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Perceptions of physical education teachers on obstacles and pedagogy competencies in online learning

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Abstract: This research aimed to determine the perception of junior high school physical education teachers on obstacles and pedagogical competencies during online learning. Quantitative method supported with a survey approach were used in this research. The research data were analyzed using average value and standard deviation. The data were then compared using MANOVA. The results showed that junior high school physical education teachers perceived all possible obstacles to online learning. Based on the analysis of the average value using the Likert scale on the Google Form questionnaire, it can be ascertained that the highest rank is based on the obstacle factor, namely Absence of Real Time Feedback (M= 2.66; SD= 0.76); Motivation and Commitment (M= 2.46; SD= 0.78); Engaging Student (M= 2.46; SD= 0.70); Flexibility and Delivery Mode (M= 2.37; SD= 0.69); Lack of Feedbacks (M= 2.34; SD= 0.59). Meanwhile, the results of research on pedagogical competencies showed that in general, physical education teachers in junior high schools had good perceptions of all pedagogical competencies. The MANOVA results showed that there was no significant difference between gender, obstacles, and pedagogical competences of physical education teacher during online learning. The findings categorize the top three barriers perceived by physical education teachers: absence of real time feedback, motivation and commitment, and engaging student. The results of the demographic analysis on gender showed that there were no significant differences between technological factor, individual factor, pedagogical factor, and enabling conditions.

Keywords: Perception, Physical Education Teacher, Obstacles, Pedagogical Competencies, Online Learning.

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PENDAHULUAN

Today, many organizations and individuals have offered online learning support to assist teachers in applying the online learning environment (Daniel, 2020; Jayul & Irwanto, 2020). Teacher's ability in using technology is a major factor in the success of online learning (Wang et al., 2013). Educational Technology refers to the use of computer-based communication that is incorporated into the daily classroom learning process, so that teachers are positioned as key players in the use of technology to provide a dynamic and proactive teaching-learning environment (Ghavifekr & Rosdy, 2015). Due to the importance of technology in education, the integration of technology is highly emphasized for teachers and teacher professional development (Kim et al., 2013). This research provides an understanding of obstacles and pedagogical skills, especially on physical education during online teaching. Previous research has described the discussion of the challenges of online learning from various countries in the world and their level of education (Diningrat et al., 2020). However, little is known about the obstacles or problems in the application of teaching for online physical education teachers during the COVID-19 pandemic, especially in Indonesia.

Previous research at the school level has discussed obstacles on students' perception (Hamid et al., 2015; Martin & Bolliger, 2018; Srichanyachon, 2014; Paul et al., 2012) and teachers' perception (Ghavifekr & Rosdy, 2015; Hung, 2016; Kim et al., 2013; Leontyeva, 2018). From the description of that research, the perception of physical

education teachers regarding obstacles to online learning in Indonesia does not seem to be a major concern. Therefore, it is necessary to understand the obstacles experienced by online physical education teachers during the COVID-19 pandemic. Such understanding can help practitioners or academics and policy makers, in this case is the government, to understand how to support physical education teachers in particular and educators in general in applying better online learning.

Broadly speaking, several previous studies have revealed many obstacles in the online teaching and learning process (Diningrat et al., 2020). For example, a research from Bozkurt et al., (2020) showed that the obstacle in implementing online learning during the COVID-19 pandemic, based on a case study of 31 countries in the world with a representation of 62.7% of the world's entire population, is technology (lack of adequate internet network), limited facilities and infrastructure, inadequate pedagogical skills (creating learning and teaching resources for facilities in learner-centered online learning). The education system must face the problem of inequality in the teaching and learning process, make use of the existing infrastructure, and utilize a variety of learning media to ensure that students are involved in the teaching and learning process. Digital technology has offered various conveniences for distance learning (online), but most education systems in the low and middle-income world, including schools, students and teachers, do not have access to good digital tools to fully implement online learning option. Therefore, the education system needs to consider and find alternative solutions for students to continue learning when schools enforce online learning during the COVID-19 pandemic (World Bank, 2020).

This research utilized four conceptual obstacles from Ali, Uppal & Gulliver's theory (2018) namely Technology, Individuals, Pedagogy, and Enabling Conditions. These four obstacles leads to the conceptualization of the TIPEC framework (*Technology, Individual, Pedagogy, and Enabling Conditions*), which explains the main framework concept that hinder the implementation of online teaching during the COVID-19 pandemic. This conceptual framework has a comprehensive review of previous researches on online learning, taking a time frame of 1990-2016.

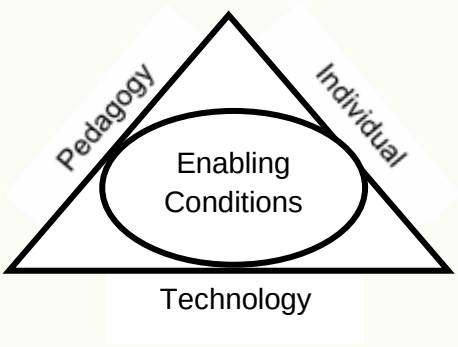

Image 1. TIPEC Framework – Obstacles Construction of Technology, Individual, Pedagogy, dan Enabling Condition (Ali et al., 2018)

Online learning is different from face-to-face (offline) classes, as teachers are required to have effective communication to deliver material when separated from students based on time and place (Gurley, 2018). In current empirical educational research, teacher's competence is a specific context to functionally improving cognitive output in responding to situations and demands in certain domains, especially in online teaching during the COVID-19 pandemic (Kaiser & König, 2019). For that reason, teacher's competence in face-to-face (offline) learning is very different than that of online learning. Basically online learning changes the methods that are important in learning, in this case teachers, students and the provision of material (Diningrat et al., 2020). Therefore, teachers need some competences such as technical competence, effective learning competence, ability to create multimedia, facilitating inappropriate learning processes, using innovative teaching methods, ability to mediate asynchronous communication and interaction and the ability to create learning communities in online teaching (Koch, 2014; Rice, 2015). Those competencies are then divided into three categories: technological, pedagogic, and communicative competencies (Uerz et al., 2018).

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For a teacher, teaching quality is not only related to certification and experience, but also relates to teaching skills, expertise in implementing teaching strategies, choosing teaching methods, teaching creativity, etc (Hartini et al., 2018). Thus, a well-competent teacher is a teacher who truly masters the right competencies and teaching strategies. This is related to pedagogical competence. Koehler & Mishra (2013) mentioned that pedagogical competence is in-depth knowledge for teachers about teaching and learning processes, practices, and methods, which include the values and goals of education as a whole. Therefore, a teacher with pedagogical competence must be able to understand students' activeness of students in learning and acquire skills to develop positive creativity towards learning (Koehler et al., 2013). Pedagogical competence is a fundamental motor in the development of a person. For that reason, physical education is a major factor to achieve pedagogical goals, because these competencies have a summary of activities carried out in a harmonious and holistic manner for each student activity and have a major influence on body health (Hernández-Gamboa et al., 2019). However, changing pedagogical competence in online learning to support the development of students in the future is a complex process (Ilomäki et al., 2016; Pöntinen et al., 2017).

This research aimed to analyze the obstacles and pedagogical competencies of physical education teachers in online teaching during the COVID-19 pandemic, because several previous studies have proven the role of pedagogy which acquires the highest level of competence in online teaching (Bezuidenhout, 2018; Novianti & Nurlaelawati, 2019; Oster-Levinz & Klieger, 2010). Thus, the purpose of this research was to determine the obstacles and pedagogical competencies of physical education teachers in implementing online learning.

METHODS

Research participants

This is a quantitative research with a survey approach. The participants in this research were 35 physical education teachers teaching at Junior High Schools in Sleman Regency, Yogyakarta Province, Indonesia. The type of sample used was purposive sampling. Purposive sampling is a sampling technique using certain considerations. The researchers then distributed a Google Form questionnaire link to *MGMP Guru PJOK Kabupaten Sleman* WhatsApp group. Table 1 shows demographic information with a total of 35 participants, the majority of whom are men aged 20-29 years, have work experience between 1-5 years, and teach in public schools. The majority of participants used Google Classroom as a learning management system during online learning.

Table 1. Demographic Information

Variable		Frequency	% Sample	Mo
School	Public (1)	26	74.3	1
	Private (2)	9	25.7	
Age	20-29 (1)	13	37.1	1
	30-39 (2)	2	5.7	
	40-59 (3)	8	22.9	
	50-59 (4)	11	31.4	
	60-69 (5)	1	2.9	
Gender	Male (1)	25	71.4	1
	Female (2)	10	28.6	
Education	Bachelor Degree (1)	33	94.3	1
	Master Degree (2)	2	5.7	
Work Experience	1-5 Years (1)	13	37.1	1
	6-10 Years (2)	6	17.1	
	11-15 Years (3)	1	2.9	
	16-20 Years (4)	3	8.6	
	21-25 Years (5)	7	20.0	
	26-30 Years (6)	3	8.6	
	31-35 Years (7)	2	5.7	
Learning Management System	Google Clahsroom (1)	15	42.9	1
	Zoom Meeting (2)	1	2.9	

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Variable		Frequency	% Sample	Mo
	Google Meet (3)	3	8.6	
	WhatsApp (4)	14	40.0	
	E-Learning (5)	2	5.7	

Study organization

Data was collected through a questionnaire using Google Form which consisted of three parts, namely; (1) Demographic Information; (2) Junior High School Physical Education teachers' perceptions of obstacles; (3) and General pedagogical competence of teachers. Questionnaire items on physical education teacher obstacles were adopted from the TIPEC framework (Ali et al., 2018).

Meanwhile, the questions for the pedagogical competence of physical education teachers were adopted from Bawane & Spector (2009). Pedagogical competence consists of five dimensions, namely designing learning strategies, developing appropriate learning resources, implementing learning strategies, facilitating participation among students, and maintaining student motivation.

All items related to physical education teachers' perceptions of obstacles and pedagogical competencies were analyzed using a Likert scale. Negative questions given to participants were measured with a scale range: SS (Very Often) = 1; S (Often) = 2; TS (Not Often)= 3; STS (Very Not Often) = 4. Positive questions given to participants were measured with a scale range: SS (Strongly Agree)= 4; S (Agree) = 3; TS (Disagree) = 2; STS (Strongly Disagree) = 1.

Statistical analysis

Statistical analysis data was processed using SPSS 25 with the following stages: (1) Demographic information data is used to calculate frequency; (2) Physical education teachers' perceptions on obstacles and pedagogical competencies were used to calculate the mean and standard deviation; (3) Multivariate Analysis of Variance (MANOVA) was used to calculate gender differences, which consisted of male and female. Multivariate Analysis of Variance (MANOVA) was used to calculate gender differences, namely male and female. As the dependent variable, perceptions of obstacles (technological factor, individual factor, pedagogical factor, and enabling conditions factor) and perceptions of pedagogical competencies (Designing Learning Strategies, Developing appropriate learning resources, Implementing learning strategies, Facilitating participation among students, and Maintaining student motivation) were analyzed by employing MANOVA using the SPSS 25 application..

RESULTS

Physical education teacher's description of obstacles in online learning

The results showed that physical education teachers in junior high schools felt all possible obstacles in online learning. Based on the analysis of the average value of the Google Form questionnaire using a Likert scale, it can be ascertained that the obstacle factor with the highest ranks were the Absence of real time feedback (M = 2.66; SD = 0.76); Motivation and commitment (M= 2.46; SD= 0.78); Engaging Student (M= 2.46; SD= 0.70); Flexibility and delivery mode (M= 2.37; SD= 0.69); Lack of feedbacks (M= 2.34; SD= 0.59). These factors were identified by physical education teachers as obstacles in online learning. Meanwhile, the lowest ranks were Virus Attacks (M= 1.91; SD= 0.65); IT Skills (M= 1.94; SD= 0.72); Security (M= 1.97; SD= 0.51). So, these three factors with the lowest ranks were not barriers in online learning. Meanwhile, based on table 2 regarding the obstacles to the TIPEC theoretical framework for junior high school physical education teachers, there were pedagogical factors and individual factors that become obstacles felt by these teachers.

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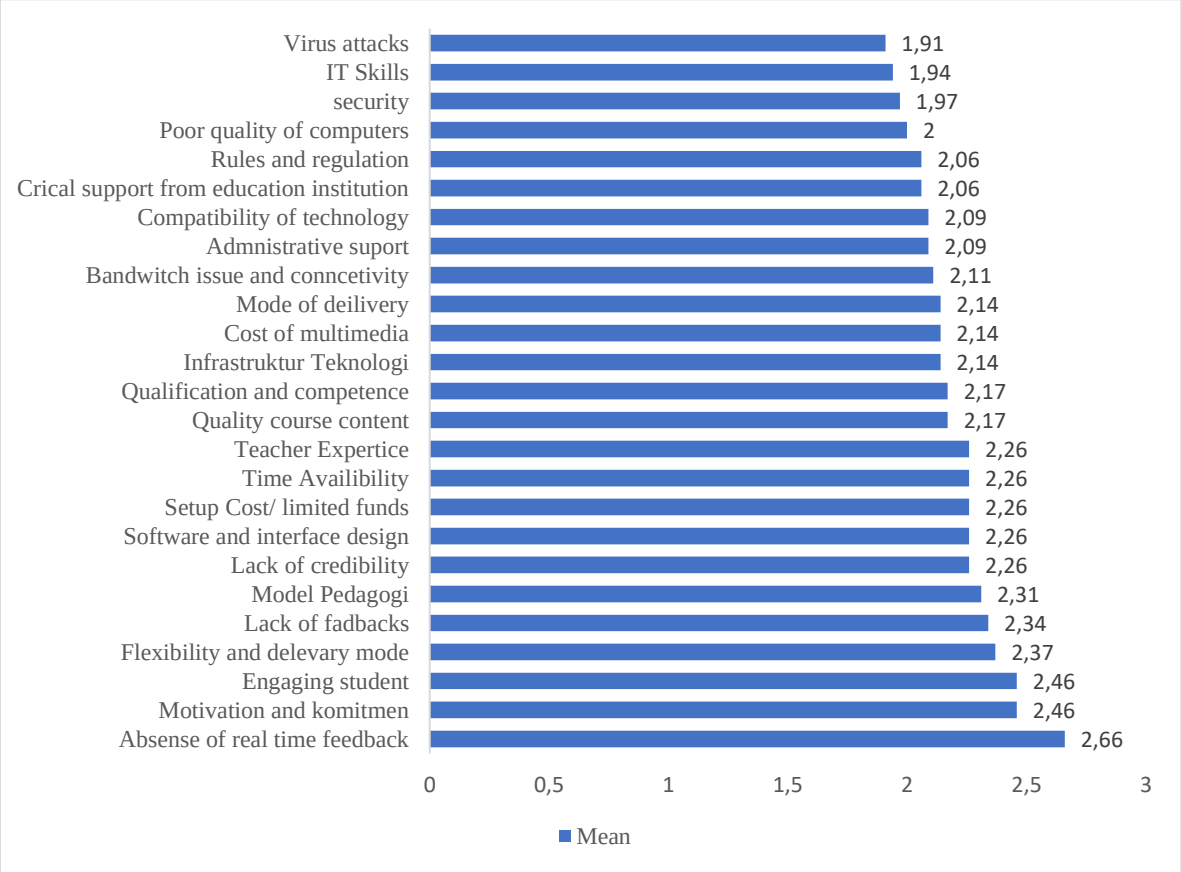

Image 2. Average score for physical education teachers' perceptions of obstacles in online learning

Table 2. Average score on obstacles faced by physical education teachers (TIPEC Framework)

OBSTACLE FACTORS	MEAN	N	SD
Technological Factor	2.05	35	0.65
Individual Factor	2.25	35	0.66
Pedagogical Factor	2.29	35	0.68
Enabling Condition Factor	2.08	35	0.62

Physical education teacher's description of pedagogical competence during online learning

Image 3 shows the average rating of each pedagogical competence. The results show that in general, physical education teachers in junior high schools had good perceptions of all pedagogical competencies. The analysis results prove that the competencies with the highest ranking (M>2) are: teachers are able to increase peer interaction in class (M=3.51; SD = 0.56); teachers are able to encourage students to play a role and contribute in teaching and learning (M = 3.48; SD = 0.50); teachers are able to do collaborative efforts (M=3.45; SD = 0.50); teachers are able to demonstrate effective presentation skills (M=3.42; SD=0.55).

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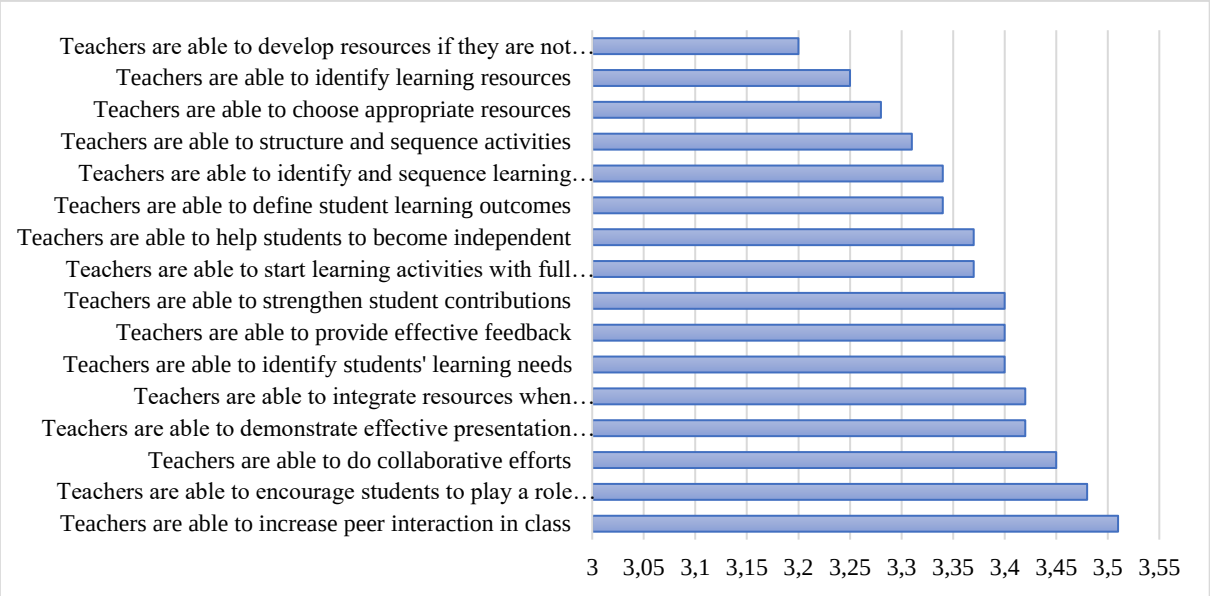

Image 3. Average score for physical education teachers' perceptions on pedagogical competence

Demographic Factors Related to Teachers' Perceptions on Obstacles by Gender

Differences in perceptions of physical education teachers about obstacles in online learning with respect to gender were analyzed using MANOVA. Decisions were analyzed by Pillai's Trace, Wilks' Lambda, Hotelling's Trace, and Roy's Largest Root. Table 4 shows statistically the MANOVA results that have no relationship or show no significant difference based on gender, namely 0.98> 0.05. Meanwhile, table 5 shows that there is no significant relationship between gender and the obstacle variable which has a significance of technological factor 0.65> 0.05; individual factor 0.96>0.05; pedagogical factor 0.95>0.05; and enabling condition factor 0.96>0.05.

Table 3. MANOVA analysis results for gender regarding obstacles faced by physical education teachers during online learning

Variable		F	Sig
Gender	Pillai's Trace	.092[b]	.984
	Wilks' Lambda	.092[b]	.984
	Hotelling's Trace	.092[b]	.984
	Roy's Largest Root	.092[b]	.984

Table 4. Test results between subject

Source	Dependent Variables	Sum Of Squares	Df	Mean Square	F	Sig.
Gender	Technologigal Factor	0.39	1	0.039	0.209	0.650
	Individual Factor	0.001	1	0.001	0.002	0.961
	Pedagogical Factor	0.001	1	0.001	0.004	0.951
	Enabling Conditions Faktor	0.000	1	0.000	0.002	0.964

Demographic Factors Related to Teachers' Perceptions on Obstacles by Gender

Differences in perceptions of physical education teachers about obstacles in online learning with respect to gender were analyzed using MANOVA. Decisions were analyzed by Pillai's Trace, Wilks' Lambda, Hotelling's Trace, and Roy's Largest Root. Table 6 shows that statistically, MANOVA results that have no relationship or show no significant difference by gender are 0.309>0.05. Table 7 shows

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that the test results between subject effects show that there is no significant relationship between gender and the pedagogical competence variable which has significance of designing learning strategies 0.76> 0.05; developing appropriate learning resources 0.80>0.05; applying learning strategies 0.21> 0.05; facilitating participation among students 0.29>0.05; and maintaining student motivation 0.35>0.05.

Table 5. MANOVA analysis results for gender regarding obstacles faced by physical education teachers during online learning

Variable		F	Sig
Gender	Pillai's Trace	1.258[b]	.309
	Wilks' Lambda	1.258[b]	.309
	Hotelling's Trace	1.258[b]	.309
	Roy's Largest Root	1.258[b]	.309

Table 6. Beetween subject test results

Source	Dependent Variables	Sum Of Squares	Df	Mean Square	F	Sig.
Gender	Designing Learning Strategies	.035	1	.035	.091	.765
	Developing Appropriate Learning Resource	.032	1	.032	.065	.800
	Applying learning strategies	.435	1	.435	1.608	.214
	Facilitating participation among students	.249	1	.249	1.143	.293
	Maintaining student motivation	.215	1	.215	.897	.350

DISCUSSION

This research examines four factors that obstruct physical education teachers in online learning. The findings of this research indicate that pedagogical factor and individual factor are considered the most significant obstacles by the respondents. In addition, absence of real-time feedback and motivation and commitment are the most significant obstacles faced by junior high school physical education teachers. This finding is in accordance with several previous studies which found that students do not give quick response to teacher's question in online learning (Gilbert et al., 2015; Hodges et al., 2020; Kizilcec & Halawa, 2015). In addition, another challenge faced by physical education teachers in online learning during the Covid-19 pandemic is that student conditioning and student participation are considered an obstacle for teachers. (Rasmitadila et al., 2020).

The factor of motivation and commitment shows that physical education teachers face an obstacle of motivation to improve students' learning quality in junior high school, especially in online learning. This obstacle will bring negative impact in improving the students' learning quality in the future. Although physical education teachers have tried their best to improve the quality of learning, if students do not have good motivation for learning, their academic quality will decline (Ntoumanis et al., 2017). Another finding shows that teachers face obstacles related to student engagement, where the school finds it difficult to involve students in online learning. So, this is a challenge for physical education teachers to always participate and be active in online learning (Rasmitadila et al., 2020). Many literatures indicate that internet access is a major obstacle in online learning. However, in this research, it is found that the main obstacles are the absence of real-time feedback, motivation and commitment, and students' engagement. These findings are in line with the previous researches. For instance, Boling et al., (2012) showed that students engagement with online learning did not provide them with the most positive or rewarding learning experiences. In line with that, a study showed that involving students in online learning is a major challenge in improving the quality of learning (Lin & Zheng, 2015). The obstacles faced by teachers affect student learning, so these obstacles can obstruct the efforts to achieve high-quality instructional and learning goals (Rasmitadila et al., 2020). Therefore, online learning needs to provide method of mentored-teaching and high motivation to improve knowledge skills both for teacher

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and students. DiPietro et al., (2010) explained that in online learning, a teacher must be able to develop the skills needed to facilitate online learning and communication.

In terms of pedagogical competence, physical education teachers show good results in online learning. Pedagogy is defined as the art and science of teaching (Ogilvie, S., 2013). Pedagogical competence depends on the goals of education and specific objects, namely student, teacher, or the learning environment that will be used (De Freitas & Oliver, 2005). Pedagogic competence can be considered as a standard for developing the performance abilities of every teacher (Bawane & Spector, 2009). Pedagogical competence is not only defined as a habit with techniques which are then used mechanically but as routines, but also as needed by every teacher to save time and energy for the more important aspects of each learning session (Liakopoulou, 2011). Although the research findings show that the pedagogical competence of physical education teachers in online learning such as being able to improve interaction among students in class, being able to encourage students to play a role and contribute to teaching and learning, make collaborative efforts, being able to show effective presentations, are in positive percentage, this research only focuses on the perceptions of junior high school physical education teachers. Therefore, it is necessary to conduct research on physical education teacher candidates in the future, within the framework of different pedagogical competencies.

As an implication of this research, the researcher suggests to education policy makers to improve the pedagogical competence of physical education teachers, especially in online learning to create effective subjects in meeting learning needs. Trust & Whalen (2020) suggested an educational program for teachers to always explore the latest literature, especially during the COVID-19 pandemic, and teacher competence in online learning to always identify professional learning topics so as to support sustainable teacher learning and development. Therefore, physical education teachers need to integrate appropriate pedagogy in designing online learning environments and ensure the existence of supporting facilities from teachers during the COVID-19 pandemic so as to encourage interaction with students (Saadatmand et al., 2018).

In terms of gender and perceptions of physical education teachers about pedagogical barriers and competencies, the research results show that gender does not have a significant difference in obstacles covering technological factor, individual factor, pedagogical factor, and enabling conditions factors. This explains that of the four factors, both men and women face the same obstacles. Meanwhile, in terms of pedagogic competence, the results show that gender does not have a significant difference related to pedagogical competence in online learning. Thus, this research shows that during online learning, both male and female physical education teachers have the same perception.

CONCLUSIONS

This research aimed to determine physical education teachers' perception on obstacles and pedagogical competencies during online learning. The findings categorized the top three obstacles faced by physical education teachers, namely absence of real time feedback, motivation and commitment, and students engagement. The results of the demographic analysis on gender show that there is no significant difference between technological factor, individual factor, pedagogical factor, and enabling condition.

The results of this research imply the need for deep attention to secondary school education to provide training for physical education teachers and professional development programs in implementing good and effective online learning. Physical education teachers' perceptions and pedagogical competencies in online learning have also been studied. The researchers should be very careful in presenting the interpretations of research findings, because the data have not been completed with physical education teacher interviews. Therefore, more in-depth research and studies involving interview methods and other instruments are needed. This research only focused on junior high school physical education teachers, thus in-depth research of elementary and senior high school physical education teachers is needed.

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