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# Online Microteaching: A Multifaceted Approach to Teacher Professional Development

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**Abstract**

In this paper, the author proposes that microteaching may be practiced through online media. The core concept of traditional microteaching is that it is a manipulative technique used to facilitate self-reflective and critical thinking processes while teaching. Preliminary research was conducted with elementary teachers who were participating in University Terbuka, Indonesia online microteaching program. A questionnaire was administered in the Smart Teacher Portal with the aim of seeking teachers' opinions on the performance of microteaching. Small scale, but in-depth, interviews were conducted to elucidate the in-service teachers' beliefs about the virtues of online microteaching. The result showed that 82.68% of survey respondents agreed that online microteaching improved their professional teaching. Most respondents interviewed admitted that they were more confident in their teaching after their involvement in the online microteaching program. It was generally admitted that online microteaching had strengthened their ability to develop more extensive critical thinking and reflective actions while practicing quality teaching.

Teachers, educators, and all stakeholders in education must seek the best methods to help teachers understand, and continuously work on, reform-oriented and technology-supported teaching and learning strategies (Fullan & Langworthy, 2014; Hargreaves & Fullan, 2012; Hattie & Timperley, 2007; Hord, 1997; Illeris, 2009; Illeris, 2014). In this fast-changing world, the roles of teachers - and expectancies placed upon them - are continuously evolving, as they face the challenges of new skills requirements, technological developments, individualized teaching, special learning needs, and increasing social and cultural diversity (Wen et al., 2014). One of the most effective ways to support this aim is by providing quality opportunities for teachers to witness how change benefits their teaching strategies, and hence improves professionalism. Undeniably, thinking of professional teaching is always a challenging undertaking. When we consider the quality of teachers' work, the list is long, varied, and should encompass more than merely teaching and researching in a traditional classroom setting. In developing theories of teaching in teacher education programs, the focus is given to personal reflections compared to concrete examples of teaching, such as in microteaching or in video-based teaching or even in web-based segments, where the teachers can see examples of various practices (Chawla, & Thukral, 2011; Diana, 2013; Peker, 2009). Peker (2009) suggests that these practices facilitate critical reflection, which enables teachers to explore multiple possible perspectives while building opportunities to compare and contrast these perspectives and make more salient those specific elements of what they already have. Arsal (2015) emphasizes that teacher education programs should implement microteaching to facilitate teachers' critical thinking.

This paper promotes the proposition that reflective actions (Parsons, & Stephenson, 2005) can position online microteaching as a technology integrating technique that occurs through (repetitive) actions of asynchronous learning (Topçu, 2008), action learning (Dick,

2016), interactive, and clinical practice (Grossman, 2008), all through the use of online media. O'Connor (2011) suggests that the repetitiveness of microteaching practices has proven to provide deeper understandings of pre-service teachers' strengths and weaknesses in addition to providing them with more opportunities to practice their teaching. Hence, it can be argued that this repetitive technique promotes the actions of students, and hence enables them to acquire better interaction and critical thinking predispositions in their learning, while sharing each other's experiences through online media. Arsal (2015) suggests that through microteaching and group discussions as well as the pre-service teachers sharing their experiences and collaborating with each other and the instructor, these strategies might play a role in the improvement of their critical thinking dispositions.

This paper reports the result of a survey on teachers' perceptions of online microteaching presented in the Guru Pintar Online Portal (translated to Smart Teacher Portal). This portal is intentionally dedicated to teachers, including the Indonesian Open and Distance Universities' in-service teachers, to strengthen their engagement in improving the quality of their professional teaching (Kusmawan, 2013). As this particular microteaching program is designed for online purposes, this represents a new strategy of practicing microteaching in Indonesia. Through more frequent and effective usage of online microteaching, the teachers have opportunities to learn various video-supported teaching practices including dialogues and conversations pertaining to the practices (Remesh, 2013).

As a multifaceted approach, online microteaching integrates video-taped teaching strategies with expert opinions, teacher judgments, and discussion forums. Expert and teacher judgments promote evaluative assessment mainly about contents and strategies used in the video-taped teaching practices. These criticisms help teachers to comprehend their strengths and weaknesses based on the views of experts. Furthermore, discussion forums involve teachers' comments or critiques, as well as discourses regarding both the teaching contents and strategies presented in the video-recordings, in addition to statements from the experts. The Universitas Terbuka (UT) assigns lecturers to orchestrate discussions on the forums. This online microteaching program has utilized a combination of traditional video-supported techniques, expert judgments, and discussion forums.

This paper discusses the results of the survey aimed at revealing teachers' opinions about whether or not this online microteaching program helped develop their professionalism. Two key questions were addressed: (1) Do the contents of the online microteaching align with the needs of teachers' professional development programs? and (2) Does engagement in the online microteaching help the teachers to practice thinking reflectively about their teaching skills? The current research draws on data gathered both through the online survey administered through the portal and through in-depth interviews.

## Theoretical framework

### *Traditional practices in microteaching*

Since its development by Stanford University's Teacher Education Program in 1963, microteaching has functioned as a teacher-training technique in many universities and schools (Bakir, 2014; Kallenbach, & Gall, 1969) and has spread rapidly in the United States, Europe, and some other developing countries (Peker, 2009). This technique scales down class size, time, task, and content to optimize training environments. The goal is to give instructors confidence, support, and feedback by letting them practice a small part of what they plan to do with their students among friends and colleagues. In many traditional settings, microteaching sections take place before the first day of class. Peker (2009) argues that microteaching is a quick, efficient, proven, and fun way to help teachers get off to a strong start.

In some universities in Indonesia, as I myself experienced in 1989, undergraduate classes of teacher education programs had implemented microteaching as a method in which students and lecturers learned about the pre-service teachers' teaching practices, as well as discussed the quality of their performances. Through in-class microteaching, the lecturer investigated the strengths and weaknesses of pre-service teachers' teaching skills and other performances needed for improving their quality of teaching. This method was used to help the pre-service teachers to be aware of their own teaching performances, and hence understand approaches and strategies to further improve the quality of their teaching.

Many experts have synthesized and introduced various settings for different purposes of microteaching. It starts with designing opportunities for novice teachers to experience teaching (Calonge, Kai-Pan, Chiu, Dimple, & Cecilia, 2013; Liakopoulou, 2012; Melville, Bowen, & Passmore, 2011). These practices are associated with activities for improving the quality of teaching in school settings (Biggs, & Tang, 2011). Others have introduced microteaching as collegial settings, in which colleagues and associates sit together to improve their capacities in several areas of skills: interviewing, mentoring, clinical activities, and other reflective practices (Chen, Zeng, & Yang. 2010; Elsenrath, Coker, & Martinson, 1972; Van Ort, Woodtli, & Hazzard, 1991). These practices are mainly aimed at seeking potential improvement of skills for certain purposes or job positions. Instructionally speaking, some practitioners have demonstrated their practices to incorporate video-recording and video-conferencing as part of their delivery methods and evaluation processes. Such video integration into microteaching is often found on YouTube. Both pre-service (and trainees) and lecturers (and trainers) agree to share their practices to public (O'Connor, 2011).

Based on the above explanations, it is evident that traditional microteaching has centered its implementation in face to face settings to orchestrate an improvement of teachers' self-reflective and critical thinking skills. As to reinventing this technique to suit current mainstreams of the 21st Century educational skills, this paper would argue that a multifaceted approach of microteaching may be applied through an online setting. Online microteaching integrates video-taped teaching strategies with expert criticisms, teacher judgments, and discussion forums. This technique helps teachers benefit from self-reflective and critical thinking skills improvement processes based on not only comments from the experts, but also through moderated discussion forums.

### *Online Microteaching: A multifaceted method of microteaching*

Traditional practices in microteaching have been practiced worldwide and perceived as capable of improving the quality of teaching and learning programs (Anthonia, 2014; Remesh, 2013). As mentioned above, ordinarily, microteaching was introduced to achieve higher quality of teaching and learning. Various arrangements and media were used to strengthen the power of the microteaching.

Innovation occurred with the incorporation of video-recordings into the traditional microteaching technique. Video recordings were normally distributed to wider users (students) to enable them to work outside classroom activities with the aim of providing the users with more opportunities to learn thoroughly. The added value of this method was to provide students (users) with opportunities to reflect on their own recorded performances, in addition to having extra time for learning and giving comments on their colleagues' performances. As Kourieos (2016) indicated, this method promotes a better way to engage students in reflective actions during their learning.

Currently, the Faculty of Teacher Training and Education Program (FKIP) of the Universitas Terbuka (UT) employs online media to propagate the function of microteaching. This innovation aligns with the mission of FKIP-UT: to broaden services to teachers who are domiciled in every corner of Indonesia, many of whom are domiciled in remote and isolated

of the country. Hence, using information and communications technologies is considered the best means of communicating with them. For this purpose, we promote online microteaching. We expected that online microteaching would enable the teachers to interact with us while being involved in teacher professional development. Due to this online microteaching program being available to public, teachers in general could also access this service. As this program is asynchronous, it provides opportunities for teachers to arrange a flexible schedule to revisit the portal according to their available time.

While the traditional microteaching activities are used in a face-to-face (F2F) settings, online microteaching necessitates intensive interactions by a user (teacher) who aims to improve his/her quality of teaching. Experts are responsible for advising on the practices and colleagues (group discussion participants), who are involved in discussion forums, share ideas and reflective comments on the teaching practices. These activities are conducted through asynchronous online interactions and moderated by Universitas Terbuka (UT) lecturers assigned to the forum. In the context of community online learning, Lambert, & Fisher (2013) indicated that learners do not tend to move on to synthesis or resolution phases of inquiry without some degree of scaffolding. Therefore, moderated online learning is necessary to direct students' learning. Collaboration and communication skills are necessities in a 21st Century global workplace; it is important to offer students opportunities to put these skills into practice.

While reflective thinking and actions in F2F settings occur directly between instructors, lecturers, and teachers, the lecturers function is providing remarks on what is appropriate or inappropriate regarding the teachers' microteaching activities. This accordingly results in suggestions as to what should be done to improve the teachers' strategies and techniques in their teaching. Similar activities occur in video-supported microteaching techniques following the prolonged analyses of the teachers' microteaching.

On the other hand, through online microteaching practices, critical thinking and reflective actions occur among teachers themselves who are observing the practices. By reading the expert and teacher judgments presented, the teacher can recognize what is appropriate or inappropriate regarding the teaching practices. This recognition is accompanied by responses or comments from colleagues participating in the discussion forum. These participants come from various cultures and educational backgrounds throughout the country and abroad. The teachers' (users') critical and reflective thinking are therefore challenged to not only receive but also weigh the comments and responses presented both by the experts and the forum participants. These value-added experiences amplify teacher attitudes towards global views and various understandings about the quality of their teaching.

Structurally speaking, based on the above explanation, the online microteaching program is designed of four elements, namely video recording, expert judgment, teacher judgment, and discussion forums. Video recordings are comprised of teaching and learning processes that employ the best selected methods or strategies. Expert judgment is provided by a lecturer or consultant who is mainly responsible for exposing strengths and weaknesses of the teaching process delivered in the video. Teacher judgment is provided by colleagues of the teacher who are requested to provide comments on the strengths and weaknesses of the teaching process delivered by the video. And finally, the discussion forum involves the rest of the colleagues or associates of the teacher who also give comments on the teaching practices of the user. The forum may also contain comments from anyone who registers, reads the practices, and comments on the expert and teacher judgments. As this media is open to the public, the more interesting the topics are, the more teachers would be involved, and hence the more the comments will be given on the forum, resulting in more positive discussions. As a result, everyone participating in the online microteaching may have access to practice their

critical thinking and reflective actions throughout their engagement in the online microteaching portal.

***Structure of online microteaching***

Online microteaching is one of the open educational resources of the Smart Teacher Portal. This portal was created in 2011 with support from the World Bank under the program of Better Education through the Reformed Management and Universal Teacher Upgrading Project (BERMUTU), Project ID No. P097104. The objective of the program was to contribute to the improvement of the overall quality and performance of teachers through enhancing teachers' knowledge of subject matter and pedagogical skills in the classroom. The BERMUTU project aims at improving teacher quality and performance; the program is accessed based on (i) the increased number of teachers meeting academic qualifications mandated by the Teacher Law, (ii) the increased number of primary and junior secondary teachers in BERMUTU districts using classroom instruction with specific subjects and age appropriate pedagogy, and (iii) the reduction in absenteeism of teachers in BERMUTU districts.


Figure 1. Structure of the Online Microteaching

Several adjustments have been made to this portal. The latest revision was restructuring and repositioning all the resources into five main areas namely Laboratorium Pendidikan (Laboratory of Education), Belajar Online (Online Learning), Galery Profil (Profile Galleries), Program Diklat (Training Program), and Survey. This study examines online microteaching from one of the submenus under the Laboratory of Education (LOE). There is another similar submenu which also presents video-recordings under the LOE, namely, Materi Pengayaan Pembelajaran (Enrichment Materials for Teaching). The difference is that the contents of the video presented in the online microteaching concentrates on a specific issue that commonly arises in classroom teaching. On the other hand, the Enrichment videos are not necessarily about the issues that arise in the classroom, but may contain several issues in one video presentation. The Enrichment videos are neither reviewed by experts nor given comments by members of the public. They are designed as a one-way

direction communication of the enrichment materials that is aimed at sharing ideas or experiences. Figure 1 shows the structure of the online microteaching. The actual online microteaching can be found in www.gurupintar.ut.ac.id by clicking the submenu of *Online Microteaching.*

As shown in Figure 1, online microteaching consists of four key elements, namely video-recordings (including topic, author, and synopsis), expert judgment, teacher judgment, and discussion forum. Through the video, a teacher (called actor) demonstrates his best teaching strategies. Topics that are selected and demonstrated in the microteaching video are considered to contain misconceptions. All videos were created by FKIP-UT. Currently, we start by inviting teachers to submit their teaching model which they believed to be their best model of teaching. In general, the duration of the video is around five to six minutes. We review, edit, and publish them in the online microteaching portal. Subsequently, we invite experts to review the materials in the submitted videos. Finally, we publish all the videos and experts' judgments in the online microteaching portal.

Each microteaching video receives judgmental reviews from experts and teachers. As mentioned, FKIP-UT invites experts and outstanding teachers to carry out judgmental reviews based on guidelines provided. Basically, a review should focus on teaching strategies employed by the actor performing in the videos, including appropriateness of teaching media and significance of examples and enrichments used by the actors. Finally, while writing their reviews, the experts and the teachers need to emphasize their reviews on inquiry method of teaching and learning, especially the actors' strategies of ensuring students' attention and active learning throughout their teaching.

As mentioned previously, a moderator is assigned to manage the discussion forums. Moderation is necessary to ensure that the discussion is relevant to the topics of the microteaching. The moderator is a lecturer who is knowledgeable about the topic of the microteaching. Additionally, a moderator should initiate or stimulate discussions regarding the topic to ensure the forum discussions occurred. A moderator has authority to reject comments, opinions, or responses submitted to the forum that are considered irrelevant to the topic of the microteaching.

## Methodology

This paper draws on the results of descriptive qualitative research regarding the Smart Teacher Portal. This method was used to gain an understanding of underlying reasons, opinions, and motivations of teachers in using the portal, specifically invovling online microteaching. Knowles and Cole (2008) indicated that qualitative research is also used to uncover trends in thought and opinions, and to dive deeper into the problem. Knowles and Cole have further suggested that some common methods may include questionnaire survey, individual interviews, and participation/observations.

As stated in the introduction, this paper examines two key questions. To address the first research question, do the contents of the online microteaching align with the needs of teachers' professional development programs?, we analyzed responses of the online survey administered in the portal. The survey questionnaire comprised of 10 questions which were categorized into four attributes of the quality of online microteaching, namely (1) performances of recordings, (2) practicality of the content, (3) critical and reflective thinking and action, and (4) further learning. The structure of the questionnaire is presented in Table 1. The online survey was completed on June 1, 2016. Data were analyzed as group percentages of each category of the responses based on teachers who agreed and disagreed to the statements. The categories ranged from agree, somewhat disagree, reasonably disagree, and

disagree. The average of the responses in each category represents the respondent's opinions, which address the first research question.

Table 1
*Survey questionnaire and categories*

| No. | Category | Statements | No. of Question |
|---|---|---|---|
| 1 | Performances of recordings in the video. | Topic of the video-taped microteachings is interesting | 1 |
| 2 | Practicality of the issues and contents. | Contents presented in the video-taped microteaching enriches knowledge about teaching processes. | 2 |
| | | Contents presented in the video-taped microteaching align with school curriculum and programs. | 5 |
| | | Issues presented in the video-taped microteaching have some similarity with those that exist in the real classroom. | 6 |
| | | Problem-solving that is practiced in the video-taped microteaching can be implemented in the actual teaching. | 8 |
| 3 | Critical and reflective thinking. | Experiences with online microteaching allow teachers to practice critical thinking activities. | 3 |
| | | Experiences with online microteaching expose teachers to reflective actions. | 4 |
| 4 | Further learning. | Activities through online microteaching encourage teachers to work with other related videos. | 7 |
| | | Issues exposed by the experts and colleagues through discussion forums can be applied in actual classroom teaching. | 9 |
| | | Issues presented in the video-taped microteaching videos motivate teachers to search for further issues from other resources. | 10 |

To address the second research question, does engagement in the online microteaching help the teachers to practice thinking reflectively about their teaching skills?, we identified email addresses of the respondents who participated in the survey. For this purpose, we also collected email addresses of all participants of the online microteaching. Then, we sent invitation emails to all the identified participant teachers. This email invited the teachers to participate in a phone-call interview. The email invitation ended on July 15, 2016. The respondents for this second research question were all participants who replied to the email invitations and stated their interest to participate in the phone-call interviews. There were 50 respondents who provided their telephone numbers in this study. While the research institutions do not have an approval process for formal ethics, ethical issues to be considered when designing and conducting studies, including approval permits and obtaining data from respondents, are determined solely by the willingness of the respondents themselves, whether

they are willing or not willing to participate in research activities at all consequences. In this case, therefore, researchers still maintaining the principles of confidentiality of the respondents in terms of names and other personal status.

Prior to the interviewing process, the author observed the teachers' discussion columns to find out about the types of comments and responses that were written by the participants. Comments were invited but not limited to the quality of performances of the video recordings. As indicated in the guideline of the discussions, criteria determined were about the appropriateness of the teaching strategies in the materials taught, suitability and simplicity of media used in elaborating the meanings of the concepts taught, and clarity and strength of examples given in probing students' comprehension about the materials taught.

## Results and discussion

As of June 2016, the Smart Teacher Portal had 166 Microteaching videos, 77 Enrichment videos, and over 840,000 registered members. Yet, regarding the online microteaching, not all videos were accompanied by expert and teacher judgments. Therefore, this preliminary research concentrates on the videos which already had both experts' and teachers' judgements.

### *Instrument Validity and Reliability*

Prior to discussion on the results of the survey, this section describes the results of reliability and validity testing of the survey instrument. Golafshani (2003) and Aiken (1996) implied that reliability and validity constitute a tool to represent the degree of consistency and authenticity of an instrument. As mentioned in the methodology section above, the instrument of this study was composed of rating scale items (scaling in four categories).

This study used SPSS v.21 to gain reliability coefficients of internal consistency for the instrument. For this purpose, a value of Cronbach's Alpha was determined based on item-total correlational testing to reveal if any item in the set of instruments was inconsistent with the averaged responses of the others. Using this method of reliability testing, it was found that Cronbach's Alpha value of the instrument was 0.610. This demonstrated a high level of internal consistency for the instrument. As for critical r_Table (2-tailed) at 0.05 level of significance with the amount of data ($N$) = 189 was 0.143, then it was found that the Alpha value of 0.610 was higher than r_Table value of 0.143. Therefore, the overall research questionnaire was considered reliable.

Further detail analyses presented in Table 2 show the results of the item-total correlation computation for each item of the instrument. It is apparent in the table that all the Alpha values are higher than r_Table, suggesting that none of the items of the instrument set were inconsistent with the total averaged responses. The results signified that all items of the instrument have strong validity.

Table 2
*Results of item-test validity*

| No. Items | Corrected Item-Total Correlation (r_Alpha) | r_Table (*N*=279) | Decisions |
|---|---|---|---|
| **No. 1** | 0.320 | 0.143 | Valid |
| **No. 2** | 0.345 | 0.143 | Valid |
| **No. 3** | 0.332 | 0.143 | Valid |
| **No. 4** | 0.493 | 0.143 | Valid |
| **No. 5** | 0.182 | 0.143 | Valid |
| **No. 6** | 0.287 | 0.143 | Valid |
| **No. 7** | 0.172 | 0.143 | Valid |
| **No. 8** | 0.285 | 0.143 | Valid |
| **No. 9** | 0.359 | 0.143 | Valid |
| **No. 10** | 0.575 | 0.143 | Valid |

***Do the contents of the online microteaching align with the needs of teachers' professional development programs?***

Content alignment of the video recordings with the teachers' professional development programs (as indicated by the first key question of this paper) refers to the four categories of performances of video recordings: performances of recordings in the video**,** practicality of the issues and contents, critical and reflective teaching, and further learning. Table 3 shows the participants' opinions regarding these four categories. There were 189 respondents who participated in the online survey. Most teachers (average of 82.83%) positively perceived the performance of the video-taped recordings. This suggests that the issues and contents of the video associated strongly with the issues and contents that were required for the professional development programs of the teachers. These results are also connected with the necessary practices for the teachers regarding critical thinking and reflective teaching required by the school curriculum. Finally, the most positive response from the participants was that online video-taped microteaching motivates teachers to further elaborate with regard to the resources connected with those presented.

Table 3
*Content alignment with teachers' professional development program*

| No. | Category of responses | Percentage who Agree |
|---|---|---|
| 1 | Performances of video recordings | 85.37% |
| 2 | Practicality of the issues and contents | 81.71% |
| 3 | Critical and reflective teaching | 78.05% |
| 4 | Further learning | 86.18% |
| | Total average | 82.83% |

As suggested by Arsal (2015) and Peker (2009), teacher education programs should implement microteaching to facilitate the development of critical and reflective thinking skills that enable teachers to explore multiple possible perspectives while building teacher professional programs. This predisposition was empirically confirmed by the conduct of online microteaching as revealed by the teacher respondents. As a result, online microteaching promotes strong potential opportunities for teachers to engage in their professional development programs.

Ostorga (2006) has suggested that teachers everywhere are being held accountable for their professional actions. Teachers are often deprived of their professional voice and given little freedom to make pedagogical decisions. Thus, professional accountability demands that they be guided to develop their critical thinking so they may reflect on their practices and make decisions based on sound reasoning. This view corresponds to the statement from Yenice (2013), who suggested that "critical thinking has five basic domains, such as consistency, unifying, feasibility, adequacy and ability to communicate". Consistency relates to *awareness* of an individual who can think critically on *conflicts in the ideas*. Yenice further stated that being a consistent teacher means having performing ability to *remove conflicts* whereas unifying domain corresponds with the *ability* of an individual to make *connections* among different dimensions of the idea. Riddell (2007) argued that commitment in critical thinking should be made only after a period of *critically reflective analysis*, during which the congruence between perceptions and *reality* are examined. These findings synthesize at least in three aspects within which critical and reflective thinking can be improved, namely consistence, commitment, and concrete experiences. These correspond to the empirical dimensions of this research in noting that commitment in critical thinking through engagement in the online microteaching promotes opportunities for teachers to be consistent between beliefs about their actual personal experiences and their teaching practices revealed in the videos which are based on various cultural and educational settings and environments.

***Does engagement in the online microteaching help the teachers to practice thinking reflectively about their teaching skills?***

Prior to conveying the teachers' beliefs about the advantages of having engaged in online microteaching, the following reveals the results of the observations in the discussion forum. The observation analysis aims at identifying key points of view pointed out by the teachers arising during their involvement in the discussion forum. Basically, the discussion forum does not limit teachers to criticize the contents of the forum. They are invited to share their best practices pertaining to the content being discussed. Gelula & Yudkowsky (2002) have shared their beliefs that (teaching) practices may function at seeking potential improvement of skills for certain purposes. As they come from various cultural backgrounds and educational qualifications, their comments, views, or critiques presented are based on a dynamic process in the teaching and learning process regarding the subjects. As previously implied by Lambert & Fisher (2013), this environment may broaden points of view and, therefore, strengthen teachers' critical and reflective teaching techniques and methods. A moderator must ensure to take this into account while leading the discussion. As a result, inviting teachers to express their reasons for their critiques, comments, or ideas are necessarily the points of discussions.

Based on the observations, it was found that various responses were generally about the teaching strategies presented in the videos. Some of them criticized the strategies of teaching and learning, offering alternative strategies, and suggesting more examples related to the teaching methods demonstrated. At the same time, some others accepted, approved, or endorsed the strategies exhibited by the teachers, as well as those advised by the experts. The

following are examples of the responses presented by the participant teachers on the topic of Looking for square-root of 3 for numbers over 1000, which coded as numbers 8, 6, 5, and 4.

Table 4
*Examples of participants' responses in discussion forum*

| No. of examples | Participants' responses (Translation) |
|---|---|
| **#8** | Examples presented by the teacher were not really clear. It should be better if he and the students wrote together their unit numbers, such as, 1^3=3 2^3=8 3^3=9 4^3=64 5^3=125 6^3=216 7^3=343 8^3=512 9^3=891.... Then, wrote their tens, such as, 10^1=1000 20^3=8000 30^3=27000. Example of square root of 3 from 13824 means 20 + 4 (the last unit number is 4) = 24. |
| **#6** | I would disagree with the teaching method used by the teacher about the learning of square-root of 3, such as 1^3=3, 2^3=8, etc... and for ten-numbers of 10^3=1000, 20^3=8000, etc. this will help students remember the numbers being discussed in the teaching process. |
| **#5** | Introductory explanation by the teacher was well presented and the students seemed to understand the examples shown. However, in the following examples, it should be better if he had invited a student to do the practices and requested afterwards to explain his/her answers to the class. This will help the teacher to see whether or not the students understood the concept of square-root of 3 for the numbers of more than 1000. |
| **#4** | "The content was well presented by the teacher. However, it would be good if students were invited to interact with easier numbers first so that they could consider that the content was easy". |

The various opinions recorded indicate that discussion promotes broader points of view and of assessment strategies that are so valuable that these should be aligned with school teacher professional development processes. As was implied by Fullan & Langworthy (2014), Illeris (2014), and O'Connor (2011), pros and cons expressions concerning the teaching strategies were directed to the users (teachers in the online microteaching) based on their expertise and points of view. Overall, however, there was consistency in the teacher participants' opinions which was resting on two aspects of teaching. They consistently agreed that there had been less student involvement during the teaching and that there was a lack of teacher appreciation about student arguments while teaching. Moreover, discussions also show a predisposed teacher domination during their classroom teaching and learning processes. For example, some suggest that student active participation may be in the form of student hands-on activities while they conduct scientific practicum. Others suggest that students may also need to develop practice exercises after being introduced previously to the main concepts or theories, or a teacher may invite students to put forward reasons on their responses.

All these findings were then verified through interviews. In addition, the interviews explored teachers' views and beliefs about the advantages of having participated in online microteaching. Five starting questions were addressed to 10 respondents of whom three of them were involved in the discussion forum of the topic of "Looking for square-root of 3 for numbers over 1000". Those starting questions were (1) how do you know about this portal? (2) What is your first impression when you first participated in the portal and the online microteaching? (3) What part of the microteaching do you like most (video streaming, expert

judgment, or discussion forum)? (4) Would you like to share online microteaching with other teachers? And (5) what do you suggest improving the online microteaching?

Various responses were noted from the interviews. The following are some of the results of the interviews, written in order of the above five questions. Firstly, of the ten respondents, nine of them stated that they knew the portal from the tutor while participating in both online and face-to-face tutorials (the nine respondents were UT alumni), whereas the other knew about it from her colleagues who were students of UT. One of the alumni respondents said (translation) "I know about the portal of Guru Pintar Online from our tutors while attending UT F2F tutorial classes. Besides, we were briefed regarding the portal while we were attending the graduation ceremony". Another respondent said (translation) "when we were attending tutorials, often were we were required to refer to our writings on tutorial assignments to base on the examples provided in portal".

The above results indicate that the UT F2F tutorial activities was the best medium to socialize the Smart Teacher Portal (Question 1). The tutor often required students to first visit the portal for their assignment completion of the tutorial. This means implicitly that more efforts need to be addressed to introduce the portal to broader teachers. For this, the alumni were found to contribute greatly for the promotion of portal to a wider group of teachers.

All the respondents suggested that having learned about the portal, especially lessons learned from the online microteaching, they realized that various strategies could be used for similar content or materials in their classroom. This enabled the teachers to become aware of other possibilities concerning the strategies of teaching. Additionally, socio-cultural backgrounds might influence the variety of teaching strategies applied. This corresponds to Wen, et.al (2014) suggesting that the role of teachers was challenged by the increasing social and cultural diversity. Kusmawan (2015) has implied that, "online technologies for communication have boosted global education conception and practices in particular to cultural and socio-economic diversity". The teachers had appreciated and been impressed with the processes of discussions which had the ability to expose various critical issues of teaching strategies and methods that occurred through the discussion forum (Question 2).

When they were asked about which the part of the online microteaching that they would be willing to be involved in (Question 3), they stated that the discussion forum was the best part of the online microteaching. They argued that through the discussions, they often received comments from the others concerning their own comments. They considered this forum an active and productive medium to be involved in. They stated that they also appreciated the advice given by the experts. However, they suggested that judgments made by the experts need to be more analytical and more detailed so that their explanations would be more comprehensive regarding the subject being discussed. The respondents realized that not all ideas or statements given regarding the teaching approaches were completely relevant to their classroom conditions. Likewise, they accepted that such situations offered opportunities to observe situations differently due to different social- and cultural-related backgrounds.

All the respondents argued that the online microteaching could be considered a medium that should be beneficial for teachers who are interested in enriching their knowledge and experiences regarding teaching strategies. They expect that more teachers should be invited to actively participate in this portal (Question 4). They stated that the more teachers were involved in the forum the more active and productive discussions would take place and hence more lessons could be learned from it. Finally, the author as the researcher asked whether they had suggestions for further improvement of the online microteaching (Question 5). Unfortunately, none of them had any possible suggestions to improve this microteaching program. Rather, they just stated that they were available for sharing and

promoting this technique to a wider group of teachers. A translation of an example of the type of response was:

> I really enjoyed attending the discussion forum through the online microteaching. I hope there would be more contents provided by the online microteaching, I would of course propagate this online forum to other teachers and friends so that more people can access to this online forum.

Finally, the interviewees suggested that more efforts need to be addressed to introduce the portal to a broader number of teachers. With regards to teachers' experiences in participating in discussion forum while practicing the online microteaching, they have impressively appreciated the processes of discussions which were considered capable of exposing various critical issues of teaching strategies and methods. Even though, the teacher respondents realized that not all the experiences were appropriate to their classroom conditions, they accepted that the online microteaching enabled them to recognize various teaching approaches and strategies in relation to the various social- and cultural-related backgrounds presented. As a result, interview participants were obviously willing to share their experiences to colleagues of the benefits of their participation in the online microteaching.

## Conclusion

Traditional microteaching techniques have long been used in-small groups and face-to-face settings. The literature has demonstrated that this technique contributed strongly to a higher quality of teaching practices. Critical thinking and reflective actions were understood as being embedded in the practices of this technique. Several efforts have been considered strengthen this technique including video-recordings and YouTube mediated microteaching.

Likewise, in alignment with the advancements of information and communication technologies, online microteaching potentially functions as a multifaceted technique that promotes wider opportunities for more teachers to improve their quality of teaching. As for this research, the quality of teaching is revealed through its capacity in favoring teachers' critical and reflective thinking skills.

Through the current survey, this research concludes that implementing online microteaching predisposes critical and reflective thinking skills of teachers in such a way that it intensifies multiple possible perspectives of teachers during their involvement in professional development programs. In-depth interviews in this research, confirms that intensive engagement in online microteaching promotes broader knowledge acquisition and opportunities to conduct critical and reflective thinking skills in more creative and critical ways. Teacher participants accept that various teaching approaches, because of different social and cultural-related backgrounds, necessarily conform to their classroom condition. However, they help to increase teachers' awareness and understanding of richer possibilities for quality teaching practices.

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