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Teacher education MOOCs: Re-thinking professional development of teachers according to the MOOC experiences of preservice teachers and teacher trainers

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Abstract. The main aim of this study is to identify the possible roles of massive open online courses (MOOCs) in faculty-based teacher professional development (TPD). In line with this aim, the MOOC experiences of preservice teachers and teacher trainers were examined. This study uses a qualitative single case holistic design. The participants of the study were 58 preservice teachers and 8 teacher trainers. The data were gathered through the semi-structured interviews in 2018-2019 Fall Semester. Before the interviews, a two-day briefing and orientation about MOOCs were held to inform the participants. After enrolling at least one of these upcoming MOOCs, interviews were carried out in the upcoming two months. The content analysis was used to examine the data collected. According to content analysis, TPACK acquisition and its sub-themes were found to be dominant with regards to participants' views. The preservice teachers mostly enrolled in MOOCs which were related to their "professional field and technical development" domains and mostly suggested TPD MOOC topic by teacher trainers is "effective communication and presentation techniques". It was noticed in the findings that preservice teachers have lack of confidence about the issues related to classroom management. Some negative views of preservice teachers about the MOOCs are concerned with two specific views; language constraints and costs of certain courses. Overall tendency concerning the use of MOOCs for TPD was found to be positive among the participants. However, most of the participants were uninformed or underchallenged about the MOOCs. Results of this study may help to open a new door for integrating MOOCs into teacher training programs.

Keywords: Teacher professional development, MOOC, MOOCs for teachers, self-help, diversified techno-pedagogical view, teacher competencies

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INTRODUCTION

The rapid development in Information and Communication Technologies (ICT) create a profound change in human life. ICT transforms our daily routines, information networks, cognitive & visual processing, social relationships and also educational practices. In today's connected world, learners demand individualized learning processes, visual and emotional aesthetics and ease of use. We generally communicate, interact and learn online. To fulfil these demands, open and distance learning (ODL) has reacted to these changes as a multidisciplinary field (Bozkurt et al., 2015). But also, ODL has been changing and orienting itself to adapt the current learner needs by using the power of emerging ICT tools.

ODL has many faces, however, two of them are more apparent; developments in ICT and fast reaction to changes in learner needs. It is a circular reaction, and also a dilemma, that we change technology and technology changes us. Under all circumstances, adaptive, fast paced, haptic/holographic interfaced, user friendly or artificially intelligent devices reshape the education and move ODL from the periphery to mainstream. By the features mentioned above, ICT supported ODL promises a more open, flexible, cost effective and most importantly accessible learning experiences to all kinds of educational journeys.

The main focus of this research is re-thinking the professional development of teachers; the most important actors and key agents of any education ecosystem, in line with one of the most important actors of openness movement in education; MOOCs.

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BACKGROUND

The open education movement has widened the concept of "open" in all educational practices. The philosophy behind this movement is to provide access and equity for all with the help of open educational resources (OERs). OERs have contributed massively to developments within massive open online courses (MOOCs) and also gained significant visibility with MOOCs (Bozkurt, Koseoglu, & Singh, 2019; Dalsgaard & Thestrup, 2015).

Massive Open Online Courses (MOOCs)

MOOCs are free or mostly affordable online open courses with massive learner enrollments. They are provided by different universities or foundations and structured in different forms (i.e., xMOOC, cMOOC, sMOOC…etc.) that are usually delivered on a weekly basis. The most known MOOC providers include Coursera, Udemy, edX, Future Learn, Iversity, Udacity and Khan Academy. Some of these providers host "professional development of teacher courses" like Coursera, Udemy and Future Learn. Just ten or eleven years ago, MOOCs were said to be an idea (Christensen et al., 2013), then starting with 2012, they were regarded as an industry, but today they are seen as a default option for sustainable education. These online learning environments are based on self-help, self-awareness and self-regulation variables. They can be used "before, during and after the completion of a degree course, and can also be integrated at course, module or degree program level in academic teaching" (Schultz, 2014). MOOCs have a strong potential to support lifelong learning, democratizing education, eliminate barriers for different groups of learners and, most importantly, "ensure the liberalization of knowledge" (Kizilcec, Saltarelli, Reich, & Cohen, 2017; Zawacki-Richter, Bozkurt, Alturki, & Aldraiweesh, 2018).

Teachers' Professional Development (TPD)

There are many factors that have influence on productive education systems in the worldwide. Teacher training programs and also, teachers and teacher educators, are the most fundamental factors that affect the quality of education locally or globally. In highly educated and productive societies, "teachers are expected to keep themselves updated with advancements in pedagogy and technology" (Kumari, 2016). In addition, expected to guide the students based on the changing learning needs. At this point teachers' professional development (TPD) appears to be a very significant issue. Although there are many varied definitions of TPD, the common points identified for this process include the fact that teachers should learn "how to learn" and could transform the knowledge into practice to serve for students' well-being (Avalos, 2011). Effective professional development include the followings: teachers take part in cooperative, supportive, cooperative, instructional-oriented and continuous learning activities; they benefit from guidance of more experienced teachers; they are part of professional learning groups; they learn about learning elements such as hands-on learning of technology tools (Hunzicker, 2011; Wei, Darling-Hammond, Andree, Richardson, & Orphanos, 2009).

Although teachers' professional development is mostly given by the programs developed by different educational shareholders and policy makers, it is argued that such programs are not successful due to the fact they these programs do not take into account the two major points (Guskey, 2002). One of these points is the motivation for teachers' professional development. The other one is lack of understandings about the change process that teachers experience as a result of the teachers' professional development processes (Guskey, 1986).

One of the core issues in teacher education is individual self-improvement processes or quality. Cultural backgrounds, technological, pedagogical and content knowledge (TPACK), interaction and presentation abilities, gamification skills or community construction skills are very important qualities for teachers to have added-values. TPACK is a conceptual model that combines and lays on technological, pedagogical and content knowledge; three essential knowledge levels of teachers. TPACK framework has a role on reshaping teacher education programs in several countries. Professionalization and expertise are also the key concepts in preservice teacher education. Because learners are changing. They all have different needs,

learning styles, motivations, characteristics and so on. Therefore, teachers must be ready to creatively solve problems, engage their learners or provide motivation for their traditional classroom or distance learning audience. At this point providing "self-help" and "self-improvement" for pre- and in-service teachers is an important developmental move for all teacher training programs. However, providing teachers with an opportunity to have professional self-enhancement options on a sustainable and continuing basis is a big challenge (Misra, 2018). Thus, this is a "must to be considered" topic for all teacher education cohorts. In line with this, MOOCs are well-suited alternatives for teacher education at a local or global scale. Through MOOCs, teachers can receive high quality professional self-development and enhancement content for free (Jobe, Östlund, & Svensson, 2014). MOOCs can offer an opportunity to explore, collect, generate and develop new knowledge and skills. Therefore, preservice or in-service teachers can develop a more diversified techno-pedagogical view which support their educator role.

It is reported that there are some advantages of using the MOOCs for teacher's self-development. These include enhancing their professional network, observing how others teach online, sharing similar interests and forming communities of learning, learning something new in a structured way, finding well-chosen resources on a topic or sub-topic, sharing ideas, beneficial practices and lessons learned (Bali, 2013; Kumari, 2016). In addition to these advantages, teachers must be ready to creatively solve problems, engage their learners or provide motivation for their traditional classroom or distance learning audience. To achieve these goals MOOCs are very convenient tools of distance learning ecology.

There are limited number of studies dealing with the use of online courses in teacher training programs. The report by Seaton, Coleman, Daries and Chuang (2014) examined eleven different courses on the MITx platform, one of the largest MOOC providers, and it was concluded that a large number of participants enrolled in these courses was teachers. Therefore, it can be argued that MOOCs have a significant role in professional development of teachers. It was found that teachers actively participated in discussion forums. In addition, teachers wanted to use the course materials, used in MOOCs, in their classrooms (Seaton et al., 2014). Another study reported that online workshops have a positive impact on the teachers' professional knowledge, and practice skills (Dash, Magidin de Kramer, O'Dwyer, Masters, & Russell, 2012). In another study, the teachers reported that professional development programs are very short and do not reflect the changing content. They also reported that professional programs should not be delivered through systematic and one-off sessions, but through continuous sessions (Park & Sung 2013). In addition, the use of the MOOC's in professional development activities enables teachers to feel themselves part of a larger community and therefore, to motivate them (Vivian, Falkner, & Falkner, 2014). Another positive dimension of the use of the MOOCs is that there is a positive correlation between their completion rates and academic achievement (Greene, Oswald, & Pomerantz, 2015). In short, preservice teachers, teachers and teacher trainers may have higher completion rates regarding the MOOCs based on their own pace and eagerness.

From these points of views, the main aim of this study is to examine the experiences of preservice teachers and their trainers in the use of the MOOCs. In this regard, the study intended to shed light on the following research questions:

RQ1. What are the most relevant MOOC domains about teacher training programs?
RQ2. What are the possible roles of massive open online courses (MOOCs) in faculty-based teacher professional development (TPD)?

METHODS

This study uses a qualitative single case holistic design. Case studies are research designs which investigate complicated, special or dynamic contexts as well as functions and abilities of different systems (Cohen, Manion, & Morrison, 2013, p.253; Glesne, 2015), like MOOCs. This investigation occurs in an intense manner. In single case holistic case designs, only one analysis unit is examined (Yin, 2009).

Participants

The participants of the study were 58 preservice teachers and 8 faculty members from a faculty of education at a state university in Turkey. Of them, 36 preservice teachers were male and 22 preservice were female. Besides, 5 of 8 faculty members were female. The age of the preservice teachers ranged between 20 and 27-year-old with a median of 21 years. That of the faculty members ranged between 31 and 45-year-old with a median of 37 years.

Table 1. *Weights of themes based on the results of content analysis (teacher trainers)*

Participants	Gender	Age (mean)
Preservice teachers	Male	22.03
	Female	21.98
Teacher trainers	Male	36,75
	Female	36

All preservice teachers were from the computer education and instructional technologies department (CEIT) with average foreign language skills. Only 6 preservice teachers had experienced a MOOC before. Furthermore, 3 teacher trainers were from CEIT department, 2 teacher trainers were from primary education department, 2 teacher trainers were from science education department and 1 teacher trainer was from mathematics education department. 5 of 8 teacher trainers were inexperienced about MOOCs. As a limitation of this study, in-service teachers were not participated due to the voluntary nature of this research.

Data Collection Procedure

The views of the participants were gathered via individual semi-structured interviews in 2018-2019 Fall Semester. In this current research, preservice teachers and teacher trainers were participated in the study on a voluntary basis. The informed consent forms were signed by the voluntary participants for ethical consideration. A semi-structured interview form was developed by the author and reviewed by three field experts. It included 6 items. Before the interviews, a two-day introduction and orientation about MOOCs were given to the participants. On the first day of the session the term MOOC was introduced, and the participants were informed about the most known MOOC providers. In the following day it was requested from participants to review the courses covered by the MOOC through their official web sites. They were also asked to choose five courses based on their interest, curiosity and usefulness for their self-enhancements attempts and to enroll at least one of these courses. The semi-structured interviews were carried out in the upcoming two months.

Credibility/transferability and Dependability/confirmability of the Study

Apart from the quantitative methodology, the qualitative researches have an alternative terminology for expressing validity and reliability issues (Lincoln & Guba, 1985 as cited in Creswell & Poth, 2017). Credibility and transferability are the two terms being used instead of internal validity and external validity of quantitative studies. Also, dependability and confirmability are the alternative terms of internal and external validity of a quantitative research. In this research, several strategies were implemented for providing credibility and transferability; purposeful participant selection, sustained interaction with participants, expert control, and investigator type triangulation. In the coding process of the content analysis, the coefficients of inter-rater and intra-rater reliability were determined in order to increase the dependability/confirmability of the research. The researcher repeated the analysis 30 days after conducting the first content analysis to reach an intra-rater reliability. Also, an expert was requested to repeat the coding process to determine the inter-reliability. In this round, the interrater reliability between the raters was respectively calculated as κ =0. 840 for preservice teachers' data and κ =0. 920 for teacher trainers' data. Besides, intra-rater reliability was found

as κ =0.902 for preservice teachers' data and κ =0. 942 for teacher trainers' data. Reliability coefficients were evaluated according to Cohen Kappa statistic in which the values between 0.81 and 1.00 indicate a perfect fit (Landis & Koch, 1977).

Data Analysis

The qualitative data obtained were analyzed using the content analysis. The NVivo 12 qualitative analysis software was used to produce qualitative documentation. The following content analysis steps were used: the data obtained were first conceptualized, and then the reoccurring concepts were classified in a systematic way. Finally, the themes based on these concepts were formed (Patton, 2002; Strauss & Corbin, 2008).

RESULTS and DISCUSSION

The findings of the study were analyzed separately with regards to two groups of participants; preservice teachers and teacher trainers. The reason to do this grouping is to provide more clarified content analysis in line with the participants' academic background and overall educational experiences. Under these circumstances, it was preferred to analyze the data separately.

Findings on the MOOC Courses Which the Preservice Teachers Enrolled In-RQ1

The participants are found to enroll in thirty-three courses. They mostly preferred those courses which are related to their professional field & technical knowledge.

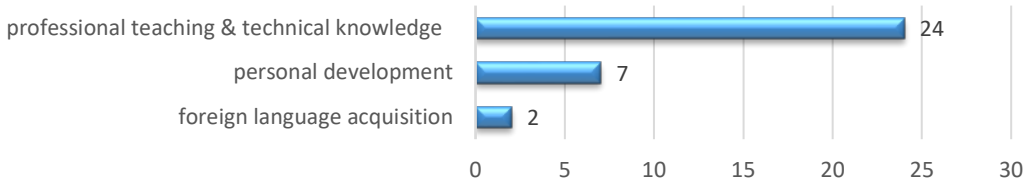

FIGURE 1. *Subject areas of MOOC courses which the preservice teachers enrolled in*

The participants suggested a total of 216 MOOCs to be used in the teacher training programs. These suggested courses are about the following topics: 21,2% were about *professional field & technical knowledge development*, 17,6% were about *personal development*, 14,8% were about *presentation skills*, 14,35% were about *teaching profession-pedagogy* 7,9% were about *management skills*, 6,4% were about *mentorship*, 4,6% were about *e-teaching skills*, 4,1% were about *foreign language acquisition*, 2,7% were about *technology literacy-new technologies*, 2,3% were about *the learning on the teaching design*, 2.3 % were about *learning on educational foresight* and 1,38% were about *special education skills*.

As can be seen both the courses preservice teachers enrolled in and the courses they suggested, are concerned with professional field & technical knowledge development. This is a remarkable finding which reflects the positive tendencies of the participants towards their technical development in their fields as preservice teachers. The subject areas of other courses the participants suggested, may reflect the components that they think are lacking in themselves and are important for their professional development. It is possible to argue that the professional field & technical knowledge development is one of the significant areas for the participants. In this area, there are courses that require the acquisition of technical knowledge such as various technology and software knowledge related to the teaching fields. This finding is consistent with Batchelor and Lautenbach's (2015) study in which, most of the participants tried to enroll MOOCs that increase their subject knowledge. Another suggested area is personal development. The courses in this area include *security and first aid, personal happiness workshop, entrepreneurship, introduction to philosophy, art history, psychology, creativity and the use of body language*.

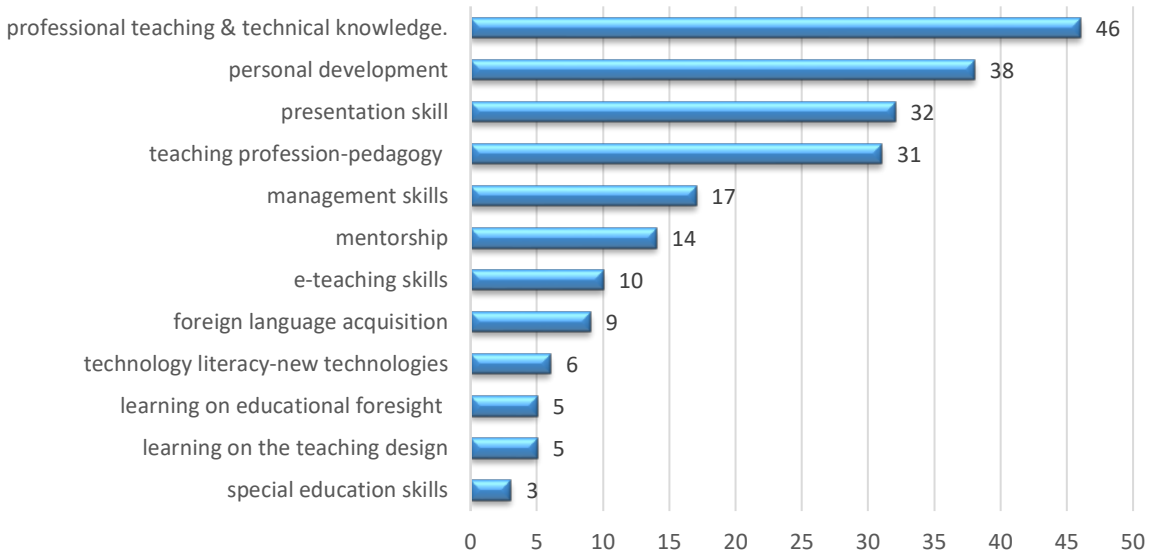

FIGURE 2. Subject areas of *MOOC suggestions of preservice teachers*

The presentation skills domain is also suggested by the participants. It covers the courses as follows: *Effective presentation techniques, diction, effective communication and the art of speaking, effective presentation preparation, persuasion techniques and public speaking*. The area of teaching knowledge and pedagogy included the courses such as *effective teaching, students' learning analytics for class teacher, blended learning, learning psychology and passionate learning and teaching*.

The area of management skills includes the courses about *leadership, stress management and anger control, management skills, time management, social impact through leadership*. The courses in the field of mentorship include *teacher coaching skills, international education counseling and life coaching*. Those included in the field of e-teaching skills are *preparing video tutorial, live virtual classroom instructor and preparing children for lifelong learning*.

The field of second language learning involves the following courses: *communication skills for business English and English for everyday life.* The field of technological knowledge-new technologies includes the courses related to *educational technologies, rotated class technologies, digital transformation in education and virtual reality-augmented reality games.*

The field of the learning of teaching design involves the courses such as *mind maps education, content and material development, lesson planning training and ADDIE: Training and Development Professionals in Guide.* The courses contained in the field of educational foresight are *designing the future class and the future of education and innovation*. The field of special education skills includes the courses on sign languages.

All subject areas emerged from MOOC suggestions of preservice teachers, are strongly related to self-development processes in teaching profession. In Garrido et al.'s study (2016), the main motivations of MOOC users were found to be gaining specific job skills. The findings of this current research are also parallel with Garrido et al. (2016) with regards to gaining "teaching profession". The body of domains (MOOC suggestions of preservice teachers) indicates the professional awareness of new generation preservice teachers. They are enthusiastic new comers and this provide us encouragement about integrating MOOCs into teacher preparation programs.

Findings on the Participants' MOOC Experience-RQ2

The views of the participants were analyzed using the NVivo 12 software. The content analysis produced twelve themes one of which is negative, based on the views of the participants. Of them, the theme of professional development can be considered to be a basic theme. On the other hand, the theme of how to use is about how MOOCs can be used in teacher training programs.

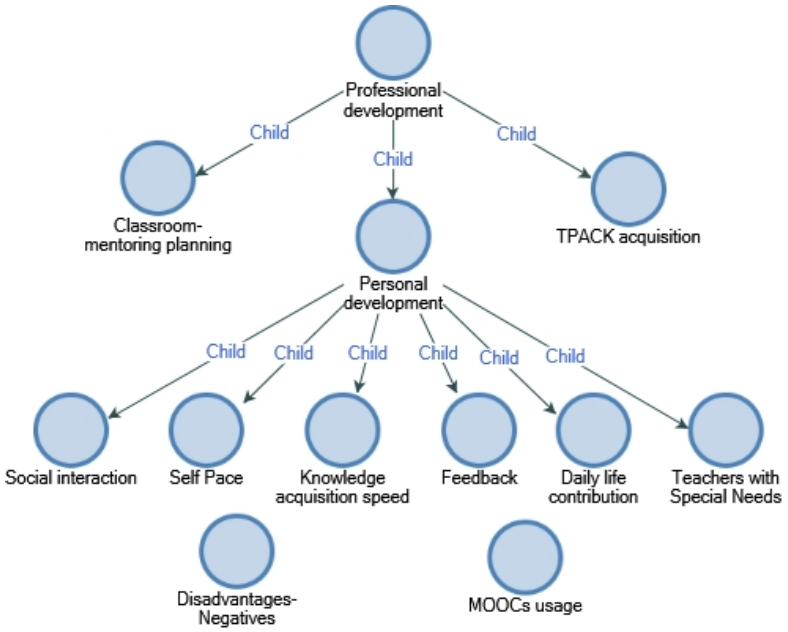

FIGURE 3. *Hierarchical structure of themes derived from the views of the preservice teachers*

As stated earlier, the theme of professional development can be considered to be a core theme. The themes of personal development, TPACK (technological pedagogical content knowledge) acquisition and classroom mentoring and planning are main trivet parts of the theme of professional development. The theme of personal development includes the sub-themes of social interaction, self-paced learning, knowledge acquisition, feedback, teachers with special needs and daily life contribution.

Table 2. *Weights of themes obtained as a result of content analysis (for preservice teachers)*

Name	Number of Coding References	Cumulative f (%)	f (%)
Professional development	113	85,6	23,4
Classroom-mentoring planning	3	2,2	2,2
TPACK acquisition	31	23,4	23,4
Personal development	48	36,3	20,4
Daily life contribution	1	0,7	0,7
Feedback	3	2,1	2,1
Knowledge acquisition speed	2	1,4	1,4
Self-Pace	11	8,3	8,3
Social interaction	3	2,1	2,1
Teachers with Special Needs	1	0,7	0,7
MOOCs' usage	9	6,8	6,8
Disadvantages-Negatives	10	7,5	7,5

The general learning experience of the participants in a MOOC, refers to their "professional development" main theme. The major themes supporting the professional development are those of personal development and TPACK acquisition. The themes of classroom mentoring and

planning also support the theme of professional development. The theme of personal development covers several topics related to the ways to improve personal qualities. To the best of our knowledge, any holistic content analysis was conducted before, with regards to MOOCs in TPD. Although in some studies, the certain subthemes of this current research were mentioned separately in TPD with MOOCs: "*overall professional development*" (Koutsodimou & Jimoyiannis, 2015), "*TPACK related gains*" (Goto, Batchelor, & Lautenbach, 2015) or "*social interaction*" (Seaton et al., 2014). Results of this current content analysis suggest that different factors under TPD are required to be explored with empirical data to have a comprehensive understanding about the role of MOOCs in TPD.

The views of the preservice teachers about the theme of personal development

This theme has 6 sub-themes. There are total 48 coding references and 27 of them are related to a specific sub-theme. The remaining views are mostly stated as "*supporting personal development*". The most frequently stated sub-theme is found to be self-pace. Some of the views of the participants about this theme are given as follows:

> "Whether a profession is teaching or not, people should do everything and do their best. That's why I am not saying I know anything before reaching the best in all areas I am concerned with. That's why these lessons are really for me." (personal development-general)

> "In the forums or social networking sites created, people meet with others and exchange information with one another. They do not only take courses, but also have a chance to become an instructor." (social interaction)

> "There is also another point. For instance, there can be a hearing-impaired student in the class who may experience difficult to understand the subject. Therefore, we can solve this and other similar problems by getting help from one of these courses." (teachers with special needs)

> "Sometimes I am too bored. Also, in the occupational life people may be very stressful. When I get bored with something, it is possible for me to develop my hobbies with these courses. Like landscaping…" (daily life contribution)

> "It is wonderful for me to attend a course anytime and anywhere I want. Some people may not be able to attend to their courses because of time constraints or daily life conditions. Watching a missed lesson online is a big opportunity for all." (self-pace)

> "Instead of searching for detailed and connected specific knowledge about a specific course from the internet with long period of times, it is very easy to find a MOOC that contains your target knowledge from Coursera, EdX, Udacity, Udemy or Khan Academy." (knowledge acquisition speed)

> "Any question was answered in one or two hours. It motivated me." (feedback)

Such statements suggest that the participants are positive about the options such as learning through their own pace and learning when they want. The other common points found in these statements include the followings: increase in access to information, opportunities for social interaction with various learning communities, personal and professional idealism, and learning opportunities offered to preservice teachers with special needs.

Findings of this research support the evidence of the results of the existing literature on TPD. Current preservice teachers have positive tendencies towards MOOCs and their intentions are also positive to use MOOCs in their continued teaching professions (Batchelor & Lautenbach, 2015; Koutsodimou & Jimoyiannis, 2015). The vast majority of the preservice teachers and in-service teachers who experienced MOOCs, have relatively high satisfaction levels about their personal and professional development processes (Koutsodimou & Jimoyiannis, 2015; Laurillard, 2016).

The views of the participants about the TPACK acquisition

The TPACK model is consisted of three majors (technological knowledge, pedagogical knowledge, content knowledge) and three intermediates (technological pedagogical knowledge, technological content knowledge, pedagogical content knowledge). However, the views of the

participants about the theme could not be categorized based on the components in the model. The direct quotations about the theme of TPACK are given as follows:

> "...The lesson I took gave me several ideas about how I could better learn the subject and how I could teach it to people in the future who do know it."

> "…I think that this course is an alternative to what I will pay attention to when explaining this programming language and what can be transferred more easily."

> "Teachers should also be aware of the latest developments with their professions. Such an awareness makes them curious about child psychology or classroom management and they may use such information in their classrooms."

One of the interesting points in the theme of TPACK is that it enabled the participants to recognize the significance of game-like processes used in the courses. Such a recognition is mostly about pedagogical knowledge or technological pedagogical knowledge. The following view indicate it: "The music work performed at the end of the course was very good and made the lesson more enjoyable. I think it is different, and I am thinking of using it in my own lessons."

Views of the participants generally reflect the pedagogical knowledge and content knowledge domains of TPACK. On the other hand, examination of the participants specific views above, and the theme revealed after the content analysis process, it was identified that TPACK related knowledge acquisition has a critical role on the preservice teachers' self-perceptions about their future teaching professions. First and foremost, it is evident in the TPD literature that, improving preservice teachers' pedagogical knowledge repertoire before they enter the actual teaching environments may help them to be more responsive to rapid changing learning environments (Batchelor & Lautenbach, 2015). MOOCs are the powerful tools and game changers about TPD and also, the acquisition of conceptual knowledge and other technological skills of teachers can be totally carried out through MOOCs. Findings of this current research support the related studies in which the participants considered MOOCs as a professional development tools, which have high potential to influence preservice and in-service teachers' pedagogical and technological knowledge in educational practice. (Goto, Batchelor, & Lautenbach, 2015; Koutsodimou & Jimoyiannis, 2015). On the other hand, teachers need to experience the online learning environments for their TPD processes before their graduation, and moreover, they need to gain related e-learning readiness skills (Fyle, 2013; Koutsodimou & Jimoyiannis, 2015). E-learning readiness skills are crucial for preservice & in-service teachers that will enable them to fully participate in MOOCs. As such, integrating preservice teachers to MOOC systems may allow them to use emerging technologies to further their own learning journey and also integrating ICT in their future teaching profession (Batchelor & Lautenbach, 2015)

The views of the preservice teachers about classroom management

The theme of classroom management is found to have three different coding references. The following direct quotations show the views of the participants about this theme:

> "In my opinion, low cost trainings can be given to teachers in many areas such as classroom management, increasing the student interest in the course, and how to better recognize the students."

> "Courses can contribute to many aspects, I think. Lessons can be better equipped. Thus, our class domination and confidence may also increase."

> "I think the courses can help with planning. We can integrate these lessons in the classroom to provide additional information to our students in the future. We can make positive contributions to classroom planning and management."

Providing effective classroom management and a healthy learning environment are the two important widely acknowledged factors for adequate teaching profession for teachers (Mitchell, Hirn, & Lewis, 2017). However, there is a significant gap between classroom management skills of preservice & in-service teachers and their actual training. Many in-service teachers report inadequate training and lack of assistance from their supervisors in establishing positive and

productive classroom environment (Shamina & Mumthas, 2018). Hence, preservice teachers are not ready for their prospective classrooms (Poznanski, Hart, & Cramer, 2018). In this current study, consistent with the literature, it was noticed that preservice teachers have lack of confidence about the issues related to classroom management. However, they also showed positive intentions to use MOOCs as guides of classroom management and thus, professional development tools for themselves. As stated before, teacher preparation programs must provide the skills and knowledge necessary for teacher candidates to develop effective classroom management plans (Ratcliff et al., 2010). Under these circumstances, by integrating MOOCs to teacher preparation programs, the failure to fulfilment of effective classroom management skills in teacher preparation programs can be eliminated partly.

The views of the preservice teachers about the theme of MOOCs' usage

Some of the views of the participants are found to be related to how such courses can be used in the teacher training programs. Some of such views of the participants are given as follows:

> "Technology is moving fast. There may be teacher trainers who cannot reach this speed. They may not have information about the subject. In such cases, students can learn about these courses first and then learn themselves through mass-open online courses. They can say that they can complete their development using such courses." (as a flipped learning tool)
>
> "Of course, in order for such assumptions to be real, quality MOOC systems should be established by the state or the accreditation limits of private firms should be increased. As a person who took Graphic and Animation courses in high school and university education, I can clearly say that I had more satisfaction with the graphic courses I received in MOOCs in much shorter times." (accreditation).
>
> "For example, orientation studies of people who have just started teaching profession can be done over the MOOCs. This is much more cost-effective in terms of both time and space." (orientation tool)
>
> "It may be employed to support the formal education. Online exams should be made after the courses and the preservice teachers may evaluate their competencies." (as a hybrid education tool)

In such views, some participants stated that the MOOCs should have accreditation and certain quality standards. The accreditation issues are much-discussed topics in the ODL literature (Anderson, 2013; Eaton, 2012). Nevertheless, quality assurance and accreditation schemes are not yet equipped for MOOCs (Jansen, Rosewell, & Kear, 2017). Hence, such views suggest that those MOOCs which are accredited can be chosen by the preservice teachers.

The negative views of the participants about the MOOCs

The negative views of the participants about the MOOCs are mostly concerned with the lack of foreign language competency and lack of emotion in online courses. The related views are given as follows:

> "As I said before, in the student-teacher interaction I think emotion is an important factor. I think there is always something wrong in the education process which lacks of emotion. Of course, this cannot be said for every student, some can take this course directly after taking the course, but it is insane to expect this performance from every individual. I think that the interaction between teachers and students should be strong in order to enable other individuals to exhibit this performance."
>
> "…MOOCs are mostly given in foreign language. Therefore, such videos could provide limited benefits to preservice teachers."

As can be seen in the first specific view of the participant, emotional interaction between the learner and the instructor is critical for some learners. This is also a running battle in open ODL field. At this point, it can be concluded that the learner–instructor interaction is an important predictor of students' overall satisfaction and engagement in ODL (Andersen, Lampley, & Good, 2013; Bolliger & Martin, 2018; Shackelford & Maxwell, 2012). In addition, the findings showed

that the participants mostly enrolled in those MOOCs which are delivered in their native language. The vast majority of MOOCs are offered in English and this is approximately eighty percent (80%) in Edx (https://www.edx.org/course). Students with different native languages can have difficulties related to their proficiency in English and this may lead to information overload and other cognitive problems (Misra, 2018). In this current study, it was observed that the preservice teachers did not feel themselves comfortable in watching videos in English which is accepted as universal "lingua franca" or other foreign languages. In line with this, it can also be concluded that the "teaching English as a foreign language" before undergraduate teacher education is critical for online TPD activities, otherwise language barriers may have a discouraging potential for the participants of MOOCs (Misra, 2018; Sanchez-Gordon & Luján-Mora, 2014).

Researchers mostly indicate positive considerations about MOOCs in TPD (Batchelor & Lautenbach, 2015; Hernández, López, & Barrera, 2015; Jobe et al., 2014; Laurillard, 2016; Misra, 2018). Accordingly, MOOC pedagogy fits well with the TPD (Laurillard, 2016) and preservice teachers are willing to integrate MOOCs to their individual learning environments (Batchelor & Lautenbach, 2015). MOOCs can help teachers to "receive high quality professional development for free, and MOOC providers can expand their user base with motivated, educated learners" (Jobe et al., 2014).

Supporting the existing literature of TPD, the findings gathered from the semi-structured interviews in this study showed that, the preservice teachers mostly expressed positive aspects about MOOCs in regard to its use in the teacher training programs. However, it should also be stated that the preservice teachers are uninformed or unmotivated about MOOCs. Generally, they remarked that these free open courses are useful individually and offer attractive topics to learners. The views of the participants were also positive concerning the future use of MOOCs as self-development tools.

Findings Related to the Teacher Trainers Views About Course-Subject Areas and MOOC Experiences

As stated earlier, the teacher trainers also participated in the orientation activities about the MOOCs. Of eight teacher trainers interviewed, three did not take any online course before the study. They were asked to enroll in at least one MOOC and one month after it, interviews were conducted. Although none of these three teacher trainers could not complete the courses they enrolled in due to their busy schedule, they provided significant data for the research.

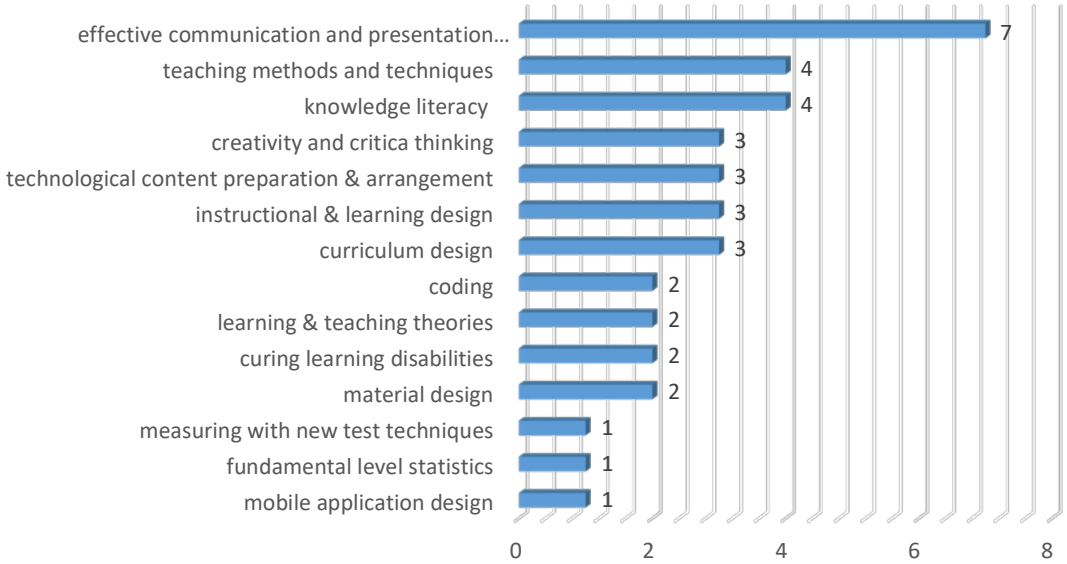

FIGURE 4. *Subject areas of MOOCs that were suggested by teacher trainers*

Figure 4 shows the suggested courses by these teacher trainers about the professional development of teachers. On examination of Figure 4, mostly suggested MOOC for TPD is "*effective communication and presentation techniques*". This suggestion can be considered to be significant for the professional development of teachers. Another valuable courses suggested by these participants are "*knowledge literacy*" and "*teaching methods and techniques*". It can be also argued that the suggested subject areas reflect the basic requirements of teacher education.

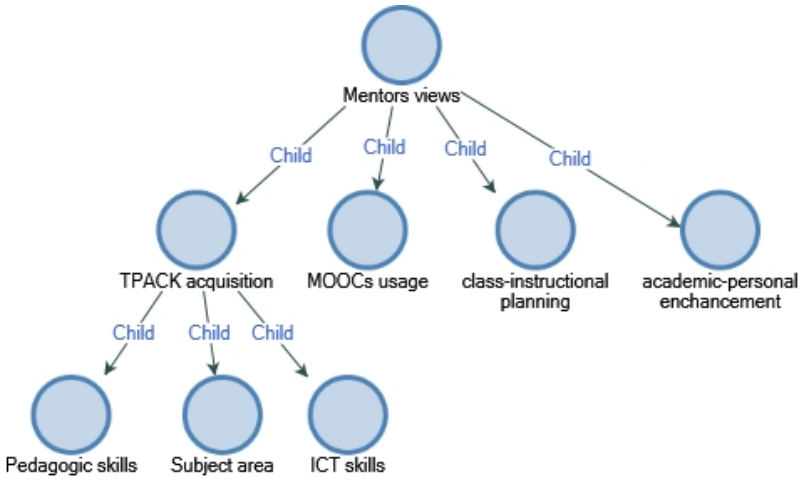

FIGURE 5. *Hierarchical structure of themes derived from the views of the teacher trainers*

The views of the teacher trainers are categorized under four themes as shown in Figure 5. These four themes include TPACK, MOOCs' usage, class/instructional planning and academic/personal enhancement (Figure 4). Of these themes, three themes (TPACK acquisition, classroom mentoring-planning and MOOCs' usage) are similar to the themes developed based on the views of the preservice teachers. The theme of the TPACK acquisition is found to have three sub-themes: pedagogical skills, subject area and ICT skills.

Given that the theme of the TPACK acquisition based on the views of the preservice teachers did not include any sub-theme, but that based on the teacher trainers' views has three sub-themes which are in line with the TPACK model, it can be argued that the views of the teacher trainers are much more comprehensive and are based on their experience and rich perspectives on the topic. However, the views of the preservice teachers seem to be much more superficial. Therefore, it can be stated that preservice teachers' professional development predictions are not well-developed, but those of the teacher trainers are much more developed. According to findings, the most often mentioned aspects by academics included academic-personal enhancement (33.33%), TPACK acquisition (31.81 %) and lesson-instructional planning (24.24%).

Table 3. *Weights of themes based on the results of content analysis (teacher trainers)*

Name	Number of Coding References	f (%)
Lesson-instructional planning	16	24,24
TPACK acquisition	21	31,81
Pedagogic skills	12	18,18
Subject area	4	6,06
ICT skills	5	7,57
MOOCs' usage	7	10,6
Academic-personal enhancement	22	33,33

The theme of classroom mentoring-planning was developed based on the views of the preservice teachers, but it was named the theme of "lesson-instructional planning" based on the views of the teacher trainers. The main difference is that teacher mentors emphasize more on the planning of lessons and instructional activities than on classroom management. Consistent with the findings of this present study, understanding "the pedagogy behind the course" and "how the materials are presented" are the common arguments among the findings of the related literature (Eckerdal et al., 2014, Walker & Loch, 2014). The theme of MOOCs' usage is similar in both groups and it involves some suggestions how MOOCs can be integrated into the teacher training process. Another theme developed based on the views of the teacher trainers is that of academic-personal enhancement. In this theme, it was seen that teacher mentors were more interested in the role of MOOCs in their academic development.

Teacher trainers have mostly positive views about the MOOCs. Some views of the teacher trainers from the content analysis are given as follows:

> "... I actually attended to course to examine the course structure and pedagogical approach used. I am planning to create a course in Udemy." But at first I want to structure my courses' instructional planning similar to MOOC to pilot the process face to face". (lesson-instructional planning)-ADDED

> "MOOCs may not be particularly necessary to teach field knowledge in teacher training. Because the educational programs are fixed. Other than that, I think it would be useful for them to receive developmental support related to methods, techniques or strategies." (pedagogic skills)

> "In terms of interaction, the internet-based environment provided by MOOC is more advantageous. Interactive questions, animated examples and interactive examples in short videos do not create a different experience from lectures." (ICT skills)

> "I think it would be better to improve students field knowledge. We are always trying to improve pedagogical aspects but they do not have enough field knowledge. MOOCs are eligible to be used both as a complementary activity and as a way to avoid constraints of the educational program." (improving subject area)

> "There are not so many individualized points. It started with easy topics, but then the topics became very difficult. The content of the course was different from the expectations from the students. However, it is useful to integrate the different purposes other than educational programs." (personal enhancement)

> "These courses can be used as a parallel educational program to enable preservice teachers to be ready for some courses." (MOOCs' usage)

Unsurprisingly, the theme TPACK acquisition supports the view Ratcliff et al. (2010): the primary concern of all teacher educators must be "providing teacher candidates the experiences they need to develop the pedagogical knowledge and skills necessary to become successful practitioners". There are also some interesting findings revealed in this current research when compared to existing literature. First and foremost, the theme "academic-personal enhancement" suggests that, MOOCs are also suitable "self-improving" and "self-help" tools for teacher trainers. This is consistent with the notion; "the possibility to learn from top-level international teachers/experts" is a significant affordance of MOOCs for trainers (Eckerdal et al., 2014). However, there are insufficient number of studies which focus on affordances of "MOOCs and teacher trainers' academic improvement". On the other hand, there are some intriguing findings in the theme of MOOCs usage. "Using MOOCs as a parallel curriculum" is a stimulating suggestion that can be a practical implementation for teacher preparation programs. In different countries as USA and South Africa, MOOCs have used before or during the formal teacher education programs (Misra, 2018). Self-paced learning opportunity and acquiring new skills (statistics or programming) are the two significant affordances of MOOCs in TPD for academics-teacher trainers according to literature (Eckerdal et al., 2014, Walker & Loch, 2014).

A common negative reflection for MOOCs in TPD in the literature is the quality of course materials. Accordingly, it was stated that "the course materials were just transferred directly from

an on-campus course, with no thought to the online medium" (Walker & Loch, 2014). This study contributes to those negative reflections with three negative views: some MOOCs are demanding high fees; in case of integration into the course, the language skills of the preservice teachers are not enough, and possible resistance behavior against formal education. A number of MOOC provider platforms have been prepared by combining more than one course and are in the form of paid special packages. Given that such paid packages are not affordable, preservice teachers, teachers and teacher trainers may not enroll I n these courses. However, it can be said that these costs can be met reasonably when considering the costs of the various in-service teacher training programs. In addition, the teacher trainers reported that in teacher training programs the education on subject field is fixed and it cannot be modified. Therefore, they argued that the MOOCs can be used to complement the training on subject field. On the other hand, MOOCs can be used for teacher development in terms of pedagogical content knowledge (Seaton et al., 2014).

CONCLUSIONS

In this study, the experiences and opinions of the preservice teachers and teacher trainers on the use of MOOCs in teacher education were investigated. First and last, it was found that, most of the preservice teachers and teacher trainers are uninformed or underchallenged about the MOOCs, but vast majority of them reported that these open courses would be beneficial for teachers and preservice teachers. Overall tendency towards these courses was positive among participants. This opens a new door into integrating the MOOCs in the teacher training programs. The concluded highlights of this study can be listed as follows:

- The preservice teachers were found to enroll in online courses which were mostly related to their professional field and technical development domain (72.72%). It was observed that the subject areas of the other courses were personal development (21.21%) and foreign language development (6%). The fact that the preservice teachers participated in the implementation process on a voluntary basis, they enrolled in more than one MOOC (70.58%) through the moocing process. This provides clues about the general tendencies of participants. Accordingly, this implies that the participants have positive opinions on this subject. Therefore, if the MOOCs are used in teacher training programs, these may be important self-help and self-development tools in the professional field-content and technical development for the preservice teachers.
- The preservice teachers were asked to suggest five MOOCs that are beneficial for their professional development. These suggested MOOCs reflect their conceptualization of a teacher training program. The suggested courses are found to be about the professional field-technical skill development, personal development, presentation skills, teaching-pedagogical knowledge, management skills, mentoring-guidance skills, e-learning skills, foreign language skills, technological knowledge, ability to adapt to new technologies, instructional design knowledge, educational foresight ability and subject area knowledge. Therefore, integrating these domains in teacher education may both increase the satisfaction of the preservice teachers about their own development and make significant contributions to the ideal teacher education. In addition, teacher trainers also suggested five MOOCs to contribute to TPD. It was seen that mostly suggested MOOC is "effective communication and presentation techniques". This suggestion can be considered to be significant for the professional development of teachers. Another valuable courses suggested by these participants are "knowledge literacy" and "teaching methods and techniques". It can be also argued that the suggested subject areas reflect the core requirements of teacher education from teacher trainers' perspectives.
- The themes developed based on the views of the preservice teachers reflect their perceptions about MOOCs. Therefore, it is possible to argue that the preservice teachers want to accomplish their professional development at their own pace and want it to be guided by their self-regulation skills. The MOOCs are effective online structures to provide the features that appear in themes and sub-themes of this work (Hodges, Lowenthal, & Grant, 2016; Jobe et al., 2014; Laurillard, 2016). Given that the professional experience and

perspectives of the preservice teachers are quite limited, they expressed some superficial views. However, it was found that they are aware of the basic constituents of teacher training programs. This is an important finding pointing out that the views of the preservice teachers should also be taken into consideration during the process of structuring teacher education programs.

- It is found that the themes of the TPACK acquisition, personal development and professional development are similarly perceived by both the preservice teachers and teacher trainers. However, the perceptions about the theme of the TPACK acquisition are much more similar with the theme of personal development as well as with the theme of professional development. Although the theme of the professional development covers other themes, it is a conceptual representation. In other words, this theme has its own topics and sub-themes. The cumulative frequency in Table 1 is given to indicate it as a separate construct. These statements and researcher observations are supported by thematic comparison and word similarity clustering (Figures 5-6).
- Some of the teacher trainers could not complete the MOOCs they enrolled in. In fact, drop-out is very common among adult learners of MOOCs. Their views produced three themes: academic/personal enhancement, TPACK acquisition and lesson/instructional planning. Of them, the theme of the academic/personal enhancement was frequently stated by the teacher trainers partly due to the fact that their experience and perspective are very comprehensive. The TPACK framework is a model that has emerged through the inclusion of technology into educational processes. This model defines the types of knowledge that teachers will need when teaching through technology. The model includes opportunities for teachers to see and interact with different interactions between technology, pedagogy and content (Koehler, Mishra, Akcaoglu, & Rosenberg, 2013; Mishra & Koehler, 2006). The frequent reference to the theme of the TPACK acquisition and to its sub-themes is not surprising. However, it also suggests that the TPACK model is still a significant teacher training model. The theme of the lesson/instructional planning is also frequently mentioned by the teacher trainers. Therefore, it can be argued that the MOOCs can be helpful tools in planning different courses and preparing different instructional plans in teacher education programs. The teacher trainers reported that the MOOCs they experienced provided them an opportunity to develop and employ novice teaching strategies and new ideas.
- The preservice teachers feel more relaxed and express themselves more easily in MOOCs social modules. Social networking modules in MOOCs assist interpersonal interaction and improve learner engagement, participation and motivation (Meishar-Tal, Kurtz, & Pieterse, 2012; Veletsianos & Navarrete, 2012). New learners in the IoT era are more connective, and the MOOCs are quite favorable for these preservice teachers. Therefore, "it becomes obvious that educational policy makers must be aware of novel policies and practices to promote the use of MOOCs in teacher preparation programs" (Misra, 2018). Systematic and effective use of MOOCs to support teachers' skills in the teacher training programs become an essential norm in today's world of education.
- Some negative views of preservice teachers about the MOOCs are concerned with two specific constraints. These are language constraints and costs of certain courses (Misra, 2018). Quality of course materials is also expressed as a disadvantage of MOOCs by teacher trainers. Most of the MOOCs use English as a primary language even if there are other language options for different learners. In addition to this, specific MOOCs that contain specialized contents for professionalization series are generally expensive for a standard learner.

The MOOCs use personal learning environments of individuals and also become part of personal learning environments. However, there are numbers of free online courses or MOOCs represented by different providers, it was concluded that, teachers and teacher training programs cannot fully benefit from these courses. The data concerning the period of 2018-2019 there are about 1 million 97 thousand 292 teachers in Turkey. Therefore, providing professional

development to all of these teachers seems to be quite costly. As the findings of the study suggest, using the MOOCs in teachers' educational processes and professional development can offer continuous, effective, and cost-effective professional development. On the other hand, teachers will be able to keep themselves up-to-date in the face of constantly updated educational technologies, and it will be facilitated by the technology-based structure of MOOCs.

Practical Implications

Professional development programs should be measurable, cost-effective and make use of technology and online tools, especially in teacher education (Kleiman & Wolf, 2015). Being a good teacher especially for many teachers is linked to better learning of students. Better learning of students is the starting point of booming economies and thus, welfare societies in the long run. At this point, integrating MOOCs to teacher preparation programs is an emerging area for real world impact (Ross, Sinclair, Knox, Bayne, & Macleod, 2014). First and foremost, teacher training programs need to be aware of the potentials and the techno-pedagogical powers of MOOCs. In this way, they can offer to enhance their own teacher development programs and continuous teacher trainings (Batchelor & Lautenbach, 2015; Hernández et al., 2015). The first step in this direction will be development of appropriate policies at governmental or institutional levels. There are conscious governments that acknowledge the potentials of MOOCs and positioning their educational policies accordingly. USA and South Africa are the two countries that have generic national educational policies about using MOOCs for TPD purposes. The reformer governmental policies will possibly motivate teacher preparation institutions to develop and integrate their own MOOCs for TPD (Misra, 2018). This is a clear indication that MOOCs are rising stars for TPD.

Findings of the study suggests using the MOOCs in teachers' educational processes and professional development. Several strategies may be implemented to provide a sustainable teacher development ecosystem. One of these strategies is implementing a parallel curriculum by teacher trainers. Providing a faculty-oriented schedule about upcoming MOOCs programme may be an effective way to "turn heads" to professional development for preservice teachers and teacher trainers. This approach will also enable hybrid teaching-learning activities which are very effective for face to face teacher training programs.

Another strategy is using MOOCs as "flipped classroom" tools in teacher training programs. MOOCs are the most effective representatives of flipped classroom strategy. One another powerful strategy that may be considered is canalizing teacher trainers and in-service teachers to MOOC by a novel formal policy. This will help to recognition levels of MOOCs among teacher preparation shareholders. To provide measurable and cost-effective professional teacher development program, MOOCs are and will be an important added-value. Although this study was limited to experiences of participants, the field of usage of MOOCs may provide other researchers with an approach for better understanding. Accordingly, more empirical researches will be helpful to determine the intentions, attitudes and behaviors of teacher education shareholders to establish MOOCs as an essential norm of teachers PD.

REFERENCES

Andersen, J. C., Lampley, J. H., & Good, D. W. (2013). Learner satisfaction in online learning: An analysis of the perceived impact of learner-social media and learner-instructor interaction. *Review of Higher Education and Self-Learning, 6*(21), 81–96.

Anderson, T. (2013). Promise and/or peril: MOOCs and open and distance education. *Commonwealth of learning*, *3*, 1-9.

Avalos, B. (2011). Teacher professional development in teaching and teacher education over ten years. *Teaching and teacher education*, *27*(1), 10-20.

Bali, M. (2013). 5 reasons teachers should dip into MOOCs for professional development. MOOC news & reviews. Retrieved from http://moocnewsandreviews.com/5-reasons-teachersshould-dip-into-moocs-for-professional-development-2/

Batchelor, J., & Lautenbach, G. (2015). Cultivating lifelong learning: Pre-service teachers and their MOOCs. In *2015 IST-Africa Conference* (pp. 1-8). IEEE.
Bolliger, D. U., & Martin, F. (2018). Instructor and student perceptions of online student engagement strategies. *Distance Education*, *39*(4), 568-583.
Bozkurt, A., Koseoglu, S., & Singh, L. (2019). An analysis of peer reviewed publications on openness in education in half a century: Trends and patterns in the open hemisphere. *Australasian Journal of Educational Technology*.
Bozkurt, A., Kumtepe, E. G., Kumtepe, A. T., Aydın, İ. E., Bozkaya, M., & Aydın, C. H. (2015). Research trends in Turkish distance education: A content analysis of dissertations, 1986-2014. *European Journal of Open, Distance and E-learning*, *18*(2), 1-21.
Christensen, G., Steinmetz, A., Alcorn, B., Bennett, A., Woods, D., & Emanuel, E. J. (2013). The MOOC phenomenon: Who takes massive open online courses and why? (University of Pennsylvania Working Paper). Retrieved from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2350964
Cohen, L., Manion, L., & Morrison, K. (2013). *Research methods in education*. Routledge.
Creswell, J. W., & Poth, C. N. (2017). *Qualitative inquiry and research design: Choosing among five approaches*. Sage publications.
Dalsgaard, C., & Thestrup, K. (2015). Dimensions of openness: Beyond the course as an open format in online education. *International review of research in open and distributed learning*, *16*(6), 78-97.
Dash, S., Magidin de Kramer, R., O'Dwyer, L. M., Masters, J., & Russell, M. (2012). Impact of online professional development or teacher quality and student achievement in fifth grade mathematics. *Journal of research on technology in education*, *45*(1), 1-26.
Eaton, J. S. (2012). MOOCs and accreditation: Focus on the quality of "direct-to-students" education. *Inside Accreditation*, *9*(1).
Eckerdal, A., Kinnunen, P., Thota, N., Nylén, A., Sheard, J., & Malmi, L. (2014). Teaching and learning with MOOCs: Computing academics' perspectives and engagement. In *Proceedings of the 2014 conference on Innovation & technology in computer science education* (pp. 9-14).
Fyle, C. O. (2013). Teacher education MOOCs for developing world contexts: Issues and design considerations. In *Sixth International Conference of MIT's Learning International Networks Consortium (LINC)*.
Garrido, M., Koepke, L., Andersen, S., Mena, A., Macapagal, M., & Dalvit, L. (2016). *An examination of MOOC usage for professional workforce development outcomes in Colombia, the Philippines, & South Africa*. Seattle: Technology & Social Change Group, University of Washington Information School.
Glesne, C. (2015). *Becoming qualitative researchers: An introduction*. Pearson.
Goto, J., Batchelor, J., & Lautenbach, G. (2015). MOOCs for pre-service teachers: their notions of 21st century learning design. In *2015 IST-Africa Conference* (pp. 1-9). IEEE.
Greene, J. A., Oswald, C. A., & Pomerantz, J. (2015). Predictors of retention and achievement in a massive open online course. *American Educational Research Journal*, *52*(5), 925-955.
Guskey, T. R. (1986). Staff development and the process of teacher change. *Educational researcher*, *15*(5), 5-12.
Guskey, T. R. (2002). Professional development and teacher change. *Teachers and teaching*, *8*(3), 381-391.
Hernández, P. G., López, C. M., & Barrera, A. G. (2015). Challenges about MOOCs in teacher training: Differences between on-site and open university students. In *Macro-level learning through massive open online courses (MOOCs): Strategies and predictions for the future* (pp. 250-270). IGI Global.
Hodges, C., Lowenthal, P., & Grant, M. (2016). Teacher professional development in the digital age: Design considerations for MOOCs for teachers. In *Society for Information Technology & Teacher Education International Conference* (pp. 2075-2081). Association for the Advancement of Computing in Education (AACE).
Hunzicker, J. (2011) Effective professional development for teachers: a checklist, *Professional Development in Education, 37*:2, 177-179, DOI: 10.1080/19415257.2010.523955
Jansen, D., Rosewell, J., & Kear, K. (2017). Quality frameworks for MOOCs. In *Open Education: from OERs to MOOCs* (pp. 261-281). Springer, Berlin, Heidelberg.
Jobe, W., Östlund, C., & Svensson, L. (2014). In M. Searson & M. Ochoa (Eds.), Proceedings of SITE 2014--Society for Information Technology & Teacher Education International Conference (pp. 1580–1586). Jacksonville, Florida, United States: Association for the Advancement of Computing in Education (AACE). Retrieved from https://oerknowledgecloud.org/sites/oerknowledgecloud.org/files/proceeding_130997%20(3).pdf
Kizilcec, R. F., Saltarelli, A. J., Reich, J., & Cohen, G. L. (2017). Closing global achievement gaps in MOOCs. *Science*, *355*(6322), 251-252.

Kleiman, G., & Wolf, M. A. (2015). Going to scale with online professional development: The Friday Institute MOOCs for Educators (MOOC-Ed) initiative. *North Carolina State University College of Education*.
Koehler, M. J., Mishra, P., Akcaoglu, M., & Rosenberg, J. M. (2013). The technological pedagogical content knowledge framework for teachers and teacher educators. *ICT integrated teacher education: A resource book*, 2-7.
Koutsodimou, K., & Jimoyiannis, A. (2015). MOOCS for teacher professional development: Investigating views and perceptions of the participants. In *Proceedings of the 8th International Conference of Education, Research and Innovation, 18–20 November*.
Kumari, A. (2016). MOOCs – An online platform for teacher professional development. *Asian Journal of Multidisciplinary Studies, 4*(5)
Landis, J. R., & Koch, G. G. (1977). The measurement of observer agreement for categorical data. *Biometrics*, 159-174.
Laurillard, D. (2016). The educational problem that MOOCs could solve: professional development for teachers of disadvantaged students. *Research in Learning Technology*, *24*.
Lincoln, Y., & Guba, E. (1985). *Naturalistic inquiry*. New York: Sage.
Meishar-Tal, H., Kurtz, G., & Pieterse, E. (2012). Facebook groups as LMS: A case study. *The International Review of Research in Open and Distance Learning, 13*(4), 33-48.
Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers college record*, *108*(6), 1017-1054.
Misra, P. (2018). MOOCs for Teacher Professional Development: Reflections and Suggested Actions. *Open Praxis*, *10*(1), 67-77.
Mitchell, B. S., Hirn, R. G., & Lewis, T. J. (2017). Enhancing effective classroom management in schools: Structures for changing teacher behavior. *Teacher Education and Special Education*, *40*(2), 140-153.
Park, M., & Sung, Y. K. (2013). Teachers' perceptions of the recent curriculum reforms and their implementation: what can we learn from the case of Korean elementary teachers?. *Asia Pacific Journal of Education*, *33*(1), 15-33.
Patton, M. Q. (2002). Qualitative evaluation and research methods. SAGE Publications, inc.
Poznanski, B., Hart, K. C., & Cramer, E. (2018). Are teachers ready? Preservice teacher knowledge of classroom management and ADHD. *School Mental Health*, *10*(3), 301-313.
Ratcliff, N. J., Jones, C. R., Costner, R. H., Savage-Davis, E., Sheehan, H., & Hunt, G. H. (2010). Teacher classroom management behaviors and student time-on-task: Implications for teacher education. *Action in Teacher Education*, *32*(4), 38-51.
Ross, J., Sinclair, C., Knox, J., Bayne, S., & Macleod, H. (2014). Teacher experiences and academic identity: The missing components of MOOC pedagogy. *MERLOT Journal of Online Learning and Teaching*, *10*(1), 57-69.
Sanchez-Gordon, S., & Luján-Mora, S. (2014). MOOCs gone wild. In *Proceedings of the 8th International Technology, Education and Development Conference (INTED 2014)* (pp. 1449-1458).
Schultz, E. (2014). The potential and problems of MOOCs-MOOCs in the context of digital teaching. Bonn: German Rectors' Conference. Retrieved from http://www.hrk.de/uploads/media/MOOCs_EN.pdf
Seaton, D. T., Coleman, C. A., Daries, J. P., & Chuang, I. (2014). Teacher enrollment in MITx MOOCs: Are we educating educators? Retrieved from http://dspace.mit.edu/bitstream/handle/1721.1/96661/SSRN-id2515385.pdf?sequence=1
Shackelford, J. L., & Maxwell, M. (2012). Sense of community in graduate online education: Contribution of learner to learner interaction. *International Review of Research in Open & Distance Learning, 13*(4), 228–249
Shamina, E., & Mumthas, N. S. (2018). Classroom Management: Implications for Teacher Preparation Programmes. *IOSR Journal Of Humanities And Social Science*, *23*, 41-44.
Strauss, A. L., & Corbin, J. (2008). *Basics of qualilative research: Grounded theory procedures and techniques*. Newbury Park, CA: Sage
Walker, L., & Loch, B. (2014). Academics' perceptions on the quality of MOOCs: An empirical study. *INNOQUAL-International Journal for Innovation and Quality in Learning*, *2*(3), 53-63.
Wei, R. C., Darling-Hammond, L., Andree, A., Richardson, N., & Orphanos, S. (2009). Professional Learning in the Learning Profession: A Status Report on Teacher Development in the US and Abroad. Technical Report. *National Staff Development Council*.
Veletsianos, G. & Navarrete, C. (2012). Online social networks as formal learning environments: Learner experiences and activities. *The International Review of Research in Open and Distance Learning, 13*(1), 144-166.

Vivian, R.; Falkner, K.; Falkner, N. (2014). Addressing the challenges of a new digital technologies curriculum: MOOCs as a scalable solution for teacher professional development Research in Learning Technology, 22(0): 24691-1- 24691-19

Yin, R. K. (2009). *Case study research: Design and methods* (4 ed.). Los Angeles, CA: Sage

Zawacki-Richter, O., Bozkurt, A., Alturki, U., & Aldraiweesh, A. (2018). What research says about MOOCs–An explorative content analysis? *International Review of Research in Open and Distributed Learning*, *19*(1).