offered 360° angle so that users might view the video from any directions. This simulation gave students different experience from the way they used to see usual video. The application also promoted critical thinking, creativity, collaboration, and communication among the students. Therefore, the app was an effective tool for students' engagement. However, the 360 video would not be effective when there were no VR toolbox since the effects of 360 video would be better access through the VR toolbox.

Another application, YouTube, was the most popular among the others. It was effective as an audio visual media in teaching. It offered text, animation and sounds which promoted multimedia learning. Nevertheless, this app was not really effective since it was a kind of passive app in which students could only watch and hear. There was not much involvement from the students.

The findings revealed that Google Drives was effective in helping teachers store materials or share tasks. It was considered ineffective since teachers could not give feedback through the app. It was just function as storage.

Meanwhile, Google Slides was an effective app when it was used as a means for students to collaborate and be creative in creating their presentations. There were hundreds of templates available to be used for free. Students just needed to be creative and innovative in using the app.

Amongst other applications, Google Classroom was the most effective of all. It covers all aspects in teaching learning process. Its features included assignments, questions, material, topic, reuse post, stream, and comment. Teachers could assign their students online in many kinds of format such as word, excel, slides, images, or videos.

Moreover, teachers could assess their students without any paper. Teachers could easily share the materials as well. The topic in the Classroom also enables teachers to classify each lesson. Furthermore, the reuse post could be used to give announcement to the students. For the stream feature, teachers could interactively communicate with their students online. The last feature was comment in which teachers and students could give comments either public or private ones. Thus, students could possess digital literacy as well through their full engagement in the system. Teachers could also monitor their students' progress whether they have submitted their works or have not. It facilitated students to exercise the higher order thinking skills as well as metacognitive engagement. Anyhow, it would not be effective

if the teacher did not prepare the use of the app well.

Thus, in choosing and utilizing educational mobile applications to teach English, teachers had to take effectiveness of the apps into consideration since it would affect the outcome of the practices. Students were also got the effects of the use of the apps. Therefore, teachers should be able to choose the most suitable app in their practices.

Significant Compatibility of the Use of Educational Mobile Applications with the 2013 Curriculum

In this study, it can be said that all applications promoted students-centred learning, interactive learning (interactive teacher-students, natural environment, sources/media), as well as learning networking (students can gain knowledge from anyone and from anywhere that can be contacted and obtained through the internet). Moreover, the applications enhanced active-seeking learning. The educational mobile application enhanced group learning (team-based learning) for 360 video, YouTube, Google Classroom, and Google Slides. But it did not work for Google Drive.

All the five mobile applications became one of learning multimedia-based tools and promoted a plural science learning (multidiscipline). as well as enhanced critical learning. Furthermore, the educational mobile applications became a means for students to explore their 21st century skills (4C's: critical thinking, creativity, collaboration, and communication). For the last criteria, Google Drives could not become a means for students to use factual, conceptual, procedural, and metacognitive knowledge.

In this study, the findings showed that the educational mobile applications were compatible with the 2013 curriculum if they met the criteria promoted by Minister of Education and Culture Decree number 69 year 2013 which was the guidance for senior high school in doing its academic affairs. Technology integration was mandated by the decree with the hope that today's students could cope with the digital age demands which is in accordance with the previous study conducted by Nur & Madkur (2015).

Here, from all the educational mobile applications used by the teachers, Google Drives was not really compatible with the current curriculum since it did not enhance group learning or team-based learning. Moreover, it could not become a means for students to use all the knowledge dimensions.

Eventually, the other four applications, 360 video, YouTube, Google Classrooms, and Google Slides, were considered compatible with the current curriculum. These apps promoted students-centred learning, interactive learning, and learning networking. Moreover, they enhanced active-seeking learning and group-based learning. They became multimedia tools which enhanced a plural science learning and critical learning. In addition, they served as a means for students to explore their 21st century skills or the 4C's as well as a bridge for students to make use of all their knowledge dimensions.

The findings revealed that the technical skills possessed by the teachers were sufficient for them to be able to use the different technology available which was in line with the previous study conducted by Zhang (2016). Thus, they had the technological knowledge needed to be able to apply certain educational technology. It could be said that even though the teachers focussed on using applications in their classrooms, they did not take for granted the content knowledge which was English. They applied various strategies to develop their understanding of English. They knew how to assess their students' performance as well as their students' learning in multiple ways. They also knew how to organize and manage their classes. They even applied various approaches in teaching English using technology as well as adapting their teaching styles to different learners. Therefore, they combined technology, content and teaching approaches to enhance their students understanding of the subject. The influence of this technology, which has found a place in education as well, has increased with

the merging of internet and mobile technologies (Wang et al., 2013).

In the teachers' practices, the combination of technology, content, and teaching approaches were seen during the teaching learning process. There was evidence that the educational mobile applications they use helped their students to engage more in the process. In accordance with a previous research conducted by Clayton & Murphy (2016) that digital devices such as mobile phone could be powerful tools for learning. By using applications, they could change the way learners practice and understand concepts in a specific content area.

CONCLUSIONS

This study revealed that the teachers engaged really well with the use of technology especially educational mobile applications in their teaching practice. Amongst other applications, Google Classroom was the most effective of all. It covers all aspects in teaching learning process. This application promoted digital literacy to students through their full engagement in the system and facilitated students to exercise the higher order thinking skills as well as metacognitive engagement. However, teachers had to take effectiveness of the apps into consideration as well as applied their TPACK since it would affect the outcome of the practices. The apps the teachers used were compatible with the 2013 curriculum which could become the tools that carried the mandated recommendation from the curriculum to be able to be implemented successfully. Apps could become multimedia tools which enhanced a plural science learning, critical learning, active-seeking learning and group-based learning. In addition, they served as a means for students to explore their 21st century skills or the 4C's as well as a bridge for students to make use of all their knowledge dimensions.

Finally, the result of this study may lead to another studies. An in-depth study to investigate e-learning could be conducted. It would also be better for future researchers to conduct similar study with a wider scale and longer time in order to collect a more complete information on how technology is integrated into Indonesian English language classrooms. In the future, education will never be able to put aside technology since it will be a necessity part of Indonesian future schools. Schools will be more enganged and use technology in response to promoting the 21st century skills students need to possess to face their future challenges.

REFERENCES

Abbitt, J. T. (2011). Measuring technological pedagogical content knowledge in preservice teacher education. *Journal of Research on Technology in Education*, *43*(4), 281-300.

Aimah, S. Ifadah, M., & Bharati, D. A. L. (2017). Building teacher's pedagogical competence and teaching improvement through lesson study. *Arab World English Journal, 8*(1).

Ahmad, D. (2014). Understanding the 2013 curriculum of English teaching through the teachers' and policymakers' perspectives. *International Journal of Enhanced Research in Educational Development (IJERED), 2*(4), 6-15.

Al-Munawwarah, S. F. (2014). Teachers' perceptions on the use of ICT in Indonesian EFL learning context. *English Review Journal of English Education, 3*(1), 70-80.

Albers, B., & Pattuwage, L. (2017*).* Implementation in education: Findings from a scoping review. *Melbourne: Evidence for Learning*.

Atherton, J. S. (2011). *Learning and teaching: Gestalt and learning*.

Amiri, E., & Branch, L. (2012). A study of the application of digital technologies in teaching and learning english language and literature. *International Journal of Scientific & Technology Research 1*(5).

Andrian, D., Kartowagiran, B., & Hadi, S. (2018). The instrument development to evaluate local curriculum in Indonesia.

International Journal of Instruction, *11*(4), 921-934.

Bachore, M. M. (2015). Language learning through mobile technologies: An opportunity for language learners and teachers. *Journal of Education and Practice 6(*31).

Basal, A., Yılmaz, S., Tanriverdi, A., & Sari, L. (2016). Effectiveness of mobile applications in vocabulary teaching. *Contemporary Educational Technology*, 2016, *7*(1), 47-59.

Benbasat, I., Goldstein, D. K., & Mead, M. (1987). The case research strategy in studies of information systems. *Management Information Systems Quarterly, 11*(3), 369-388.

Bilici, S. C., Guzey, S. S. & Yamak, H. (2016). Assessing pre-service science teachers' technological pedagogical content knowledge (TPACK) through observations and lesson plans. *Research in Science & Technological Education*.

Blake, R. J. (2008). *Brave new digital classroom: Technology and foreign language learning*. Georgetown University Press.

Brown, H. D. (2001). *Teaching by principle and interactive approach to language pedagogy*. Longman Inc.

Chairani, N. (2015). 2013 curriculum reflected in an international oriented senior high school, Yogyakarta. *Sino-US English Teaching*, *12*(8), 568-574.

Chairat, P. (2016). The potential benefits of internet-based learning in Thai EFL context. *The Asian EFL Journal, 4*.

Chapelle, C. A. & Sauro, S. (2017). *The handbook of technology and second language teaching and learning.* John Wiley & Sons, Inc.

Chung, J. H. (2007). *Integrating technology into the classroom*. Center for Teaching Excellence, United States Military Academy, West Point.

Clayton, K., & Murphy, A. (2016). Smartphone Apps in Education: Students Create Videos to Teach Smartphone Use as Tool for Learning. *Journal of Media Literacy Education*, *8*(2), 99-109.

Cohen, L. & Manion, L. (1989) *Research methods in education* (3rd ed.). Routledge.

Collins, J., Hammond, M. & Wellington, J. (1997). *Teaching and learning with multimedia*. Routledge

Costley, K. C. (2014). The positive effects of technology on teaching and student learning. *Education Resources Information Center* (*ERIC)*.

Creswell, J. W. (2012). *Qualitative inquiry and research design: Choosing among five approaches.* Sage Publications, Ltd.

Dale, J. (2014, May 13). Teaching languages with technology: Tools that help students become fluent [Blog post].

Denzin, N. K. (1978). *The research act: A theoretical introduction to sociological methods*. McGraw-Hill.

Dudek, C. M., Kettler, R. J., & Reddy, L. A. (2018). Use of multiple assessments for measuring teacher practice: An initial investigation for educational practice. *International Journal of Humanities and Social Science*, *8*(10).

Eisenhardt, K. M. (1989). Building theories from case study research. *The Academy of Management Review 14*(4), 532-550.

Eisenhardt, K. M., & Graebner, M. E. (2007). Theory building from cases: Opportunities and challenges. *The Academy of Management Journal*, *50*(1), 25-32.

Ekawati, Y. N. (2016). The implementation of curriculum 2013: A case study of English teachers'experience at SMA Lab School in Indonesia. *ELLD Journal 7*(1), 84-90.

Ellington, H., Percival, F., & Race, P. (1993). *Handbook of educational technology* (3rd ed.). Kogan Page.

Eppard, J., Nasser, O., & Reddy, P. (2016). The next generation of technology: mobile apps in the English language classroom. *iJET 11*(4).

Erben, T., Ban, R., & Castaneda, M. (2009). *Teaching English language learners through technology*. Routledge.

Fageeh, A. A. I. (2013). Effects of MALL applications on vocabulary acquisition and motivation. *Arab World English Journal*, *4*(4).

Fauzan, U., & Pimada, L. H. (2018). ICT-based teaching of English at madrasah aliyah in Kalimantan. *TARBIYA: Journal of Education in Muslim Society, 5*(2), 193-211.

Gamlo, N. (2019). The impact of mobile game-based language learning apps on EFL learners' motivation. *English Language Teaching*, *12*(4).

Godwin-Jones, R. (2017). Smartphones and language learning. *Language Learning and Technology*, *21*(2), 3–17.

Gunawan, I. (2017). Indonesian curriculum 2013: Instructional management, obstacles faced by teachers in implementation and the way forward. *Advances in Social Science, Education and Humanities Research*. Proceedings of the 3rd International Conference on Education and Training (ICET 2017).

Hamilton, B. (2015). *Integrating technology in the classroom: Tools to meet the needs of every student* (1st ed.). International Society for Technology in Education.

Harendita, M. E. (2013). Why resist? A closer look at Indonesian teachers' resistance to ICT. *International Journal of Indonesian Studies*, *1*(2).

Harmer, J. (2001). *The practice of English language teaching*. (3rd ed.). Pearson Education Limited.

Harris, J. (1998). *A Gestalt approach to learning and it facilitation*.

Harris, J., Mishra, P., & Koehler, M. (2009). Teachers' technological pedagogical content knowledge and learning activity types. *Journal of Research on Technology in Education*, *41*(4), 393-416.

Harris, J. & Hofer, M. J. (2011). Technological pedagogical content knowledge (tpack) in action. *Journal of Research on Technology in Education*, *43*(3), 211-229.

Hayes, C. C., & Miller, C. A. (2011). *Human-computer etiquette: Cultural expectations and the design implications they place on computers and technology*. Auerbach Publications.

Hita, J. A., & Arancón, P. R. (2014). Autonomous learning resources for ELT: what learners think. *Revista Encuentro 23*, 1-15.

Hockly, N. (2013). Technology for the language teacher: Mobile learning. *ELT Journal*, *67*(1).

Hofer, M. J., Bell, L. M., & Bull, G. (2015). *Practitioner's guide to technology, pedagogy, and content knowledge (TPACK): Rich media cases of teacher knowledge.* Association for the Advancement of Computing in Education (AACE).

Horsum, M. B. (2013). An investigation of the technological pedagogical content knowledge of pre-service teachers. *Technology, Pedagogy and Education*, *22*(3), 303-317.

Hsu, Y., & Ching, Y. (2013). Mobile app design for teaching and learning: educators' experiences in an online graduate course. *The International Review of Research in Open and Distance Learning*, *14*(4).

Hunter, J. (2015). *Technology integration and high possibility classrooms: Building from TPACK*. Routledge.

Juniu, S. (2006). Use of technology for constructivist learning in a performance assessment class. *Measurement in Physical Education and Exercise Science, 10*(1), 67–78.

Jojo, Z., & Mohapi, S. (2017, March 21-24). *Educational theories, methodologies and technology integration in the classroom.* Proceedings of the 8th International Multi-Conference on Complexity, Informatics and Cybernetics (IMCIC).

Khaddage, F., Lattemann, C., & Bray, E. (2011, Mar 7). *Mobile apps integration for teaching and learning: Are teachers ready to re-blend?* Proceedings of the Society for Information Technology & Teacher Education international conference, AACE, (pp. 2545-2552) Chesapeake, Virginia, United States of America.

Khubyari, L., & Narafshan, M. H. (2016). A study on the impact of MALL (Mobile Assisted Language Learning) on EFL learners' reading comprehension. *International Journal of English Language Teaching, 4*(2), 58-69.

Kilbane, C. R., & Milman, N.B. (2014). *Teaching models: Designing instruction for 21st century learners.* Pearson.

Koçoglu, Z. (2009). Exploring the technological pedagogical content knowledge of pre-service teachers in language education. *Procedia Social and Behavioral Sciences 1*(1), 2734–2737.

Koehler, M. J., & Mishra, P. (2009). What is technological pedagogical content knowledge? *Contemporary Issues in Technology and Teacher Education*, *9*(1), 60–70.

Koehler, M. J., Mishra, P., & Cain, W. (2013). What is technological pedagogical content knowledge (TPACK)? *Journal of Education*, *193*(3).

Korucu-Kis, S., & Ozmen, K. S. (2019). Exherent and inherent value beliefs about technology: missing pieces in the puzzle of technology integration? *International Journal of Educational Technology*, *6*(1), 1-11.

Koumi, J. (2006). *Designing video and multimedia for open and flexible learning.* Routledge.

Kukulska-Hulme, A. (2013). Mobile-assisted language learning. *In C. Chapelle* (Ed.). *The encyclopaedia of applied linguistics* (pp. 3701-3709). Wiley.

Kukulska-Hulme, A., Lee, H., & Norris, L. (2017). Mobile learning revolution: Implications for language pedagogy. In C. Chapelle & S. Sauro (Eds.), *The Handbook of Technology and Second Language Teaching and Learning*. (pp. 217–233). Wiley & Sons.

Kurt, S. (2018). *Technological Pedagogical Content Knowledge (TPACK) framework in educational technology*.

Kurt, S. (2015). *ASSURE: Instructional design model in educational technology*.

Le, Q., & Le, T. (2007). Evaluation of educational software: Theory into practice. In Jeff Sigafoos and Vanessa Green (Eds.). *Technology and Teaching*. Nova Science Publishers.

Lie, A. (2007). Education policy and EFL curriculum in Indonesia: Between the commitment to competence and the quest for higher test scores. *TEFLIN Journal*, *18*(1) 01-15.

Maha, A., & Heba, M. (2015). Mobile applications' impact on student performance and satisfaction. *TOJET: Turkish Online Journal of Educational Technology 14*(4), 102-112.

Mahon, K. (2014). Creating a content strategy for mobile devices in the classroom center on innovations in learning. *Education Resources Information Center* (*ERIC*), 36.

Mappiasse, S. S., & Sihes, A. J. B. (2014). Evaluation of English as a foreign language and its curriculum in Indonesia: A review. *English Language Teaching, 7*(10).

Mayer, R. E. (2009). *Multimedia learning*. Cambridge University Press.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook* (2nd ed.). Sage.

Mitchell, P. F. (2011). Evidence-based practice in real-world services for young people with complex needs: New opportunities suggested by recent implementation science. *Children and Youth Services Review*, *33*(2), 207-216.

Mishra, P., & Koehler, M. J. (2006). Technological Pedagogical Content Knowledge: a framework for integrating technology in teachers' knowledge. *Teachers College Record*, *108*(6), 1017-1054.

Mishra, P., Terry, L., & Henriksen, D. (2013). Educational technology at Michigan State University. *TechTrends 57*(2), 2-2.

Monroe, B. J. (2004). *Crossing the digital divide: Race, writing, and technology in the classroom.* Teachers College Press.

Motteram, G. (2013). *Innovations in learning technologies for English language teaching.*

Motteram, G. (2013). *The benefits of new technology in language learning*.

Mundy, M., Kupczynski, L., & Kee, R. (2012). Teacher's perception of technology use in the schools. *SAGE Open 2*(1).

Musahrain. (2016, November 23-26). *Developing android-based mobile learning as a media in teaching English.* Proceeding the 2nd International Conference on Teacher Training and Education Sebelas Maret University.

Muslem, A., Yusuf, Y. Q., & Juliana, R. (2017). Perceptions and barriers to ICT use among English teachers in Indonesia. *Teaching English with Technology*, *15*(2), 3-23.

Nasir, Z. I. (2015). Teaching English based on 2013 curriculum at junior high school in Gowa. *ETERNAL: English Teaching, Learning, and Research Journal 1*(2).

Nichols, R. (2007). *Thomas Reid's theory of perception*. Oxford University Press Inc.

Nugroho, T., Bharati, D. A. L., & Hartono, R. (2019). English teachers' perception on strategies in teaching reading comprehension to motivate the students. *English Education Journals (EEJ), 9*(1).

Nur, M. R., & Madkur, A. (2015). Teachers' voices on the 2013 curriculum for english instructional activities. *IJEE*, *1*(2).

Orlikowski, W. J., & Baroudi, J. J. (1991). Studying information technology in organizations: Research approaches and assumptions. *Information Systems Research, 2*(1), 1-28.

Ouyang, J. R., & Stanley, N. (2014). Theories and research in educational technology and distance learning instruction through blackboard. *Universal Journal of Educational Research 2(*2), 161-172.

Parvin, R. H., & Salam, S. F. (2015). The effectiveness of using technology in English language classrooms in government primary schools in Bangladesh. *FIRE: Forum for International Research in Education*, *2*(1).

Patton, M. Q. (1999). Enhancing the quality and credibility of qualitative analysis. *Health Service Research*, *34*(5), 1189-1208.

Poedjiastutie, D., Akhyar, F., Hidayati, D., & Gasmi, F. (2018). I does curriculum help students to develop their English competence? A case in Indonesia. *Arab World English Journal, 9*(2), 175–185.

Rahmayani, I. (2015). *Indonesia raksasa teknologi digital Asia.*

Rodríguez-Arancón, P., Arús, J., & Calle, C. (2013). The use of current mobile learning applications in EFL. *Procedia - Social and Behavioral Sciences 103*(2013), 1189-1196.

Richards, J. C. (2015). Technology in language teaching today. *Indonesian Journal of English Language Teaching, 10*(1).

Robbins, S. B. (1993). *Organizational behavior*. Prentice Hall.

Roblyer, M. D. (2006). *Integrating educational technology into teaching*. Pearson Education, Inc.

Rosenberg, J. M., & Koehler, M. J. (2015). Context and technological pedagogical content knowledge (TPACK): A systematic review. *Journal of Research on Technology in Education*, *47*(3), 186-210.

Rumahlatu, D., Huliselan, E. K., & Takaria, J. (2016). An analysis of the readiness and implementation of 2013 curriculum in the west part of Seram District, Maluku Province, Indonesia. *International Journal of Environmental & Science Education 11*(12), 5662-5675.

Saha, A. (2008). Role perception: The role it plays. *International Journal of Learning, Teaching, and Educational Research 13*(3).

Sarrab, M., Elgamel, L., & Aldabbas, H. (2012). Mobile learning (m-learning) and educational environments. *International Journal of Distributed and Parallel Systems (IJDPS) 3*(4).

Schmidt, D. A., Baran, E., Thompson, A. D., Mishra, P., Koehler, M. J., & Shin, T. S. (2009). Technological pedagogical content knowledge (TPACK): The development and validation of an assessment instrument for preservice

teachers. *Journal of Research on Technology in Education*, *42*(2), 123-149.

Smith, M. K. (2002). Jerome S. Bruner and the process of education. *The Encyclopedia of Informal Education*.

Sonego, A. H. S., Machado, L. R., Torrezzan, C. A., & Behar, P. A. (2016). *Mobile learning: Pedagogical strategies for using applications in the classroom.* Proceeding of the 12th International Conference Mobile Learning.

Spector, M., Merrill, M.D., Elen, J., & Bishop, M.J. (Eds.). (2014). *Handbook of research on educational communications and technology*. Springer Science Business Media.

Stern, E. (1990). The evaluation of policy and the politics of evaluation. *The Tavistock Institute of Human Relations Annual Review*.

Tai, Y., & Ting, Y. (2011). Adoption of mobile technology for language learning: Teacher attitudes and challenges. *The JALT CALL Journal, 7*(1), 3-18.

Tondeur, J., Pareja Roblin, N., van Braak, J., Fisser, P., & Voogt, J. (2012). Technological pedagogical content knowledge in teacher education: in search of a new curriculum. *Educational Studies*, *39*(2), 239-243.

Tse-Kian, K. N. (2003). Using multimedia in a constructivist learning environment in the Malaysian classroom. *Australian Journal of Educational Technology*, *19*(3).

Wahyuni, S. (2016). Curriculum development in Indonesian context. *Universum*, *10(*1).

Wang, J., Doll, W. J., Deng, X., Park, K., & Yang, M. G. (2013). The impact of faculty perceived reconfigurability of learning management systems on effective teaching practices. *Computers and Education*, *61*(1), 146-157.

Yanti, H., Setiawan, A., Nurhabibah, & Yannuar. (2018). Teacher's perception about the use of e-learning/Edmodo in educational activities. *IOP Conf. Ser.*: *Mater. Sci. Eng*.

Yin, R. K. (2003). *Case study research: Design and methods* (3rd ed.). Sage.

Yudhiantara, R. A. & Nasir, I. A. (2017). Toward mobile-assisted language learning (MALL): Reaping mobile phone benefits in classroom activities. *Register Journal, 10*(1).

Zhang, S. (2016). Mobile english learning: An empirical study on an app, English fun dubbing. *iJET 11*(12).

Zheng, R. Z. (2009). Cognitive effects of multimedia learning. *Information Science Reference*.