Review Article

Program For Developing Rural Area Elementary School Teachers Professionalism Based on TPACK: Review Empirical And Reflective

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A R T I C L E I N F O	A B S T R A C T
	This study aims to develop the professionalism of rural area elementary school teachers based on TPACK. The subject of this research is the Teacher Professional Education (PPG) Participants at the University of Lampung in 2020 in the field of study for elementary school teachers from rural areas in Lampung Province. The research sample amounted to 49, which were determined purposively. This study uses qualitative research with a Narrative Study Approach. The focus of this research is to produce a hypothetical model that can overcome the obstacles of PPG participants from rural areas so that it can be a solution to increase professionalism while supporting UKMPPG Graduation. Data collection techniques are used in the form of questionnaires, interviews and documents. The results showed that PPG participants were proven to have problems in the form of weak internet signals and a lack of mastery of technology, which impacted their unpreparedness to participate in PPG in terms of technology and content. Based on these conditions, the hypothetical model includes three scaffolding levels. Thus, theoretically, scaffolding can develop teacher professionalism.

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INTRODUCTION

To educate the nation's life according to the mandate of the fourth paragraph of the 1945 Constitution, the teacher is one of the professions that has an important role in achieving this mandate. According to Law Number 14 of 2005 concerning Teachers and Lecturers, Article 1, teachers are professionals in education with the main task of educating, teaching, guiding, directing, training, assessing, and evaluating students. Developing teacher professionalism is needed for teachers to carry out their main tasks and meet the qualifications and competencies of their fields.

The development of teacher professionalism is a very urgent topic of study in almost all developed countries. Many models for developing teacher professionalism have also been developed, such as the lesson study model, reflective teaching, class action research, and scaffolding. In Indonesia, the development of teacher professionalism, as written in Government Regulation 19 of 2017, requires an undergraduate academic qualification, and teachers must also have an educator certificate obtained through professional teacher education. This illustrates how these countries believe in the importance of the teacher's role for their nation. On this basis, many countries are investing in several programs to improve teacher professionalism, even though the amount of funding is not small (Bautista & Oretga-Ruiz, 2017).

Several reasons can be identified for this focus on the role of the teacher. First, awareness of the teacher's active role as an agent of change in professional development, school reform, and improvement. Second, the specific issue of continuous change in professional and school development makes it urgent to explain the role of teacher agents in professional development regarding educational quality (Imants & Van der Wal, 2020).

When the development of science and technology is increasing rapidly, efforts to increase teacher professionalism are entering a new era. Several countries have implemented programs combining teaching materials, content, pedagogy, and technology into a unified technological Pedagogical and Content Knowledge (TPACK) model. TPACK is a framework or program that describes strategies for packaging teaching materials and teaching them with technology integration (Koehler et al., 2013).

Many countries respond to the transformative effects of technology on efforts to increase teacher professionalism since teachers in the twenty-first century must facilitate twenty-first-century learning skills, learning content is increasingly transdisciplinary, and technology cannot be divorced from pedagogical goals (Koehler et al., 2011).

Several countries have reported the success of teacher professionalism improvement programs using the TPACK framework. In essence, this program can increase teacher knowledge through the worksheets provided, helping teachers form favourable or unfavourable attitudes towards learning. They can try activities they have experienced with their students. Teachers have more opportunities to try out ideas and be creative, and it has been proven that teachers can implement and extend ideas to integrate technology in their classrooms (Niess et al., 2010). The TPACK framework is not only related to the integration of technology in teaching to facilitate the continuous improvement of teacher professionalism but also supports the development of instruments that are more "pedagogically inclusive," assisted by TPACK, which have proven reliable and valid (Harris et al., 2010).

Several advantages of TPACK have also been adopted by Teacher Professional Education (PPG) in Indonesia since 2018. The hope is that, apart from improving the qualifications of teachers who are still below standard (under qualification), it is also hoped that teachers in the Industrial Revolution (RI) 4.0 era will have the ability to carry out learning in innovative and fun ways by integrating critical thinking and problem solving, communication and collaborative skills, creativity and innovative skills, information and communication literacy, contextual learning skills, and information and media literacy through the TPACK approach (Direktorat P3GTK, 2020).

The learning organized by PPG is facilitated by the Learning Management System (LMS). LMS is a strategy for distributing learning content quickly, carrying out discussions, sending bills of

learning, carrying out formative and summative tests, and enabling collaborative activities between experts/lecturers/instructors, practitioners/guard teachers, and PPG participants both directly (synchronously) and indirectly (asynchronously). This LMS is guaranteed to have an advantage in supporting the TPACK framework if the principles are met, including the internet network, computer equipment, the ability of PPG participants as users, and instructors who have mastered both content, pedagogy, and operating the features contained in this LMS. In the LMS, it is possible to arrange it so that PPG participants can complete study assignments and bills on time, but it will be a problem for PPG participants who cannot take part in the LMS properly. So that it will cause the PPG participants to be one step behind compared to PPG participants who already understand the LMS.

METHOD

Research Design

The method or type of research used in this study is qualitative research with a narrative study approach. Qualitative research investigates and comprehends the significance of social problems in a number of individuals or groups of people (Creswell, 2014). This research is an empirical and reflective review of the TPACK-based remote area elementary school teacher professional development program. This study reflects on the PPG program, which suggests a hypothetical model due to studying several theories that approach the needs of participants from underdeveloped areas. The research subjects were elementary school teachers from remote areas in Lampung Province, totalling 49 (forty-nine) teachers.

Research Instruments and Procedure

The instruments used to identify research topics were online via a Google form. While in the interview process, I used interview guidelines that had been made according to research needs. In the process of qualitative research, Creswell, (2014) describes several steps taken in the research process, namely as follows: (1) Identifying the research topic, (2) Reviewing the literature (3) Selecting participants or objects. (4) Data collection (5) Perform data analysis and interpretation. (6) reporting and evaluating research The interview stage was conducted online via Zoom Meeting.

RESULT AND DISCUSSION

Regarding the difficulty of using the LMS

The results of the responses of PPG PPG participants at the University of Lampung in 2020 who came from remote areas regarding the difficulties in using the LMS are presented in the following bar chart.

Based on Figure 1, it can be taken on average that the alternative answers are very difficult at 0.6%, difficult at 17.1%, easy at 69%, and very easy at 13.3%. The ease of PPG participants in using the LMS is an important aspect of the success of PPG implementation because overall, PPG participant activities such as downloading modules, studying modules, discussing, taking tests, doing assignments, and submitting assignments all use the LMS. If PPG participants experience difficulties, it will certainly hinder PPG participants' understanding of content and pedagogy.
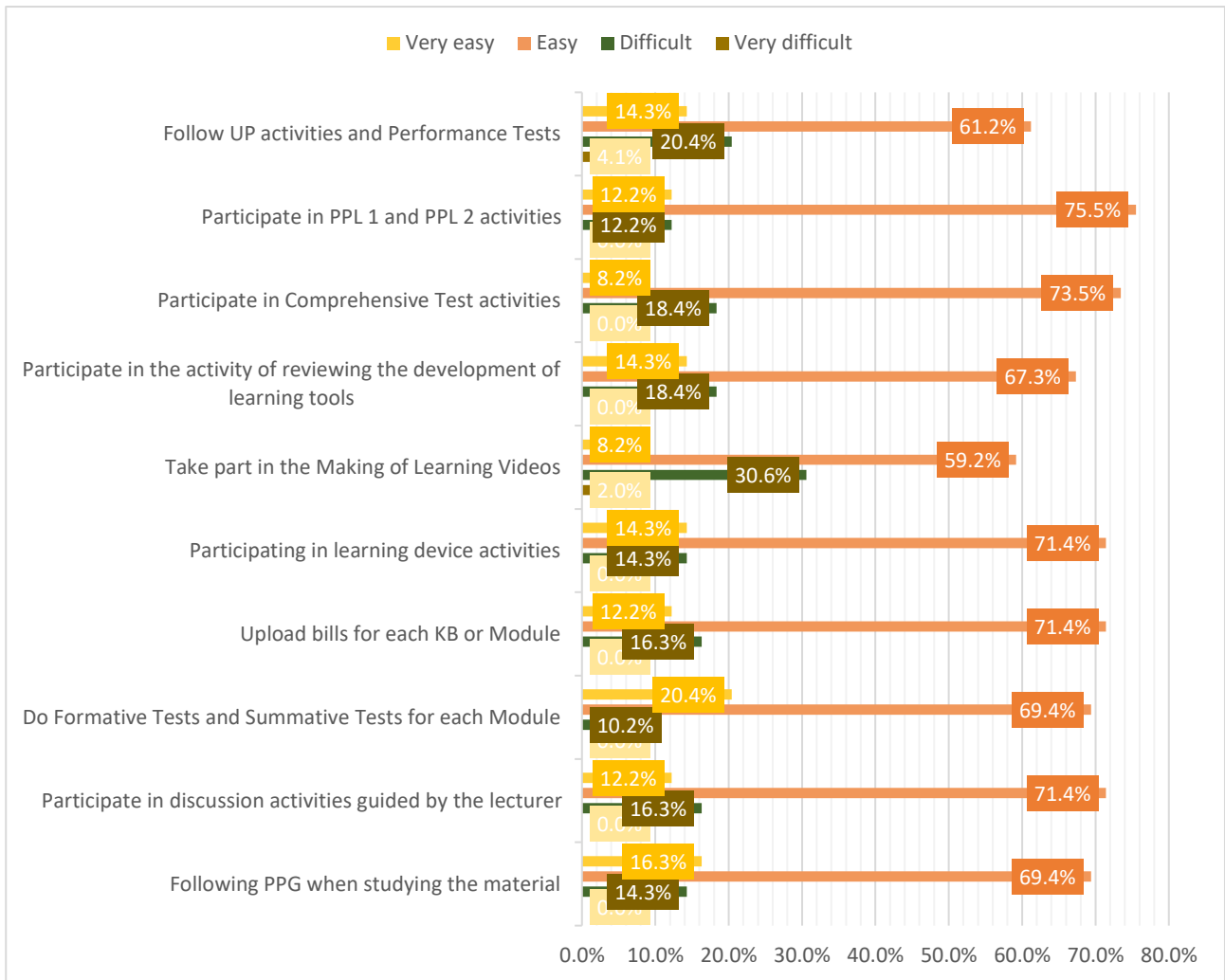
Figure 1. Bar Chart Percentage of Response Difficulty Using LMS

In addition to data on needs analysis regarding the difficulties PPG participants had in using the LMS, data were also obtained about the participation of PPG participants in training or training that supports teacher professionalism. The data obtained from Google Forms is as follows:

Table 1 Participation of PPG Participants in Teacher Professional Training

No	Statement	Alternative Answers	Amount	Percentage
1	During your career as a teacher, have you attended any professional teacher sessional?	ever	44	89,80%
		never	5	10,20%
2	How many times have you attended teacher professionalism training during your career?	5-10 x	11	22,45%
		above 10x	1	2,04%
		Less than 5 x	37	75,51%
3	Have you attended Information Technology-based Learning Training during your career as a teacher?	ever	32	65,31%
		never	17	34,69%
4	Has your interest in a career been piqued due to your participation in the Teacher Professional Training?	Ever	48	97,96%
		never	1	2,04%
5	Is there an impact on increasing enthusiasm for a career after participating in the LMS/TPACK-Based PPG?	Very No Increase	0	0 %
		No Increase	3	6,12%
		Increase	38	77,55 %
		Very Increase	8	16,33%

Based on Table 5 above, it can be seen that most, or 89.80%, of PPG participants have attended teacher professionalism training, with the most participation being less than five times during their career as teachers, namely 75.51%. Specifically, regarding the participation of PPG participants in Information Technology-based learning training, 65.31% had attended, while 34.69% had never attended. The most important thing is how effective the training was in adding enthusiasm to a career as a teacher. From the table above, it can be seen that 93.88% of the education and training increased their career enthusiasm. In contrast, after participating in PPG, only 6.12% of PPG participants felt that PPG did not increase their career enthusiasm.

In this study, research subjects were taken from 2020 PPG In-Service PPG participants who came from remote areas (rural areas). The distribution of numbers in each district is as follows:

Table 2 Distribution of Research Subjects by District

No	Regency	Amount
1	Mesuji	5
2	Pesisir Barat	2
3	Tulang Bawang	20
4	Tulang Bawang Barat	11
5	Way Kanan	11
Total		**49**

Sources: PPG Study Program Documents (2020)

Based on the data above, it can be seen that the Tulang Bawang Regency had the largest distribution of PPG participants, namely 20 PPG participants, and the Pesisir Barat District had the lowest number, namely 2 PPG participants.

Table 3 Percentage of Graduation Based on Age Range

No	Age Range	Description of UKMPPG Graduation				
		Number of PPG Participants	Passing	Percentage	Not Passing	Percentage
1	26-30	10	8	80,00%	2	20,00%
2	31-35	19	15	78,95%	4	21,05%
3	36-40	7	5	71,43%	2	28,57%
4	41-45	7	3	42,86%	4	57,14%
5	46-50	6	1	16,67%	5	83,33%
	Total	49	32	65,31%	17	34,69%

Sources: PPG Study Program Documents (2020)

Based on the table above, it can be seen that the passing percentage is getting lower or the age range is increasing, UKMPPG passing is decreasing, inversely proportional to the passing percentage. In contrast, the age range is increasing, UKMPPG failing is increasing.

Table 4 Distribution of UKMPPG Graduates Based on Years of Service

No	Range of Service Period (Year)	Description of Graduation				
		Number of PPG Participants	Passing	Percentage	Not Passing	Percentage
1	1-5	6	4	66,67%	2	33,33%
2	6-10	18	15	83,33%	3	16,67%
3	11-15	22	13	59,09%	9	40,91%
4	16-20	3	0	0,00%	3	100,00%
Total		49	32	65,31%	17	34,69%

Sources: PPG Study Program Documents (2020)

According to the table above, the longer the working period, the lower the percentage, while the longer the working period, the higher the percentage of non-graduation. In the 6–10 years of service range, the best UKMPPG pass percentage is 83.33%, and failure has the smallest percentage, 16.67%.

Table 5 Percentage of UKMPPG Pass by Gender

No	Jenis Kelamin	Description of Graduation				
		Number of PPG Participants	Passing	Percentage	Not Passing	Percentage
1	Laki-Laki	19	8	42,11%	11	57,89%
2	Perempuan	30	24	80,00%	6	20,00%
	Total	49	32	65,31%	17	34,69%

Sources: PPG Study Program Documents (2020)

Based on the table above, the number of PPG participants of the female sex was greater than that of the male. PPG participants of the female gender had a higher percentage of graduation rates than participants of the male gender, namely 42.11% male and 80% female.

Table 6 Percentage of UKMPPG Pass by District

No	Kabupaten	Description of Graduation				
		Number of PPG Participants	Passing	Percentage	Not Passing	Percentage
1	Mesuji	5	5	100,00%	0	0,00%
2	Pesisir Barat	2	1	50,00%	1	50,00%
3	Tulang Bawang	20	12	60,00%	8	40,00%
4	Tulang Bawang Barat	11	8	72,73%	3	27,27%
5	Way Kanan	11	6	54,55%	5	45,45%
Total		49	32	65,31%	17	34,69%

Sources: PPG Study Program Documents (2020)

Based on the table above, the district with the highest percentage of UKMPPG pass is Mesuji district with 100%, while Pesisir Barat district has the least percentage, namely 50%.

The next stage after organizing the data was conducting interviews, which aimed to gather information about the difficulties experienced by PPG participants. To determine the PPG participants to be interviewed, they were selected based on (1) PPG participants who did not pass the UKMPPG, either the Knowledge Test (UP) or the Performance Test (UKin) or both, and the

distribution aspect of their area of origin. Therefore, it can be concluded that the following is the PPG participant data that will be interviewed:

Table 7 Research Subjects who will be interviewed

NO	DISTRICTS	Description of UKMPPG Graduation	Amount
1	Way Kanan	Not Pass UP	2
2	Tulang Bawang	Not Pass UP dan UKin	1
3	Tulang Bawang Barat	Not Pass UP	1
4	Tulang Bawang	Not Pass UKin	1
Jumlah			5

Sources: PPG Study Program Documents (2020)

In this study, no PPG participants from the Mesuji district were interviewed because all PPG participants had passed UKMPPG, while 1 (one) PPG participant from Pesisir Barat district was difficult to contact.

After conducting in-depth interviews and processing the data based on previously owned archival documents, analysis and interpretation of the data was carried out. The results of interviews with the five selected PPG participants are as follows:

Table 8 Grouping of Interview Themes

No	Unit of Analysis	Research Findings
1	**Response to PPG Full Online**	1. PPG Full Online in the Current Condition is better implemented than offline (W1S1P1, 1-2)
		2. Problems with signaling and material delivery are not detailed enough (W1S2P1, 1-4)
		3. Do not understand the process that will occur while online (W1S3P1, 1-3)
		4. There is concern, because it is in a rural area, especially because of the signal (W1S4P1, 1-2)
		5. Apart from the signal, there are deficiencies in the operation of the computer (W1S5P1, 1-3)
2	**Barriers experienced during PPG**	1. Experienced obstacles are signals, especially when it rains (W1S1P2, 15-18)
		2. Changes in schedule and signal constraints, signal constraints are not only PPG participants but from instructors/lecturers (W1S2P2, 16-28)
		3. Signal problems, especially when the Google meeting suddenly disconnects in the middle of the meeting (W1S3P2, 4-20)
		4. The signal becomes a problem, especially when the lights go out, because the signal will also be lost (W1S4P2 5-7, W1S4P5 18-19)
		5. Problems in operating the laptop and signal (W1S5P1 1-3, W1S5P3 11)
3	**The effectiveness of PPG implementation**	1. PPG has been effectively carried out, but there are still lecturers who are rarely present at the implementation, especially during PPL (W1S1P3 23-32)
		2. To produce professional teachers, learning is good, but the implementation time is not long enough (W1S2P3 29-39)
		3. It has been implemented effectively, the material is delivered, the lecturer's delivery is interesting and not very formal, so that PPG participants are more comfortable (W1S3P5 30-35)
		4. Has been running effectively and adapting to pandemic conditions (W1S4P3 8-9)
		5. PPG with the LMS system is effective, the materials are as needed, but working on one module for three days is too short (W1S5P3 9-15)
4	**LMS Instructor and Admin roles**	1. Instructors/lecturers and LMS administrators facilitate during PPG implementation (W1S1P4 38).
		2. Facilitated and helped us when we experienced difficulties. (W1S2P4 40-41)

No	Unit of Analysis	Research Findings
		3. In particular, the admin has facilitated it; when problems with the summative test are locked, the admin reopens it with the instructor's or lecturer's approval (W1S3P6 36–40).
		4. Instructors are good and adequate during PPG implementation (W1S4P4 16-17, W1S5P4 20)
5	Troubleshooting if there are problems or obstacles during the PPG process	1. Ask friends what the instructor/lecturer has conveyed and what assignments have been given (W1S1P2 19-22)
		2. What discussions with friends have not been discussed or conveyed by the lecturer (W1S1P3 33-37, W1S1P7 64-70)
		3. As long as the PPL is mostly guided by the Pamong Teacher (W1S1P6 59-62)
		4. Discuss via Whatsapp, both with friends and lecturers, to catch up and catch up (W1S2P2 27-28, W1S2P3 37-39)
		5. When left behind, ask friends about what was discussed, daily assignments, or final assignments (W1S3P4 21-25)
		6. To make it easier to learn the material, the modules that are available in the LMS are read repeatedly and printed (W1S3P7 41-44)
		7. Trying to find a good network, for example approaching a signal tower (W1S4P1 3-4, W1S4P5 18)
		8. Ask the Admin, if there are problems with the LMS system, for example, difficulty opening/accessing (W1S5P5 21-25)
6	Expected PPG models	1. Added interaction with lecturers (W1S1P6 54)
		2. The instructor/lecturer is more detailed in delivering the material (W1S2P5 47)
		3. Yesterday's implementation model was good, but the time spent studying the module was too short (W1S3P8 45-47)
		4. PPG is good and nothing needs to be added (W1S4P6 24-25)
		5. Yesterday's PPG was efficient, besides time, costs were also cheaper than face-to-face. The time to study the module is also adjusted according to the amount of module content (W1S5P9 42-28)
		6. During PPL, teaching volume is increased (W1S5P9 50-55)
7	Motivation to follow PPG	1. Become a professional teacher, develop students, and become a leading teacher (W1S1P8 79-84)
		2. Catching up, being a role model for children, and having the knowledge to apply and convey to students (W1S2P9 102-112)
		3. Become professional, gain knowledge, and be able to distinguish between personal and school assignments well (W1S3P10 51-57)
		4. Become a professional teacher, gain knowledge and receive allowances (W1S48 31-33)
		5. Become a professional, qualified, certified teacher and increase income (W1S5P8 39-41)
8	Hope to the Government	1. Provision of quotas for PPG participants during PPG (W1S1P9 85-87)
		2. Provision of other alternatives for PPG participants from the interior, for example, being given accommodation in a place with a better signal (W1S1P9 88-93)
		3. Provide special training before participating in PPG, which can be done per sub-district/regency, so that when participating in PPG you can already master it (W1S2P5 52-60)
9	Pre-PPG Training Participation	1. Never attended LMS-based training before, after PPG and attending similar training, it became easier to follow (W1S1P10 94-106)
		2. Have never attended, only attended face-to-face training after PPG attended Batik Maker training, so it is more familiar (W1S2P6 61-72)
		3. LMS-Based PPG, this is the first LMS-based training/education attended, after PPG has never attended LMS-based training again (W1S3P12 64-68)
		4. Have already taken a computer course, but still, when you took PPG yesterday, you experienced difficulties and learned on your own from various sources (W1S4P10 39-44)
		5. Have never participated in an LMS-based program but have used ICT-based (W1S5P10 56-58)

No	Unit of Analysis	Research Findings
10	**So that the spirit of a career as a teacher**	1. Always learn to develop self-potential and explore other talents (W1S1P11 107-109) 2. The government provides supporting facilities and infrastructure for teachers to be able to convey learning materials, but if there is none, they can utilize the natural surroundings for learning (W1S2P7 73-86) 3. Continue to improve professionalism because the teaching profession has become a choice that must be made with sincerity and enthusiasm (W1S3P14 69-77) 4. Enthusiasm and not giving up are supported by attending pieces of training (W1S4P11 45-48) 5. Participate in training that is continuous or not enough once or repeatedly so that the knowledge is truly absorbed and not forgotten (W1S5P11 59-64)

Based on the interview verbatim above, qualitative data can be summarized and integrated in the form of narrative and visual forms (Creswell, 2014). Based on the results of the interview above, several points were obtained as follows:

a. The main problem in implementing PPG is due to the signal, a bad signal due to the weather, and the origin of the PPG participant area.

b. PPG participants will be left behind in material, especially what was conveyed during a Google meeting, if there are signal problems; to overcome this, PPG participants can ask through discussion forums, study groups, or WhatsApp to friends.

c. In addition to discussing material, colleagues are a place for PPG participants to address technical problems in the LMS; besides that, there are LMS administrators, families, and school operators who can also become a place for consultation on technical issues in the LMS.

d. In general, the implementation of PPG was good; however, according to interviews with PPG participants, they felt that the time to work on the module was too short, so much of the material was not understood. Still, they had to move on to the next module's material.

e. Prior to participating in PPG, all of the PPG participants interviewed had never participated in either LMS- or IT-based training. Even if there were only tryouts and computer courses.

f. After participating in PPG, there were several participants who took part in LMS-based training, such as study teachers. The PPG participants stated that it was easier to follow because of their experience using LMS at PPG.

g. Training on using the LMS before PPG will help PPG participants deepen the material; in other words, PPG participants don't have to worry about technical problems at the LMS.

h. Existing trainings are not sustainable, so they will be quickly forgotten.

i. It is hoped that the PPG LMS participants will have longer meetings with lecturers so that issues that are still a problem can be resolved.

j. All the teachers interviewed had high career enthusiasm and motivation, among others, to become professional teachers, develop other potentials and talents, and have a passion for catching up so that students become useful for the nation and the state.

DISCUSSION

Barrierse xperienced by PPG Participants in Using the LMS

In this online learning environment, internet signals are a major requirement so that learning itself can run smoothly. This signal problem is not allowed to be a reason for PPG participants not to participate in the activity because the PPG implementation has already been scheduled, and the LMS

system itself cannot back off and wait for PPG participants who are lagging. In terms of participation in information technology-based learning, training, and education, the most difficult aspect was making learning videos. This difficulty certainly hinders the learning process because PPG participants will focus a lot on video-making technology compared to the quality of learning.

Participation in this training can indicate whether a PPG participant has the intention, hope, or expectation to overcome their problems. The Theory of Planned Behavior (TPB) places "intention" as a central factor in increasing professionalism. The consistency and existence of this effort are closely related to two main things, namely intention and expectation. This is reinforced by research results Jones et al., (2012) which proves that efforts to increase teacher professionalism is a dynamic process, without end, and requires time and must exist throughout the teacher's professional career. The consistency and existence of this effort is closely related to two main things, namely intention and expectation.

PPG participants who have high intentions and hopes not to give up on the difficult situation of internet signal, these PPG participants will try their best to find the best signal point so they can take part in PPG activities properly, as listed in the Verbatim Appendix with code W1S4P1 line 3 -4 as follows:

"……if you jo "n a meeting you have to be near the tower, sir. Thank God I was able to follow it to the end"

In terms of overcoming PPG participants who experience difficulties making videos, one solution is through training or other activities carried out continuously through the Teacher Working Group (KKG) in one cluster. With this KKG, it is hoped that it can overcome problems that arise in learning and increase the professionalism of teachers and educators both inside and outside the classroom. In line with that supported by research Al Rasyid, (2015) that the KKG is effective as a forum for the continuous development of teacher professionalism.

UKMPPG Graduation Relationship Based on Age Range

Based on Table 3, the increasing the age range, the lower the pass percentage of UKMPPG. This means that the older the PPG participants are, the greater the percentage of UKMPPG failing. This is because younger people tend to be more familiar with the technology. PPG is based on TPACK, where all activities are carried out based on technology, making it easier for younger people to master the material presented in the LMS more quickly. As in the research conducted by Deal et al., (2010), the millennial generation uses technology more because the age of exposure to new technology is younger than other generations. This causes the millennial generation to be superior in terms of utilizing new technology, while the older age or the so-called Baby Boomer generation must first understand technology, then understand material/content.

According to Papp & Matulich, (2011) the use of technology by the millennial generation is not the same as the previous generation. The millennial generation uses technology a lot for every activity, not only that, the millennial generation also uses technology to follow learning. In addition to the two studies above, there is also research by Blackburn, (2011) that the millennial generation acts as an "agent of change" in terms of adopting new technological tools. The results of this study illustrate the close relationship between the millennial generation and technology.

According to the results of a recent survey conducted by the PEW Research Center in early 2018 in the United States, the millennial generation has a higher level of technology utilisation than generations X and Baby Boomers. Therefore, it can be concluded that the millennial generation has a greater ability to adapt to new technologies. Thus, it can be realized that UKMPPG graduation based on age range is based more on the ability of PPG participants to use technology in their learning process. The use of this technology is in addition to its operation, whether PPG participants, in this

case teachers, use it for professional purposes or only for social media or online shopping. Therefore, whether the ability to use technology is good or bad depends on PPG participants to develop themselves and later contribute to the general public Budiati et al., (2018).

UKMPPG Graduation Relations Based on Years of Service

Based on Table 4, it can be seen that the longer the working period tends to decrease, while in the aspect of non-graduation the longer the working period the percentage increases. In the range of 6-10 years of service, the best UKMPPG pass percentage is 83.33% as well as failure has the smallest percentage, namely 16.67%. This indicates that the longer the working period of PPG participants, the more mastery of content/material and pedagogics they are, but they experience a decrease in their professional and pedagogical abilities. As research by Hasan, (2015) that tenure or work experience is essentially a summary of a person's understanding of the things experienced in teaching, so that the things experienced have been mastered, both regarding knowledge, skills and values that are inherent in him. This means that the longer the working period, the more experience the teacher or educator has in terms of learning.

Despite the facts in this study as listed in Table 5, 89.80% of respondents had attended teacher professionalism training and 93.88% stated that the training increased their career enthusiasm, but there were still 34.69% of PPG participants who did not pass UKMPPG. This may be due to the ineffectiveness of the training that was attended. So that it is better if the effectiveness needs to be reviewed by following up or assisting the training participant teachers for some time after the training activities are finished (Subadi,Tjipto, et all, 2013). The goal is for teachers or educators to have a forum or place to share problems and discussions to solve them when implementing the training results in their respective schools. Optimizing the learning community between fellow teachers or working groups of low grade teachers is also worth considering as a form of learning tool for them (Somantri & Ridwan, 2013). This is supported by research Winarni, Misbah, (2021) namely the KKG PAI SD group effectively increased the competence of teachers in Banyumas Regency based on the implementation of the KKG activity program, the type of activity program, the success of activity planning, the implementation of activity management, the effectiveness of the KKG in increasing teacher competence before and after the KKG was held.

Relationship between UKMPPG Graduation Based on Gender

Table 5 shows that female PPG participants had a higher passing percentage than men, namely 80% compared to 42.11%. As attached in Appendix 5, the average age of male PPG participants is 36.36 years, while that of women is 36 years. The average working period of male PPG participants is 10.91 years, while that of women is 10.20 years. Seen in the appendix, male and female PPG participants have an average age and years of service that are almost the same. The difference in UKMPPG graduation can be caused by the level of focus in participating in PPG, because PPG is carried out online, it is still possible for PPG participants to carry out other activities, especially men are enabled to earn other income or learning activities that should focus more on implementing PPG. So it should be reviewed whether PPG participants have focused on participating in PPG or not, whether PPG participants are truly free from the burden of teaching at school or not.

Based on the interview findings in Table 15 and discussion of the difficulties faced by PPG participants, the relationship between UKMPPG graduation and age, years of service and gender. UKMPPG is determined to pass through the Knowledge Test and Performance Test. To be able to participate, you must first pass all courses in Deepening Pedagogical Materials and Fields of Study; Development of learning tools; and Practical Field Experience.

The learning performance test is intended to assess the performance of PPG participants in planning, implementing, and evaluating learning. The portfolio performance test is used to assess PPG

participants in terms of continuous self-development as professional teachers through research, self-reflection, seeking new information, and innovation. While the Knowledge Test (UP) is a competency test that is held simultaneously in the network (online) to measure the achievement of 7 (seven) learning outcomes of PPG PPG participants (PPG Guidelines, 2020).

So that the PPG implementation process can be followed by all PPG participants, in the sense that all of them have the same ability in terms of mastery of technology, mastery of material/content and pedagogy. As required to become PPG PPG participants in the Guidelines, namely having an undergraduate academic qualification (S1) or diploma four (D-IV). Where S1 graduates are considered to have the knowledge and skills needed to be able to take part in PPG. However, in the fact that PPG PPG research participants or respondents in this study experienced signal barriers, deficiencies in computer operation, intentions and hopes that were not kept enthusiastic as they got older and worked, so it can be understood that there were 34.69% who had not passed UKMPPG.

In this study, an attempt was made to create a Hypothetical Model that was adapted to the findings, so that the implementation of PPG could be followed by PPG participants with the same initial abilities in terms of material/content, pedagogic and technological mastery. This is important, so that the PPG process for PPG participants no longer has difficulties in mastering the material/content, pedagogic and technology, because during PPG the actualization of teachers during their working period. It will be a separate problem if these problems are still found, so that the PPG implementation is not optimal for some PPG participants. As previously explained, the Teacher Working Group (KKG) can be a forum for teachers or educators to solve problems experienced and develop teacher professionalism on an ongoing basis.

Based on the research, 3 levels of scaffolding were made that PPG PPG participants needed to pass before and after participating in PPG. So that continuous professional development can run. From the results of the interviews and discussions, it can be seen that there are gaps that can be utilized for the scaffolding process, namely collaboration between colleagues, both fellow PPG PPG participants or teachers in teaching places, Teacher Working Groups, between PPG participants and instructors/lecturers and between PPG participants and teachers. tutor. Things that can be scaffolded are the process of equalizing abilities before participating in PPG, independent learning, introduction to LMS, and deepening of material, development of tools and PPL with instructors/lecturers and tutors.

The hypothetical model made in this study is divided into 3 levels of Scaffolding:

1. *Scaffolding 0/Level 0*
   At this stage, it is necessary to identify the weaknesses of teachers before participating in PPG both by the education office and by the teachers themselves. Hopefully, the weaknesses experienced by prospective PPG participants can be improved through the KKG or other professional organizations. These weaknesses, for example, are the ability to master technology, master material/content and pedagogy. In principle, level 0 has implications for improving pedagogical, content and technological abilities.

2. *Scaffolding I /Level I*
   After the teacher's ability is ready to participate in TPACK-Based PPG, then at this stage, collaboration between PPG PPG participants greatly influences the program's success, where PPG participants will actualize their respective abilities to discuss LMS and its components. then between PPG PPG participants it is called Peer Coaching. Level I is expected to have implications for the convenience of participants when using the PPG LMS.

3. *Scaffolding II/Level II*
   At this stage, the collaboration is more complex. Besides there is a collaboration between PPG participants, it is also facilitated by instructors/lecturers and tutors, in the future referred to as Super Coaching. Level 2 has implications for implementing PPG without any technical problems and increases the percentage of UKMPPG passing.

In addition to the scaffolding process that suits the teacher's needs, it is also necessary to look at the intentions and expectations of respondents or PPG PPG participants before and after the PPG process. This intention/intention and hope/expectation is important so that the teacher's enthusiasm to increase the spirit of a sustainable career is getting higher. This is supported by research by Jones et al., (2012) proves that efforts to increase teacher professionalism is a dynamic process, without end, and requires time and must exist throughout the teacher's professional career. The consistency and existence of this effort is closely related to two main things: intention and expectation.

Intentions and high expectations are expected by teachers to be more professional and make the success of educating children higher. This is supported by research by Rubie-Davies et al., (2015) that students in teacher intervention group classes significantly improved their math achievement over one year. It is hoped that high intentions and expectations will make post-certification teachers always improve their competence, so that research findings conducted by Haenilah, (2017) This will not happen again, where all post-certification teachers have not fully pursued the competency mastery targets contained in government policies. Intentions and expectations will always be high with the empowerment of the Teacher Working Groups in each cluster in the PPG process.

Theoretically, scaffolding can help with problems, train and optimize the ability of educators. Scaffolding is an effective way to increase knowledge and improve other 21st century learning skills. This is supported by research conducted by Rahman et al., (2015) that the teacher-based scaffolding model proved to be the most effective for increasing teacher knowledge. Then supported by other research by Abdurrahman et al., (2019) in which four stages were carried out in this research, namely (1) Coaching, (2) Mentoring, (3) Technical Guiding, and (4) Reflecting. As for the results of his research that the development of the Multi-level Scaffolding – Based TPD Program is statistically proven to significantly increase the CK (Content Knowledge) of Physics Teachers, with an effectiveness level in the medium category. So is Koh, J. H. L., et all (2015) explains the contribution and importance of scaffolding in supporting teacher professionalism development programs related to 21st century learning.

CONCLUSION

Based on the results of the research and discussion, it can be concluded that the TPACK-Based Professional Teacher Education which was carried out in 2020 has been effectively implemented, however there have been some improvements, especially for PPG participants who come from remote areas, for example the signal problem which causes lag in mastery of the material. The PPG model that is expected includes added interaction with experts/instructors/lecturers, experts/instructors/lecturers are more detailed in delivering material, the implementation time is extended so that it is more optimal when studying modules. The Hypothetical Model with two levels of scaffolding can be a solution in solving the obstacles experienced by PPG PPG participants, Level 0 is carried out through the collaboration of the Education Office or KKG/Professional Organizations or Colleagues at School, Level I is carried out independently and Peer Coaching (colleagues) and Level II are carried out with Instructors/Lecturers and Super Coaching (Guru Pamong). The hypothetical model with three levels of scaffolding with high intentions and expectations from PPG PPG participants is expected to be the basis for teachers to become sustainable professionals.

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