Storytelling Podcast as an Alternative Learning Tool for Early Childhood Education: A TPACK-Based Reflection

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Abstract

Purpose – This article reports on a project to facilitate teachers' digital skill improvement. The context of the project itself was the past COVID-19 pandemic, which paralized the education sector, including the closure of early childhood education (ECE) centers. While remote, online learning was highly recommended to face disastrous situation such as pandemic, in practice, especially at the ECE level, online learning faces complex challenges. On the other hand, teachers were not adequately prepared for online and digital learning.

Design/methods/approach – This study combined developmental and conventional descriptive methods. The participants (15 people) were teachers, with various backgrounds of work experience (2 to over 7 years), with good internet access skills. Data and information were collected through observation, interviews, and documentation; followed by descriptive analysis.

Findings – These teachers found that Podcasts could be an alternative and a variation of digital learning media. Making and using podcasts can also be an entry point in strengthening the integration of Technological and Pedagogical Content Knowledge (TPACK) in the ECE context.

Research implications/limitations – While storytelling Podcast as ECE learning tool was used limitedly during the COVID-19 period, its uses may last beyond the pandemic time provided systematic integration of digital technology and skills associated with it into ECE sector is met.

Practical implications – This study implies that storytelling podcasts can be an alternative learning tool in the situation where teacher-student face-to-face interaction is less possible.

Originality/value – The emergency period prevented teacher-student direct contacts. This study contributes to providing an alternative to learning in an emergency situation.

Keywords Podcast storytelling, COVID-19 pandemic, Early childhood education

Paper type Research paper

1. Introduction

This article reflect on the results of the authors' digital skill development project for preschool teachers (Formen & Waluyo, 2020). The project itself was initially created to respond to the outbreak of COVID-19. While the state of global emergency related to COVID-19 has ended, the experiences gained from the project provide useful insights for future integration of digital skills to teacher development and preschool education in general. This article is divided into three main parts. The first part provides a general overview of the project, including its background and methodological aspects. The second part presents the data taken from the project. The last part provides reflection and discussion of the information and experiences gained from the project, focusing on Podcast potentials as learning tool within the technological and pedagogical content knowledge (TPACK) framework (M. Koehler & Mishra, 2009; M. J. Koehler, Mishra, & Cain, 2013; Mishra & Kereluik, 2011).

The contexts behind the project reported here generally were the systemic impacts that COVID-19 brought to education sector mainly the closure of preschool settings that led to the transfer of learning modes to virtual learning. Although highly recommended in a disaster-impacted situation, such as in the situations following the American hurricanes(LaPrairie & Hinson, 2006) and of course the last COVID-19 pandemic (Dhawan, 2020; Thompson & Copeland, 2020), virtual learning is apparently not easy to implement at the preschool level. The challenges of virtual learning for preschoolers have been documented in the studies done at the beginning of the COVID-19 pandemic (Ayuni, Marini, Fauziddin, & Pahrul, 2020; Dong, Cao, & Li, 2020; Nirmala & Annuar, 2020). None of this studies however proposed storytelling Podcast as a promising learning tool.

The challenges for virtual learning for ECE, furthermore, are associated with the following contexts. First, preschool education, compared to the higher levels, is relatively not a high-stake education program. Notwithstanding the strengtening demand for compulsory preschool (Istiqomah, 2016; Waluyo, 2019), still families are not legally bound to send their children to ECE centers. Consequently, families may not pay "sufficient" attention to the learning of their young members. Second, the nature of instruction in the ECE settings relies much on play-based pedagogy (Ailwood, 2003; Philp, Oliver, & Mackey, 2008; Pramling-Samuelsson & Fleer, 2009).This may lead the families to think in a manner that as long as their young children can play at home they are considered to have the opportunity for learning equally. Third, virtual learning at the ECE level may also be influenced by the long debates on the uses and introduction of digital technology to young children. As it has been identified many think that technology has negative impacts on young children learning and development (Yelland, 2005b; Yelland, Lee, & O'Rourke, 2008). In contrast, hands-on experience and experience of interacting with real objects are considered to be the best modes of learning for ECE (Evans, Meyers, & Ilfeld, 2000).

Refleting on these contexts and the state of emergency that COVID-19 brought to ECE settings, in the light of the TPACK framework, the authors consider the need for alternative learning tools especially those assisted by technology. The authors saw that one of the potential alternatives is the Play On Demand Broadcast, commonly called Podcast (Salmon, Edirisingha, Mobbs, Mobbs, & Dennett, 2008). The use of Podcasts, for example, is recommended by Barber (2016) and Teckchandani and Obstfeld (2017). Yet, while there have been a wide practices of digital storytelling, intentional uses of Podcast as a practice of story telling in Indonesian ECE settings is rarely found. Furthermore, initial assessment of the benefits of storytelling podcast can be presented as follows.

First, story-telling, whether delivered in a purely oral manner or relying on story books, is a common practice in ECE. Storytelling is one of the ECE learning methods (Hayati & Purnama, 2019; Musfiroh, 2005), as has also been reported in previous studies in this journal (Lestari, 2018). In other words the teachers are familiar with this method. Second, unlike the audio-books which are mostly paid-for digital products, Podcasts can be created independently by the teachers as well as customized based on diverse learning themes. Third, there are many artificial-intelligence-(AI)-fueled applications that can be used in the production process. Fourth, the audio in the Podcast is the teachers' voice that the child would be familiar with. In this manner there would be no need for a transition period for children to build emotional bonds with the "digital teachers". In the same way, it is hoped that the emotional bond between the child and the teacher will be maintained even without a physical meeting. Further, Podcast potentials as alternative learning tool can be elarorated as follows.

The the potential uses of Podcast for learning is associated with the two types of learning contents in Indonesian ECE system, namely the contents that are related to children's developmental aspects (religious, physical-motor, cognitive, language, social-emotional, and aesthetics) and the conceptual materials (basic abilities in mathematics, science, technology and social studies). These contents are supposedly to be delivered in a play-based pedagogical manner (Brewer, 2007; Hayati & Purnama, 2019; Sudono, 2000). In practice there are a number of commonly known ECE play-based methods including demonstrations, field trips, socio-drama, and storytelling (Tanu, 2019).

Within the state of emergency such as the past COVID-19 pandemic, teachers are faced with big challenges to implement Tanu's (2019) proposed learning strategies. A growing concern about this situation is that children's mastery of the learning contents could not be assured, due to the lack or even absence of direct, face-to-face teacher-child interaction. Research by Agustin, Puspita, Nurinten, and Nafiqoh (2020) for example found teachers' confessions of their difficulties in communicating with students and their families during the early phase of the last pandemic. Their research, furthermore, also found teachers experiencing confusion in determining learning methods, lesson-planning, and determining appropriate learning media. In contrast to the findings, yet the study of Ayuni, Marini, Fauziddin, and Pahrul (2020) signalled a good news, stating that only 40% its participants admitted not ready for learning in the COVID-19 time. This study however involved only limited subjects (10 precshool educators). Moreover, the study focused only on teachers relying on the Whatsapp and Zoom applications and/or using non-digital media prepared by the teachers.

In their study, Cebeci and Tekdal (2006) added the benefits of Podcast, stating that it can be an alternative in cellular network-assisted learning. Podcasts are downloadable and playable at anytime and on almost any mobile device. Additionally, the audio-nature of Podcasts can facilitate childrens to master attentive listening skills. Another benefit of Podcast can be seen from the teacher side. It facilitates teachers to express and integrate their skills. They can perform and integrate their skills in the field of language stimulations (making and reading stories) and skills related to information and communication technology in one go.

2. Methods

The project with which this article is associated combined the developmental research, informed by the ADDIE model (Mayfield, 2011), and conventional descriptive methods (Creswell, 2005; Denzin & Lincoln, 2003). Initially the authors recruited potential participants (15 teachers) to join the workshops, followed by qualitative data collection in the form of observations, interviews, and documentation. The developmental component of the project was divided into three sub-stages, orientation, training, and mentoring. This to reflect the analysis, design, development process in the ADDIE model.

The orientation stage was carried out to explore initial data and the characteristics, experiences, and needs for professional development of the participants, especially those related to digital technology and the impact of COVID-19 on them. At the training stage, the participants are exposed to basic skills of Podcasting, simulations of making Podcasts, and Podcast production. In this stage, the Podcast-making application, Anchor.fm was chosen, considering the authors' experience of its free and practical use. This was followed by the mentoring and monitoring phase, in which the authors' provided assistance to the particpants; assistance was provided through digital communication platform created for the participants. Through this communication medium, participants report and share Podcast links with each other. This phase lasted for six weeks. Following the developmental phase, data collection was done through group interviews and questionaires. The information was interpreted using descriptive analysis.

3. Result

3. 1. Characteristics of Podcast Development Participants
Fifteen participants in this development program have diverse working backgrounds. A total of 11 people work between 2-4 years; 3 people with more than 7 years of age and one participant is an educator who has worked for less than one year (Figure 1).
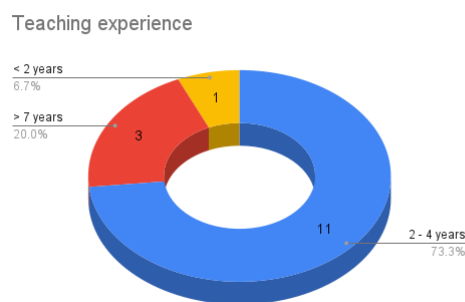
Teaching experience

Figure 1. Participants' years of teaching experience

As Podcast requires internet access and this may affect the expenses of the participants and their students' families, information was also collected from the participants about the socio-economic background of their students. In this regard, the participants admitted that they worked for families with diverse middle socioeconomic background; 6 teachers said their students were from the upper middle class, 6 others said their students were from the middle class, 1 lower middle class, and 2 others said their students belonged to the high economic group.

The participants further described the condition of their students' families in terms of digital literacy. In this case, more than half (66.7%) of the participants admitted that their students' families had adequate digital literacy (medium) and the others stated that their students' families' digital literacy was in the high range. When further asked through an open question, the participants in the second category also added information that their students' families actively used social media and accessed Youtube as well as responsive to the blended learning they organized in the early phase of the past-pandemic.
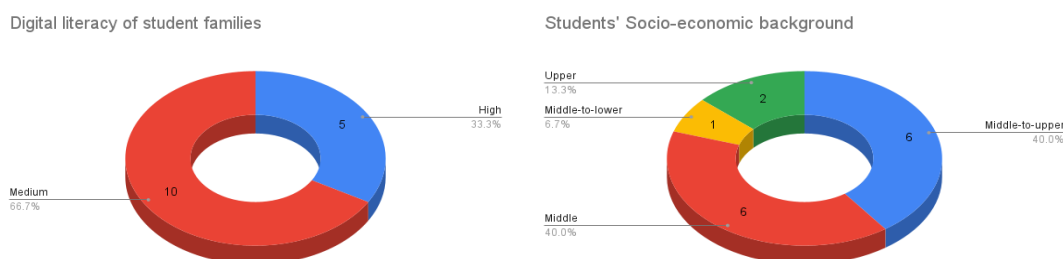

Figure 2. Digital literacy and socio-economic background of the participants' student families

The participants themselves claimed to be active Internet users. This is a solid background for developing digital learning media such as Podcasts. Moreover, the participants were impressed with their centers' support of Internet access. Figure 3 shows only one participant whose canter does not subscribe to Internet access. In addition, the participants informed, during the COVID-19 emergency response period, communicating with students' families relied mostly on the Internet, ranging from using messaging and video-conferencing platforms to sending voice notes. The experience of using the internet to communicate with parents and students' families were also considered as initial, solid background the development of digital learning media such as Podcasts.

The participants admitted that they were quite familiar with Podcasts. However, they are more listeners or accessors than creators. Especially they were quite familiar to the so-called social media influencers and celebrities video-podcasts available on Spotify, Google Podcasts, or Youtube. They have heard about the Anchor app but have never used it to produce their own Podcasts. In addition, these teachers added information regarding how they modified their conversation strategies during the COVID-19 emergency response period. As understood, conversing is a way of learning in ECE (Hayati & Purnama, 2019; Moeslichatoen R., 2004). During the past pandemic it was almost impossible for the participants to do so, unless it was done in a synchronous virtual way or home-visit. Regarding this issue, the participants explained variously. Some stated that they sent video recordings to parents or students' families via cell phones. Others did story-telling using the Zoom application. The second

method may be an alternative, but it is certain that it requires a high Internet data-package, and a live story-telling cannot be played back. While the first method requires a high Internet quota and potentially takes up memory space on the families' cell phones
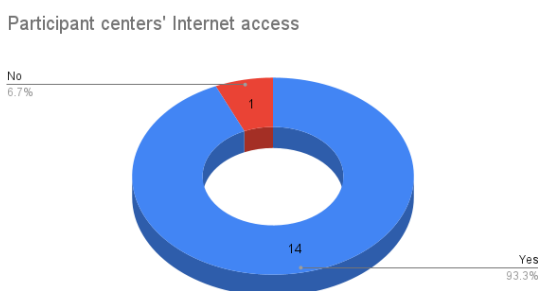

Figure 3. Participant ECE centers' Internet access

As previously stated, the development of Podcasts in the project relied on the *Anchor.fm* application as its platform. From the training conducted, the participants were given basic Podcast material and guided to download the Anchor application and install it on their smartphone, and create an account. Then the participants were assisted to carry out a simulation of making a Podcast before finally making their own Podcast in the monitoring and reporting stage. Figure 4 shows screenshots of the authors' and the 3 participants' Anchor accounts.
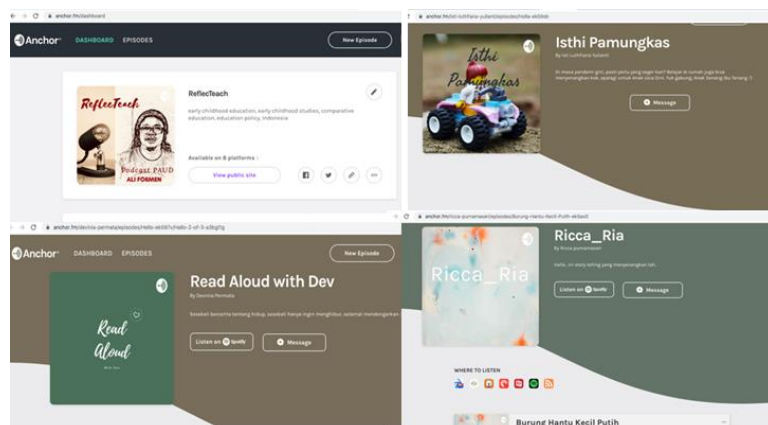

Figure 4. Screenshot of the participant's sample authors' Anchor web page

Through the mentoring sessions that were carried out, at first the participants were facilitated to make a Podcast. In this case, they were advised to read story books, so they were not bothered with preparing scripts or story scripts. In this way it is also hoped that participants would quickly adapt and be familiar with the new technology they were learning about and were not burdened with heavy learning loads.

In line with ECE learning, the story themes picked by the participants were generally about animals with character development contents. The stories were partly taken from the children's reading books in their possesion. Even so, there were participants who also developed other themes, for example about natural phenomena, such as rainbows or plant themes. Figure 5 shows screenshots of sample episodes created by participants.

3. 2. Potential use of advanced Podcasts

After the training and being able to produce and publish their Podcasts independently, the participants showed a positive interest in using their productions in learning. Indeed, the participants did not directly ensure that they would use the Podcast as a learning medium. However, none of the participants showed a rejection of the Podcast (Figure 6), although it needs to be stated here that the Podcast is indeed not intended to replace learning but rather as a supplement or reserve for learning media.
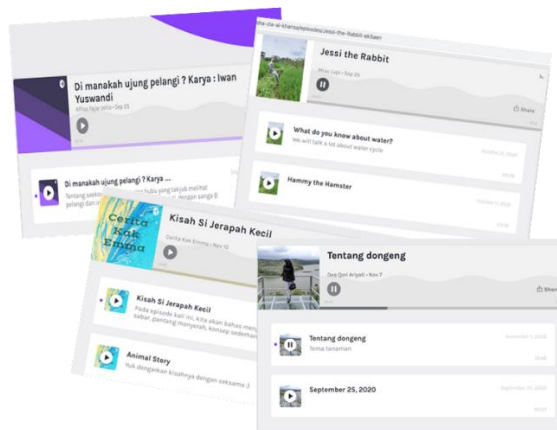
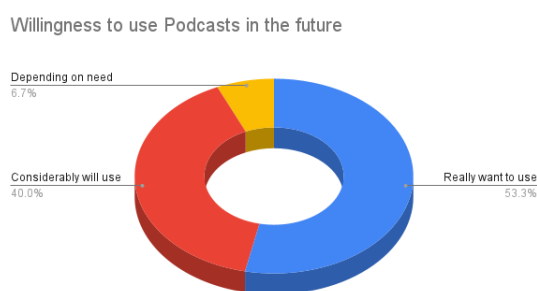Figure 5. Screenshot of a participants' Podcast episode samples

Figure 6. Podcast integration opportunities in learning

Furthermore, the participants also added a number of other information, which showed the potential of the Podcast for learning in the ECE institution where they worked. For example, Podcasts can be an alternative to digital media for students—in this case an alternative to Youtube. This indicates the dependence of some participants on Youtube during the COVID-19 emergency. Another thing that was also conveyed by the participants was that the participants would continue to try to develop their Podcast products and that the ability to produce digital media such as Podcasts is important for teachers. However, the participants also provided input so that the intensity of digital skills development programs such as Podcast production could be increased.

4. Discussion

In this part the information presented in the previous sections will be reflected in the light of the technological and pedagogical content knowledge (TPACK) framework (M. Koehler & Mishra, 2009; M. J. Koehler et al., 2013; Mishra & Kereluik, 2011). This framework generally suggest that teachers do not only need to understand and be qualified in terms of content and learning strategies (pedagogy) but also to be competent in selevting the appropriate technology in order to meer their teaching goals and learninhg objectives. Teaching and learning involves a process of change that includes various aspects of achieving a goal (Setiawan, 2017). Yet as it is common in any procress in human life, often the process of teaching and learning are often faced with various problems. These problems may hinder or complicate the process, resulting in the unachievement of determined-goals. The past COVID-19 pandemic surely is one of the biggest problems and challenges that make the process of teaching and learning and even the whole twenty first century education system paralized.

In response to the pandemic, online and digital learning modes, partially questioned prior to the Pandemic especially when it came to preschool level (Yelland, 2005a; Yelland et al., 2008) were seen as an alternatives (Sadikin & Hamidah, 2020). Seen from a TPACK-framework this is technological move in preschool pedagogy. This move however raised new problems for teachers, students, and families dur to the learning adaptation. The situation is even more complex when it comes to preschool

whose pedagogy relies much on play and direct adult-child interaction. The pandemic restricted any direct, face-to-face social interaction leading to children's lost of meaningful learning opportunities.

The emergency situation, however, as the project reported on this paper shows, provided a space for teachers to reflect on their professional practices. This was seen for example through their effort to make their lesson-plans more simple in order to adjust with their students' family situation and thereby gaining more supports from parents. Initially, as the participants described, learning during the pandemic time partly relied much on Youtube as its platform—a practice they wanted to avoid—for which parents would act as teacher-subtitutes at home. This is consistent with previous studies (Shofa, 2020; Suhendro, 2020), which found teachers' practices to invite parents assessing their children's activities and sending the documentation associated with it to teachers using any means possible. Seen from a TPACK framework this demonstrates teachers' ability to move from using technology merely in a classroom-based settings to expanding it beyond their classroom borders. The same trend was also revealed by Murtyaningsih (2021) who studied curriculum management in four ECE centers in Kalimantan. Teachers of the four ECE settings observed made various adjustments of learning tools and implementation due to the pandemic. Moreover, the teachers of these preschools collaborated with parents to carrying out the teaching and learning process. Overall, in this case, the lessons learned from this project is also consistent with international findings such as in the study of Steed et al (2022) revealed that during the implementation of distance learning due to the pandemic, teachers carried out more planning and communication with parents than giving instructions directly to children.

As the project show, Podcast development was proven to be an important skill for educators, especially in the face of emergeny situation such as the past pandemic time. Podcasts in this case can be an alternative to Youtube. In addition, compared to Youtube which relies on motion pictures, Podcasts can be an alternative medium for students to practice attentive listening (Cebeci & Tekdal, 2006). Attentive listening is one of the language skills and learning skills that is important to master and get used to. These skills are commonly referred to as receptive and expressive language skills in Indonesia's ECE curriculum system (Ministry of Education and Culture, 2014a, 2014b). Moreover, Podcasts' re-playability is undoubtedly of multiple benefits, when compared to, for example conventional, direct story telling by teachers. It is also a wiser choice compared to audiobooks, whose Indonesian version is scarce, or when available is not necessarily affordable.

The increasing availability of smart digital devices such as smartphones is an opportunity for teachers to integrate digital learning menus such as Podcasts in their pedagogical practices. As a mater of fact, in the past the integration of technology into learning was meant limitedly as the use of computers. The physical nature and size of a computer that seems more "suitable for adults" is a another challenge for children to access and for the centers to provide it. Now a number of complex computer functions have been "condensed" in smartphones, the very device accessed by most families and their young children. This, again, is a critical opportunity the ECE sector may consider to maintain its relevance to the changing social context, and for the ultimate benefits of, children (Park & Hargis, 2018).

The use and integration of digital technology has now been advocated even stronger in Indonesian ECE sector, along with the introduction of the notion TPACK in ECE teacher professional learning supported by the ministry of education (Tim Pengembang PPG, 2019). As highlighted in the earlier sections, the concept refers more or less, to teachers' knowledge of learning contents and approprioate technologies in support of learning content delivery (M. J. Koehler et al., 2013). Thus, in this case, Podcast storytelling in this case can be an entry point for the promoting digital technology in particular and TPACK in general into ECE practices.

The notion of TPACK itself has been relatively absent in pre-service academic teacher training, prior to the professional learning. Even if the notion is offered, it places prospective teachers as users and not producers of learning technology. As an illustration, when dealing with digital technology, the current teacher competency standard regulates merely teachers' ability to use information and communication technology (ICT) in the context of social competencies. That is, the use of ICT in terms of teachers communication with the third parties (Department of National Education, 2007) and does not emphasize its uses in the context of and in relation to their pedagogical competence. Nor, it emphasizes teachers' ability to produce appropriate digital learning tools.

The obscurance of TPACK in the notion of competent teachers of the current, official construction of the good teachers amid the growing demands for technology integration into ECE practice should not

be further tolerated. Studies on teachers have proven that "teachers tend to teach the way they were taught before" (Baran, Chuang, & Thompson, 2011, p. 374). Within this scenario, if once were not taught in a manner in which technology was not integrated, they would adopt approximately the same manner once they become a teacher. A further daunting corollary of this situation undoubtedly is that children might not benefit much from the early childhood program they admitted to.

Another reflection, within the TPACK-framework, of the project reported in the paper and of the past pandemic within which it was done, is the importance of promoting skills associated with the use of digital techonology for children learning and development. In their study, Baran, Chuang, and Thompson (2011) underscored the importance of TPACK adoption by teacher educators and by teacher preparation institutions. The project reported in this paper should have not taken place if its teacher participants learned had plenty opportunity to do so during their previous academic and professional training. Indeed, the project was to compensate what they have missed in past. By saying this, the present paper does not aim to exaggerate Podcasts and teachers ability to produce it as the sole panacea to the existing ECE sector's lack of digital technology integration. Rather, it shows one of ample potential uses digital learning tools and countless of digital skills for teachers to learn and to offer to young children respectively.

5. Conclusion

The past pandemic brought major impacts on ECE learning practices. Yet it also provide a space for professional reflection for both teachers and teacher educatorts such as the authors. The loss of face-to-face teacher-children interaction might put learning outcomes at a high-risk. The use of digital technology, in this case Podcasts, may help teachers to mitigate the situation. Accordingly, the use of Podcasts can also be an entry point for further and deeper integration of TPACK into young children learning. The past pandemic was also a litmust test for teachers' capacity in technology-assissted learning. The ECE sector's panic in the first phases of the pandemic reflected in the one hand the lack of preschool teachers lack of skill associated with technology-mediated learning and on the other hand the sector's hesitance of technology integration into ECE settings. The project reported here shows that beside general training, teachers also need trainings that are customized to their needs and situations. Furthermore, the project was also a learning space for teahers to embrace the anticipatory attitudes and skills in order to for them to maintain their centers' learning quality.

Declarations

Author contribution statement

Ali Formen the presented idea and data taker. Edi Waluyo developed the theory of learning ECE, Technological and Pedagogical Content Knowledge (TPACK) and storytelling. All authors discussed the results and contributed to the final manuscript.

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