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Mobile Teacher Professional Development (MTPD): Delving into English Teachers' Beliefs in Indonesia

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Abstract

In recent years, mobile phones have been used for teacher professional development (TPD). However, the potential use of smartphones, a current-generation of mobile phones, to develop teachers' pedagogical, social, personal, and professional competences remains underexplored. This mixed methods study, examining the potential use of smartphones for TPD by delving into English teachers' beliefs, employed a sequential explanatory approach. A quantitative survey was completed by 81 participants, followed by qualitative interviews with 8 selected participants. All the respondents were English teachers in elementary, junior, and senior high schools in 11 provinces in Indonesia. The survey was tested for validity and reliability, and analysed using the descriptive statistics method, while the semi-structured interview was analysed using the content analysis method. Almost all teachers had *very favourable* and *favourable* beliefs about the use of smartphones for TPD, perceiving that a smartphone could facilitate the enhancement of their pedagogical knowledge, communication skills, positive characters and English proficiency. Very few teachers had *unfavourable* beliefs, but among those who did, they believed traditional face-to-face TPD was more beneficial and that smartphones would only lead to addiction. This study recommends that smartphones be optimally applied by English teachers for TPD activities and that governments facilitate such implementation by constructing smartphone TPD models and applications.

Keywords: teacher professional development, TPD, mobile learning, smartphone, teachers' beliefs, English teachers, Indonesia

Introduction

Professionalism is imperative for teachers because it affects teaching quality (see Gore, Lloyd, Smith, Bowe, Ellis, & Lubans, 2017) and student achievement (see Sampel McMeeking, Orsi, & Cobb, 2012). The most popular approach to enhancing professionalism is traditional face-to-face teacher professional development (TPD) such as seminars, workshops, and trainings (see Irmawati, Widiati, & Cahyono, 2017; Utami & Prestridge, 2018). This approach, unfortunately, is “designed as mandatory for particular career stages (e.g., the new academic) or voluntary one-off events around a particular topic or innovation” (Dean, Herden-Thew, Delahunty, & Thomas, 2019, p. 50) which limits the freedoms of teachers to choose suitable TPD activities anytime and anywhere. Moreover, this approach presents several drawbacks in terms of practicality and financial viability. Teachers, particularly those in rural areas, find face-to-face TPD to be expensive and impractical (Russell, Carey, Kleiman, & Venable, 2009). Thus, in the field of teacher training, there has been a clarion call to provide another avenue of TPD, one which is more financially friendly, flexible, and practical.

The mobile phone offers one such avenue. The mobile phone has capability to provide myriad resources for teacher professional learning (Aubusson, Schuck, & Burden, 2009) so that teachers can improve their skills and knowledge anytime and anywhere, and so they have full freedom to choose TPD activities which best meet their needs. This capability is rooted in the ability of the mobile phone to merge mobile and ubiquitous learning (Schon, 1987) with authentic and meaningful contexts (Hsu & Ching, 2012). Furthermore, the use of mobile phones also helps teachers financially due to the fact that costs for the purchase and operation of mobile phones are comparatively low (Burns, 2015). Evidence in support of the use of mobile phones, especially traditional cell phones, for TPD is found in two related studies. Walsh, Shrestha, and Hedges (2013) showed how a cell phone with hundreds of TPD and classroom audio and video files which were stored on micro secure digital (SD) cards had the ability to enhance teachers' professional knowledge and students' communicative English language acquisition. Meanwhile, Shaheen, Walsh, Power and Burton (2013) carried out the English in Action (EIA)'s School Based Professional Development (SBPD) model and discovered that a cell phone was able to positively change the classroom practice of English teachers in Bangladesh.

However, further research is needed, particularly as it relates to the potential use of a more current mobile phone models (Tossell, Kortum, Shepard, Rahmati, & Zhong, 2014), specifically smartphones. The smartphones can facilitate the advancement of academic capabilities and progressions (Ifeanyi & Chukwuere, 2018). It can also engender social media involvement and information sharing and build social skills (Mokoena, 2012).

This study investigated teachers' beliefs, verbal propositions and judgements perceived to be true by teachers, concerning the potential use of smartphones to develop teachers' pedagogical, social, personal, and professional competence and understand the reasons for such beliefs. Building on previous research into TPD and mobile technology, this study elicited critical information on the current state of the use and usefulness as well as shortcomings of smartphones for TPD.

Indonesia was chosen as the context of this study because it is made up of 17,504 islands (Martha, 2017) and represents great diversity in terms of geographical areas (developed, less-developed, outermost, and rural regions) as well as in terms of TPD profile activities performed by teachers. Furthermore, research into the topic of mobile phone use for TPD in countries with emerging economies, such as Indonesia (Olken, 2019), is still in its infancy (Kidd & Murray, 2013).

Literature Review

Teacher Professional Development (TPD)

TPD, discussed extensively in educational literature, has evoked multiple conceptualizations. The term has been defined largely as a process of creating a change or improvement in the quality of teaching (Farias & Araujo, 2018; Kennedy, 2016) and student learning (Novozhenina & López Pinzón, 2018), mostly in the areas of a teacher's pedagogy, behaviour, and personal competence (Makovec, 2018). Moreover, existing literature has described TPD as a process of meaningful and life-long learning directed towards developing teachers' personal, professional, social, and behaviour competence (Valenčič Zuljan, 2001). The research focuses on the development of subject-matter knowledge, pedagogical expertise, self-awareness, understanding of learners, curriculum and materials, and career advancement for teachers (Richards & Farrell, 2005). Therefore, for the purpose of this study, TPD is defined as the process of engendering a positive change in the pedagogical, social, personal, and professional competence of teachers through meaningful and lifelong learning to improve teaching practices and student learning outcomes. These competences were further elaborated by Tahir (2017).

The pedagogical aspect includes (a) understanding both physical and non-physical characteristics of learners' development, (b) mastering learning theories and models, (c) developing curricula and strategies for developing curricula, (d) conducting professional instructional activities, (e) developing learners' various potentials and interests, (f) communicating effectively with learners, (g) using technology in teaching, (h) administering and using assessment of learning outcomes, and (i) conducting a reflection of learning (Tahir, 2017).

The social aspect involves (a) promoting inclusivity and non-discrimination and knowing the strategies to develop these attitudes, (b) communicating effectively, emphatically, and politely to colleagues and people in school, (c) adapting to all conditions of learning and education with diverse social cultures, and (d) communicating with the same or different teacher associations both in spoken and written forms (Tahir, 2017).

In terms of the personal competence, the indicators involve (a) performing behaviours in line with norms, (b) exhibiting the characteristics of a role model, (c) building an excellent character and work ethic, and (d) upholding ethical codes of profession (Tahir, 2017).

Finally, the professional aspect comprises (a) mastering topics, structures, concepts and conceptual frameworks in the field of expertise, (b) comprehending standard and base competence of the subject being taught, (c) developing learning materials creatively, (d) improving professionalism continuously by conducting research and reflective teaching practices, and (e) using Information and Communication Technology (ICT) for personal development (Tahir, 2017).

Smartphone

A smartphone is a technological product which is handheld and pocket-size (Lundquist, Lefebvre, & Garramone, 2014) and part of the current-generation of mobile phones which provides users with

extensive access to the Web, different games, social networks, and a myriad of other applications (Tossell et al., 2014). Sarwar and Soomro (2013) described its capabilities:

Smartphone is a mobile phone with advanced features and functionality beyond the basics like making phone calls and sending text messages. It is able to display photos, play games, play videos, navigation, built-in camera, audio/video playback and recording, send/receive e-mail, built-in apps for social web sites and surf the Web, wireless Internet and others (p. 216).

Smartphones provide ubiquitous facilities required to ease the exploration of the cyberspace as well as fulfil daily needs, such as learning (Wenyuan, 2017).

There are significant benefits to learning through the use of a smartphone. These include advancing academic capabilities and progression (Ifeanyi & Chukwuere, 2018), social media involvement, as well as sharing information and building social skills (Mokoena, 2012). Despite these advantages, there are reports of addiction which is defined as “uncontrollability of smartphone use” (Cha & Seo, 2018, p. 2), especially for entertainment purposes. This could lead to numerous social, personality, and health problems. There is a need to educate and guide users of this phone in order to promote understanding of its positive and negative impacts (Sarwar & Soomro, 2013).

Teachers' Beliefs

Pajares has completed comprehensive research into the concept of teachers' beliefs (Borg, 2015). According to Pajares (1992), the concept is related to what the teachers believe about their work, subject matter, roles, and responsibilities. Other researchers have defined teachers' beliefs as the verbal statements of proposition or judgement perceived to be true by the teachers (Saiful, 2018; Saiful & Widodo, 2019), leading to commitment (Borg, 2001).

The elements of teachers' beliefs include works, subject matters, roles, and responsibilities. Limited research has been conducted on these elements, particularly in relation to the responsibility of English teachers in developing competences (see Ahonen, Pyhältö, Pietarinen, & Soini, 2014; Subekti, 2019; Too & Saimima, 2019). This means there is a lack of knowledge about the propositions or judgements perceived to be true by English teachers concerning the strategies or tools to develop their competence.

Methodology

Research Method and Design

This study employed mixed methods with sequential explanatory approach to reveal the beliefs of English teachers on the potential use of smartphones for TPD. The study looked not only at the diverse beliefs but also at the reasons for these beliefs. The two-phase research trajectory included a quantitative approach followed by the qualitative method and concluded with interpretations as shown in Figure 1.

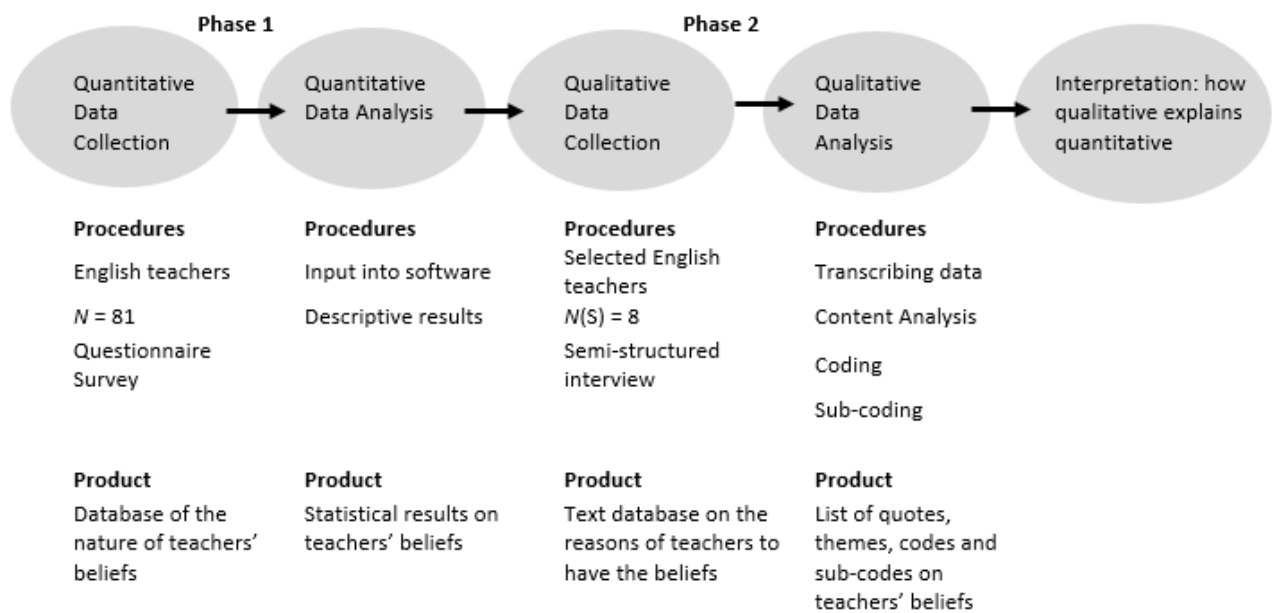


Figure 1. The trajectory of a mixed-method study. Adapted from “Turkish high school students’ English demotivation and their seeking for remotivation: A mixed-method research,” by C. Akay, 2017, *English Language Teaching*, 10(8), p.111. Copyright 2006-2018 by the Canadian Center of Science and Education. (<http://www.ccsenet.org/journal/index.php/elt/article/download/69377/37724>)

Participants

There were two categories of participants: those who completed the survey and those who took part in interviews.

Eighty-one English teachers who stated that they developed their professionalism mostly through the use of their smartphones were surveyed. They reported using WhatsApp and YouTube applications installed on their smartphones to enhance their understandings of English instructional practices and to develop English language skills. While many also took part in traditional face-to-face training, the smartphone was an important part of their professional development. This group consisted of 38 males and 43 females, teaching from elementary to senior high school level, representing 11 different provinces in Indonesia including West Java, East Java, Central Java, Jakarta, Banten, Jambi, Yogyakarta, Papua, Bangka Belitung, Central Sulawesi, and Bali.

The interviews were conducted with 8 individuals who were purposively selected based on the results of the survey. They included 3 participants who reported *very favourable beliefs*, 3 who reported *favourable beliefs*, and 2 who reported *unfavourable beliefs* in the use of smartphones for TPD.

Data Collection Techniques and Instruments

Data were collected from a questionnaire and interviews. The questionnaire was used to obtain quantitative data on the nature of teachers’ beliefs in the use of smartphones to develop pedagogical, social, personal, and professional competencies. The questionnaire was divided into two parts: the first part was focused on the personal and school background of the participants, while the second part was focused on the questions related to beliefs.

This second part was constructed based on the theory of teacher competence domain proposed by Tahir (2017). It comprised 24 statements of belief in the 4 areas of competence: pedagogical (10); social (3); personal (4); and professional (7). Eight statements were classified as negative and the remaining 16 as positive (see Appendix). Participants were asked to agree or disagree with the statements, based on a four-point Likert scale in which 4 = *strongly agree*, 3 = *agree*, 2 = *disagree*, and 1 = *strongly disagree*. Furthermore, the professional competence domain of the questionnaire was constructed based on English Language Teaching (ELT) skills and components including listening, speaking, reading, writing, pronunciation, vocabulary, and grammar aspects.

This questionnaire was tested for validity and reliability before being applied as a research instrument. The construct or logic validity of the questionnaire was assessed by experts and two English teachers, after which a trial was conducted on 30 English teachers in Indonesia. The result showed all the 24 items were valid, as the score of item-total correlation was above 0.300. Meanwhile, based on the Cronbach's alpha value of 0.909, which was higher than 0.70, the questionnaire was also deemed reliable.

The interviews were conducted to understand the reasons for participants' beliefs in the potential use of smartphones to develop the pedagogical, social, personal, and professional competence. The questions were formulated based on the survey results, and were open-ended to evoke additional comments or thoughts towards the potential use of smartphones. The interviews were lasted in about 20 minutes to each of the 8 selected participants using a phone interview. The researcher installed an *automatic call recorder application* in the phone to record all conversations during interviews, and he took notes important points of the participants' responses. The sample probes of interview questions were as follows:

1. The results of the survey showed you have very favourable/favourable/unfavourable beliefs in the use of smartphones to develop pedagogical, social, personal, and professional teacher competence. Why do you have such beliefs?
2. What other comments or thoughts do you want to add on the potential use of smartphones for teacher competence development?

Data Analysis

Descriptive statistics and content analysis were the methods used with the data. Descriptive statistics involved the application of IBM's SPSS Statistics 20 software to analyse both the general nature of teachers' beliefs about the potential use of smartphones for TPD and the specific nature of beliefs in each domain of competence, i.e., pedagogical, social, personal, and professional. Furthermore, content analysis was administered to reveal both the reasons for such beliefs and additional comments. It was done after the transcriptions of the interviews were sent to the participants for validation to ensure accuracy.

The codes used with quotations in the Result section of this paper are shown in Table 1. They describe the interview participants' level of beliefs, particular competence being discussed, and additional comments. For example, a quotation with the code *T2.SB.ProC* means it belongs to teacher number 2 who demonstrated strong beliefs towards the potential use of smartphone to develop teachers' professional competence.

Table 1

Codes Used to Categorise Interview Participants' Comments

Code	Meaning
T1-T8	teacher number
B	believe
NB	not believe
SB	strongly believe
GR	general reasons
PedC	pedagogical competence
SosC	social competence
PerC	personal competence
ProC	professional competence
AC	additional comments

Results

General Nature of English Teachers' Beliefs in the Use of Smartphone for TPD

Based on mean score, teachers favoured the potential use of smartphones for TPD as shown in Table 2.

Table 2

Descriptive Statistics of a General Nature of English Teachers' Beliefs in the Use of Smartphones for TPD

	<i>N</i>	<i>M*</i>	<i>SD</i>	<i>SEM</i>
Beliefs	81	3.1857	.29895	.03322

Note. Mean score 1.00 – 1.75 = *very unfavourable*, 1.76 – 2.5 = *unfavourable*, 1.6 – 3.25 = *favourable*, 3.26 – 4.00 = *very favourable*.

The detailed responses in Figure 2 show the majority of the participants (50) had *favourable beliefs* about the use of smartphones for TPD, while 28 had *very favourable beliefs* and only 3 reported *unfavourable beliefs*. None held *very unfavourable beliefs*.

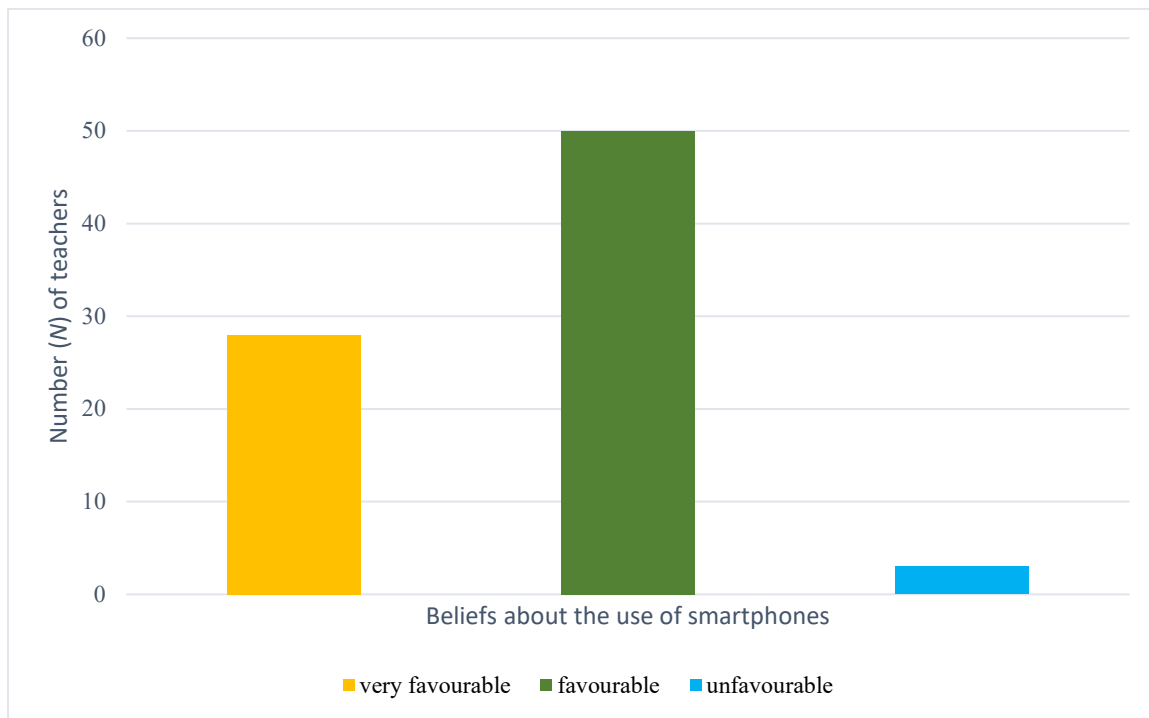


Figure 2. Distribution of beliefs of English teachers in the potential use of smartphones for TPD. No teachers reported *very unfavourable* beliefs for any item.

Specific Nature of English Teachers' Beliefs in the Use of Smartphones to Develop Competences

Table 3 shows the specific beliefs of English teachers in the use of smartphones to develop pedagogical, social, personal, and professional competences were *favourable*.

Table 3

English Teachers' Beliefs in the Use of Smartphones for Developing Various Competences

Aspects of teachers' beliefs	N of statements	M*
Beliefs in the use of smartphones for developing teacher pedagogical competence	10 items	3.223457
Beliefs in the use of smartphones for developing teacher social competence	3 items	3.209877
Beliefs in the use of smartphones for developing teacher personal competence	4 items	3.000000
Beliefs in the use of smartphones for developing teacher professional competence	7 items	3.227513

Note. Mean score 1.00 – 1.75 = *very unfavourable*, 1.76 – 2.5 = *unfavourable*, 1.6 – 3.25 = *favourable*, 3.26 – 4.00 = *very favourable*

Reasons for the Beliefs of English Teachers and Additional Comments

Generally, the reasons for the participants' favourable beliefs in the potential use of smartphone for TPD were due to the ability of the technology to provide significant benefits in teaching and learning, advancing knowledge, and building professional networks, particularly for those living in rural areas.

Teachers will definitely feel the benefits of smartphone, for example, I'm teaching in a rural area and it is difficult to access the books needed to update information on decree of professions, teaching materials, and improve my knowledge on different subject matter. This device gives me the opportunity to achieve these and also to communicate with teachers from other regions or places to share knowledge and materials. (T6.B.GR)

Teachers believe the smartphone aids the development of their pedagogical competence because it is a great medium on which to learn and search for teaching materials, methods, and models, as well as to develop technological pedagogical content knowledge (TPACK) and conduct virtual classes. Related comments included: "By using a smartphone, teachers can develop TPACK" (T2.SB.PedC); "It aids the improvement of the pedagogical competence and the ability to use online virtual class such as Google classroom, WhatsApp and so on" (T5.B.PedC); and "Yes, it is possible for teachers to update teaching materials, models, and methods using the Internet on this device" (T6.B.PedC).

Smartphones were also described as having the ability to aid the development of communication skills and build positive relationships with parents and other people in the school. "Yes, for example, I can build good communication with students and parents and, most importantly, share the problems of students and know their parent's aspirations" (T1.SB.SosC). Another teacher elaborated on how using a smartphone helped improve social competences.

Teachers can communicate easily with students using smartphone. In my case, I use my smartphone to communicate with students. They become more open, they aren't afraid to ask questions and assignment as well as material they don't understand. They usually contact me after the class or in the evening. So, I know more about my students' difficulties in learning. One important thing is that when I reply to their messages via WhatsApp, they feel appreciated and their attitude towards learning in the classroom become more positive because it seems we are now like friends. (T2.SB.SosC)

Interview participants also related one unique way in which the device helped them develop positive characteristics: by reading the biographies of reputable figures online and applying their positive attributes from the texts to their own lives. One of the teachers stated that, "If we open positive content like biography of figures, we can learn positive deeds and apply it in real life. So, I feel I have become more open and sociable by using smartphone" (T2.SB.PerC).

Smartphones were also reported to have the ability to provide ubiquitous resources for English teachers to develop their proficiency in the language. It is possible to develop skills such as listening, speaking, reading, and writing, as well as components such as grammar, vocabulary, and pronunciation by accessing websites and YouTube, as well as through the download of English learning applications or dictionaries from the Google Play Store. A few of the comments related to developing professional competence particularly in teaching English include: "Teachers have the ability to access different courses on English language using websites, YouTube, and other applications to update their reading,

listening, writing, and even speaking abilities” (T2.SB.ProC); “The use of smartphones aids the learning of English expressions such as idioms using YouTube. We can also download a dictionary to look for the meaning of certain words” (T1.SB.ProC); and, “Several applications have been developed on smartphones to help teachers improve their English. You just have to download them from [Google] Play Store” (T5.B.ProC).

Additional comments related to how teachers need to be autonomous and have reliable Internet access in order to take advantage of the benefits of using smartphones for TPD. For example, one participant reported that, “There are a lot of benefits attached to the use of smartphones for teacher development, it’s cheap, but teachers need to be independent to use it” (T4.B.AR). Another said that “I think we need good internet connection, or WiFi to use smartphone (T1.SB.AC).

A few participants had negative beliefs concerning the use of smartphones for TPD because they perceived that there was no relationship between the smartphone use and teacher’s professionalism. Besides, they also thought face-to-face training and workshop were more useful. Their comments included: “I believe there is no correlation between developing teacher competence and smartphone” (T7.NB.GR), and “hmm... I don’t think Smartphone is useful for teacher competence. I think training and workshops are more beneficial” (T8.NB.GR).

These teachers also reported that they did not believe smartphones facilitated the development of teachers’ pedagogical, social, personal, and professional competences. They believed pedagogical competence could only be developed through face-to-face training and in workshops, and that the use of smartphones perceived was making teachers more individualistic and selfish. They said “...because Smartphone only makes people more individual without the willingness to socialize” (T7.NB.SosC); “It is because people become more selfish, they don’t consider helping others and think about themselves only” (T7.NB.PerC); and “I think someone will neglect everything easily, the jobs for example, so, it’s just distracting” (T8.NB.PerC).

Discussion

The results showed that the majority of the participants had favourable beliefs about smartphone technology and TPD, which, in the views of Saiful (2018) and Saiful & Widodo (2019), indicate that English teachers perceive the ability of smartphones as a reasonable avenue to develop their competences. This finding was corroborated by the results of the interview. The teachers reported the significant benefits of smartphones to develop knowledge, build professional networks, and support instructional activities. However, a few participants believed that the development of teacher competence could only be achieved through face-to-face workshops and training. This poses challenges for teachers in rural areas because implementing face-to-face TPD in these areas is very expensive and impractical (Russell et al., 2009), so much so that often rural teachers will have to gather in central urban areas for a couple of days at a time and thus TPD becomes more expensive and impractical. Additionally, there are times when the knowledge acquired during such activities may not be applicable to individual teacher’s needs, and thus, better alternatives are being developed.

The use of smartphones by English teachers in rural areas was found to be a profound catalyst for TPD due to its characteristic low-cost (Burns, 2015), handiness, and of pocket-size (Lundquist et al., 2014). These characteristics make it possible to conduct professional development processes and activities at anytime and anywhere, without generating huge expenses. More importantly, these characteristics also make it possible to offer competence development activities which fit with the needs of many different types of teachers, due to the resources such as Web, games, social networking, and other prolific applications (Tossell et al., 2014) which are suitable for teacher professional learning (Hsu & Ching, 2012). The results of the interviews confirmed that the presence of smartphones was crucial for English teachers in particular because it allows them to review learning topics and get updated on the latest news in their professions, including teaching materials.

This study extends the findings of Walsh et al. (2013) which showed the ability of mobile phones to enhance English teachers' professional knowledge. Similarly, smartphones were believed by participants to be able to augment technological pedagogical content knowledge of English teachers, integrating subject matter and technology in instructional activities. Furthermore, the findings expounded upon the notions of Makovec (2018) and Richards and Farrell (2005) that one of the foci of TPD is to develop pedagogical competence. Likewise, during the interviews, participants reported on the ability of smartphone technology to aid in learning new teaching methods, models, and materials, as well as in exploring the possibilities of conducting online classes.

The smartphone was also believed to be able to develop teachers' social competence by enhancing communication skills and building positive relationships among teachers, students, parents, and colleagues. Participants reported that WhatsApp was one of the best ways to establish positive social skills and relationships, especially by creating groups for teachers and parents to understand the students' problems and parents' aspirations. Interestingly, in the interview, participants reported that the communication between teachers and students through a WhatsApp group had a very positive impact on the teacher-student relationship and students' learning attitudes. Furthermore, the social media platform was also reported to be a means of developing pedagogical competence for the teachers. Summarily, this study disclosed the possibilities of using WhatsApp as a tool for TPD. This result confirms the findings of Mokoena (2012) which identify building social skills as one of the significant benefits of learning using a smartphone.

Here are my findings on personal and professional competences; this adds new knowledge in the field of mobile phone for TPD. Existing works from Shaheen et al. (2013) found the cell phone could change positively the instructional practices of the teachers and from Walsh et al. (2013) found that a cell phone for TPD can positively enhance English teachers' professional knowledge. My findings, to such an extent, disclose new possibilities of the mobile phone, specifically smartphones to augment personal and professional competences of teachers. The participants reported that the use of the device to read on the biography and status of figures has extensively exposed them to examples of positive characters or deeds they can absorb and apply in real life. They also believed that they could improve their English skills (listening, speaking, reading, and writing) and components (grammar, vocabulary, and pronunciation) through the use of websites, YouTube, and other myriads of applications available on the smartphone.

My study also exhibits other novel findings which once more extend the works of Shaheen et al. (2013) and Walsh et al. (2013). When doing TPD using smartphones, a few teachers were, however, concerned

about smartphone addiction. Some believed that the use of smartphones for TPD could lead teachers to be more individualistic and selfish. Nevertheless, Sarwar and Soomro (2013) believed simultaneous education and guidance could help reduce the level of addiction and promote the beneficial use of the device for TPD purposes. Furthermore, it was also reported that there was a need for autonomy and increased access to the Internet for more effective application of smartphones to TPD.

Conclusion

This study investigated the beliefs of English teachers in Indonesia about the potential use of a smartphone to develop teachers' pedagogical, social, personal, and professional competences and understand the reasons for such beliefs. The majority of the English teachers (78 of 81 participants) had *very favourable* or *favourable* beliefs concerning the use of smartphones for TPD. This indicates that most English teachers believe the smartphone can facilitate the development of their pedagogical, social, personal, and professional competences. Furthermore, the results of the interviews exhibited the reasons why the teachers have such beliefs. It was found that the teachers thought the smartphones had great potentials to: (a) facilitate the development of their technological pedagogical content knowledge, (b) develop their professional network and instructional activity, (c) serve as a medium to learn new teaching methods, models, and acquire materials, and (d) enhance communication skills and build positive relationship among students, parents, and colleagues. They also reported how smartphones could stimulate positive character development and improve their English skills and knowledge.

Beyond *very favourable* and *favourable* beliefs, the results of survey also showed that three teachers had *unfavourable* beliefs concerning the use of smartphones for TPD. The interview confirmed that it was because the teachers preferred face-to-face TPD such as workshops and trainings. These few teachers also thought that smartphones induced individualistic and selfish characteristics. However, adequate guidance and education could encourage teachers to use smartphones for beneficial purposes. Besides, this study exhibits interesting findings from interview on the possibilities of using WhatsApp as a tool for TPD, as well as on the needs for autonomy and increased access to internet for effective application of smartphones to TPD.

However, this study has limitations. This study has not yet provided empirical evidence of a causal relationship, or of the impact of the teachers' beliefs on each kind of teacher competence (personal, pedagogical, social, and professional). This study also has not examined the effect of the teachers' use of smartphones for TPD on outcomes such as instructional practices and students' achievement. Subsequent studies may, therefore, investigate these areas.

The implications of this study are two folds. First, in order to develop competence, teachers in Indonesia, particularly those in rural areas, can use low-cost smartphones to develop competence anytime and anywhere, without thinking about the financial implications. Second, as an alternative to traditional face-to-face activities, government, especially education councils, should construct smartphone TPD models and applications to support and enhance teachers' TPD.

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Appendix

A Questionnaire of Teachers' Beliefs in the Potential Use of Smartphones for TPD

Table A1

A Questionnaire of Teachers' Beliefs in the Potential Use of Smartphones for TPD

Aspects of teacher competence	No.	Statements
Beliefs in the use of smartphones to develop teacher pedagogical competence	1.	The use of a smartphone limits the chances of teachers to comprehend the development of students' physical, intellectual, social-emotional, moral, spiritual and social-cultural background.*
	2.	The use of a smartphone can help teachers master different learning theories and models.
	3.	Teachers can learn about the curriculum and its development through the use of a smartphone.
	4.	I believe teachers will not be able to provide quality instructional activities using a smartphone.*
	5.	For teachers, a smartphone can be a means of developing students' academic and non-academic potentials.
	6.	Teachers can communicate effectively with students using a smartphone.
	7.	I believe the use of smartphones aid the ability of teachers to learn about the integration of technology into English instructional activities.
	8.	I believe the use of smartphone hinders the opportunities of teachers to develop the knowledge required to assess students learning outcomes.*
	9.	The use of smartphones enables teachers to boost their knowledge of implementing reflection in learning instructions.
	10.	The use of smartphone facilitates teachers discriminating behaviours towards students.*
Beliefs in the use of smartphones to develop teacher social competence	11.	I believe the use of smartphones enables the teacher to communicate effectively, emphatically, and politely with other people in school.
	12.	Teachers can adapt to new working cultures by using a smartphone.
	13.	By using a smartphone, teachers can communicate with their associations easily through both written and spoken words.
Beliefs in the use of smartphones to develop teacher personal competence	14.	I believe teachers will not develop positive attitudes and behaviours by using a smartphone.*
	15.	A smartphone is one of the media helping teachers to behave based on norms in the workplace and society.
	16.	By using a smartphone, teachers can develop their characters and work ethics.
Beliefs in the use of smartphones to develop teacher professional competence	17.	I believe teachers can learn to uphold and apply the code of ethics of the profession using a smartphone.
	18.	I am sure English teachers can develop their English-speaking skill using a smartphone.
	19.	English listening skill of English teachers will not be developed using a smartphone.*
	20.	A smartphone is a means of enhancing the English reading skill of English teachers.
	21.	English teachers cannot improve their English writing skill using a smartphone.*
	22.	The use of a smartphone helps English teachers improve their English pronunciation.
	23.	English teachers will not be able to enrich their English vocabularies using a smartphone.*
24.	I am sure English teachers can improve their English grammar using a smartphone.	

Note. (*) negative statement

