

Pre-Service Physical Education Teachers' Perspective on the Learning Effectiveness in Three Different Learning Settings

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Physical education is a unique subject which may allow the teacher to combine the classroom and field teaching. It interesting to inquiry this phenomenon. Particularly, the effect of different learning setting toward learning effectiveness. This study aims to construct and analyze the learning effectiveness based on preservice physical education teacher perspective in three different learning setting. This is a quantitative study which was conducted by survey. There were 218 pre-service physical education teachers from physical education department in Indonesia who voluntarily participated as research samples. All of samples were involved to be the observers of physical education teaching simulation in three class settings. The data were gathered by using Learning Effectiveness Questioner (LEQ) with the scale 1 to 5. The results, cooperative learning is perceived as a teaching strategy which influences the learning effectiveness the most (sig. < 0.05). It gives the most advantage on the classroom management, students' response, and learning outcome compare to direct instructional and inquiry learning.

Keywords: Physical Education, Teaching Strategy, Learning Model, Learning Effectiveness

I. INTRODUCTION

Physical education has an important role to improve students' physical, motoric skill and health development. Furthermore, it contributes students achievement in the academic score[1]. In order to achieve the goal, there are many teaching and learning strategy which may be applied in the physical education class. Teacher has an important role to create the physical education class which can accommodate every student. On other words, physical education teacher contributes a significant effect of creating an effective physical education activity[2]. Besides, there are many teaching strategies which may be applied to support the teaching and learning activity. It influences the learning atmosphere in the

class [3]. Moreover, creative and innovative teaching strategy support the learning effectiveness[4].

Learning effectiveness based on Kirkpatrick's is defined in to 4level models such as participants' reactions, learning outcomes, behavior changes, and patient outcomes[5]. Moreover, it influenced by many factors i.e. student intrinsic motivation[6], teaching strategy[7], and teacher competency. Learning effectiveness can be increased by the teaching strategy and reinforcement which are given by the teacher[8]. Online game is a learning source and media which could also be used to improve learning effectiveness[9]. In this study, there are three dimensions of learning effectiveness i.e. classroom management, students' response, and learning outcome.

There are also three teaching strategies which will be inquired in this present paper i.e. direct instruction, cooperative learning, and inquiry learning (table I). Direct instruction was constructed by behaviorism paradigm[10]. It was introduced in 1960s and become very popular for group teaching[11]. It is proven effectively enhance teacher effectiveness in critical-thinking instruction[12]. Direct instruction is also known as commando which the teacher has the main role in whole class. Furthermore, this teaching strategy is teacher centered which requires the teacher to explain the topic, set the example, and directing the conclusion[13]. In physical education class, teacher will explain and demonstrate the topic in the beginning. Furthermore, the guided practice will be performed by all of student in the class together. The last, each student practices the movement by themselves.

Cooperative learning facilitates students collaboration in the class to achieve the learning goal[14]. Furthermore, students also learn the social skills such as to interact, cooperate, and express their ideas to others[15]. The

environment of cooperative learning could enhance student learning achievement effectively[16]. In physical education class, the first phase of cooperative learning is apperception, which the teacher introduce the topic and the goal. Furthermore, teacher will arrange several groups or teams. Each team member has to work together to learn the particular skill. Teacher will evaluate generally and individually. The last, feedback and recognition will be given by providing the general conclusion and reinforcement to the students.

Inquiry learning requires student to construct the skill and knowledge actively[17]. In physical education class, the application of inquiry learning could be implemented both in

the theory and skill. For example, in basketball topic, students are directed to do three points shooting. The problem identification could be directed by the teacher by asking why some students' ball could/couldn't reach the basket. Why could/couldn't some students' ball make a good accuracy? Furthermore, students state their own hypotheses by modifying their posture, hand position, and speed adjustment. Moreover, each student proves their hypotheses by performing it. The last, students are directed in a discussion and make a conclusion about the ideal skill in basketball three points shooting technique.

TABLE I. LEARNING SETTING

Keyword	Learning Settings		
	Direct Instructional	Cooperative Learning	Inquiry Learning
	Stimulus Response	Interaction Responsibility	Independent Scientific
Syntax	1. Introduction 2. Demonstration or presentation 3. Guided practice 4. Individual practice	1. Apperception (topic introduction and learning goal) 2. Team learning organization 3. Teacher assistance 4. Evaluation 5. Recognition and feedback	1. Orientation 2. Problems Identification 3. Hypotheses 4. Data collection 5. Hypotheses testing 6. Conclusion

These three learning settings are very important to improve the teacher competency. It could improve the quality of physical education class[18]. Pre service teacher can improve their capabilities on teaching strategies and classroom management by observing teaching examples [19]. So, they could analyze the learning effectiveness among these three learning settings. This study aims to inquire pre-service physical education teachers' perspective on the learning effectiveness in three different learning settings.

II. DATA COLLECTION METHODS

This is a quantitative study which was conducted by survey. There were 218 pre-service physical education teachers from physical education department of Surabaya State University, Indonesia (table II) voluntarily participated as research samples. A senior year student demonstrated the physical education teaching simulation in three different settings with the same topic and duration. 40 research samples were also involved as students in the demonstration. Furthermore, every research sample observes three teaching demonstration in different learning settings and fill three questioners for each learning setting. The data were gathered by using Learning Effectiveness Questioner (LEQ) with the scale 1 to 5. Ten questionnaire items were designed to measure learning effectiveness (predicting variables). Confirmatory factor analysis, principal component extraction, and varimax rotation were performed to check the questioner validity and reliability (table III).

TABLE II RESEARCH SAMPLE

Level	Gender		Teaching Experience		Total
	Male	Female	Yes	No	
<i>Freshman</i>	16	5	4	17	21
<i>Sophomore</i>	36	17	22	31	53
<i>Junior</i>	32	10	28	14	42
<i>Senior</i>	56	29	60	25	85
<i>Super Senior</i>	13	4	15	2	17
Total	153	65	129	89	218

TABLE III. LEARNING EFFECTIVENESS QUESTIONER (LEQ)

Factors and items	λ	%	α
F1. Classroom Management		7.59	.35
01 Teacher manages the class effectively	.510		
02 Teacher could control the time allocation well	.643		
03 Teacher could deliver the information effectively	.474		
F2. Students' Response		13.33	.81
01 Students could follow the class actively	.706		
02 Students enjoy the activity	.560		
03 Students are well motivated to do the activity	.723		
04 Students receive the information well	.596		
F3. Learning Outcomes		6.54	.43
01 Students are able to understand the skill	.535		
02 Students are able to demonstrate the skill	.495		
	.551		

03 Students are able to modify or improve the skill

Overall	57.53	.80
λ : Factor Loading, α :Coefficientreliability		

III. RESULT AND DISCUSSION

Based on the data analysis, cooperative learning get the highest score on the classroom management, students' response, and learning outcome (table IV). It indicates that cooperative learning is identified as a teaching strategy which could increase the learning effectiveness in physical education class. Moreover, direct instructional and inquiry learning are also the teaching strategy which could be applied in physical education class, because all of these three teaching strategy have been proven effectively help teacher to do better classroom management. Likewise, students are also enjoying the class and achieve the learning objectives.

TABLE IV. LEARNING EFFECTIVENESS

	<i>Direct Instructional</i>	<i>Cooperative Learning</i>	<i>Inquiry Learning</i>
Classroom Management	3.83	4.43	3.81
Students' Response	3.83	4.36	3.77
Learning Outcome	3.89	4.32	3.78

Furthermore, there is significant different in the independent t-test result based on the students' gender and teaching experience. Male students assumes that time allocation and students' skill in the inquiry learning are better than female ($\text{sig} < 0.05$). On other hand, female students perceive that class management in direct instruction and students' cognitive achievement in cooperative learning are higher than male students ($\text{sig} < 0.05$). Moreover, students who have teaching experience believe that teacher could control the time in the cooperative learning better than students who do not have teaching experience ($\text{sig} < 0.05$). But, students who do not have teaching experience identify that in the inquiry learning, teacher could manage the class effectively, student could follow the class actively, and students are well motivated in the class better than students who do have teaching experience ($\text{sig} < 0.05$).

One way anova were performed to figure out the preservice physical education teachers' perspective among student's level toward learning effectiveness in three different learning settings based on their year. The result, there is a significant result among the five levels (fig. 1). Furthermore, post-hoc analysis was performed to identify deeper. The result, freshmen have a different perspective with the other level. It may be caused by their limited experience to determine the learning effectiveness in the three different learning settings. On other

hand, sophomore and junior level is more optimists in perceiving the learning effectiveness.

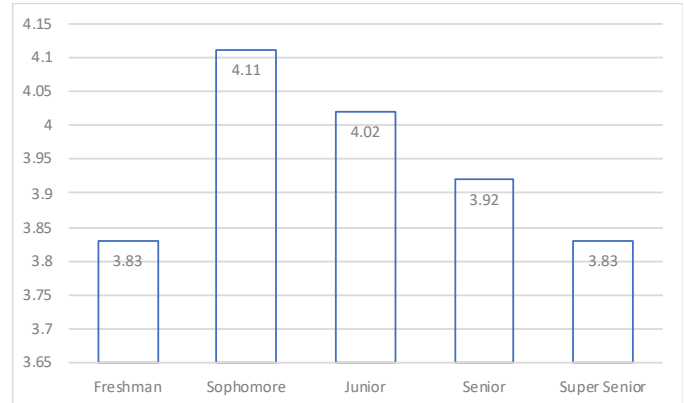


FIG. 1. LEARNING EFFECTIVENESS

In conclusion, cooperative learning gives the most advantage on the classroom management, students' response, and learning outcome compare to direct instructional and inquiry learning. However, the learning effectiveness perspectives of preserves physical education teacher is based on their knowledge and understanding about the three learning settings only. This study could be developed by involving the students and measuring their achievement.

REFERENCES

- [1] M. A. Al Ardha, "Kontribusi Tingkat Kemajuan Pendidikan Jasmani dan Olahraga Sekolah Terhadap Hasil Belajar Siswa Pada Ujian Nasional Tahun 2011," *J. Jur. Pendidik. Olahraga*, vol. 11, no. 2, pp. 52-63, 2013.
- [2] K. W. R. Sum, T. Wallhead, S. C. A. Ha, and H. P. C. Sit, "Effects of physical education continuing professional development on teachers' physical literacy and self-efficacy and students' learning outcomes," *Int. J. Educ. Res.*, vol. 88, pp. 1-8, Mar. 2018.
- [3] M. J. Faraji, K. Preuschhoff, and W. Gerstner, "Surprise minimization as a learning strategy in neural networks," *BMC Neurosci.*, vol. 16, no. S1, p. P77, Dec. 2015.
- [4] L. T. Nichols, "Editor's introduction: Research paradigms and teaching strategies," *Am. Sociol.*, vol. 30, no. 4, pp. 3-4, Dec. 1999.
- [5] M. Delisle, M. A. R. Ward, J. C. Pradarelli, N. Panda, J. D. Howard, and A. A. Hannenberg, "Comparing the Learning Effectiveness of Healthcare Simulation in the Observer Versus Active Role," *Simul. Healthc. J. Soc. Simul. Healthc.*, p. 1, May 2019.
- [6] U. Kovačić and L. Kosec, "Effectiveness and limitations of learning cardiopulmonary resuscitation with an automated external defibrillator in the curriculum of First Aid courses among lay people," *Crit. Care*, vol. 16, no. Suppl 1, p. P268, 2012.
- [7] M. J. Kintu, C. Zhu, and E. Kagambe, "Blended learning effectiveness: the relationship between student characteristics, design features and outcomes," *Int. J. Educ. Technol. High. Educ.*, vol. 14, no. 1, p. 7, Dec. 2017.
- [8] H.-C. Pai, H. Ko, C.-J. Eng, and W.-J. Yen, "The mediating effect of self-reflection and learning effectiveness on clinical nursing

- performance in nursing students: A follow-up study," *J. Prof. Nurs.*, vol. 33, no. 4, pp. 287–292, Jul. 2017.
- [9] B. Latham, M. Poyade, C. Finlay, A. Edmond, and M. McVey, "New Tools in Education: Development and Learning Effectiveness of a Computer Application for Use in a University Biology Curriculum," in *Advances in experimental medicine and biology*, vol. 1138, 2019, pp. 29–46.
- [10] S. G. Magliaro, B. B. Lockee, and J. K. Burton, "Direct instruction revisited: A key model for instructional technology," *Educ. Technol. Res. Dev.*, vol. 53, no. 4, pp. 41–55, Dec. 2005.
- [11] J. N. Cadette, C. L. Wilson, M. P. Brady, C. Dukes, and K. D. Bennett, "The Effectiveness of Direct Instruction in Teaching Students with Autism Spectrum Disorder to Answer 'Wh-' Questions," *J. Autism Dev. Disord.*, vol. 46, no. 9, pp. 2968–2978, Sep. 2016.
- [12] Y.-C. Yeh, "Integrating e-learning into the Direct-instruction Model to enhance the effectiveness of critical-thinking instruction," *Instr. Sci.*, vol. 37, no. 2, pp. 185–203, Mar. 2009.
- [13] A. Zandler and K. Klein, "The effect of direct instruction and web quest on learning outcome in computer science education," *Educ. Inf. Technol.*, vol. 23, no. 6, pp. 2765–2782, Nov. 2018.