Self-efficacy, learning motivation, learning environment and its effect on online learning outcomes

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Abstract: This study aimed to analyze e students' psychological factor, namely self-efficacy, learning motivation and learning environments on the results of online physical education learning during Covid-19 at Senior High School in Padang, West Sumatera. This study used a quantitative method using a path analysis approach, with structural equations to find out the causality of the dimensions of self-efficacy, motivation, directly on learning outcomes of physical education, or indirectly through the learning environment. The data collection was carried out using a survey technique to 160 high school students in Padang and analyzed using descriptive statistics. The results show that the power of direct influence the self-efficacy and learning motivation and significantly effect their online learning through the learning environment. It also has an impact on learning outcomes. When the teaching and learning process must be carried out through an online system, it is necessary to make improvements to various models and learning designs, so that the learning process is avoided from negative influences that can reduce student learning outcomes.

Keywords: *self-efficacy, learning motivation, learning environments, physical education learning outcomes*

INTRODUCTION

The 2019 Corona virus (Covid-19) has spread throughout the world, and has a direct impact on various aspects of human life, including the education process in school (Artino & McCoach, 2008)several scholars have suggested that academic self-regulation may be particularly important for students participating in online learning. The purpose of the present study was to develop a quantitative self-report measure of perceived task value and self-efficacy for learning within the context of self-paced, online training, and to investigate reliability and validity evidence for the instrument. Investigations of this kind are essential because task value and self-efficacy have been shown to be important predictors of students' self-regulated learning competence and academic achievement in both traditional and online contexts. In Study 1 (n = 204, As a result of the COVID-19 pandemic crisis, and because of it, e-learning has become a major feature in all educational institutions such as in high schools (Al-Salman & Haider, 2021; Thandevaraj, Gani, & Nasir, 2021).

The Indonesian government makes policies related to the teaching and learning process throughout Indonesia, where the teaching and learning process is implemented through an online system. Following this policy, Senior High School in Padang (SMA) runs an

online learning system as proclaimed by the government of the Republic of Indonesia. If in the past the teaching and learning process in high school was done face-to-face, then PBM switched to fully online learning. This situation forces teachers and students to adopt online learning, and affects their learning experience psychologically (Ariani & Tawali, 2021). Psychologically, students show different perceptions about the use of online learning systems during the Covid-19 pandemic (Rahayu & Wirza, 2020). Broadly speaking, the success of online learning outcomes at Padang City High School during the COVID-19 Pandemic is determined by technological readiness that is in line with the national humanist curriculum, especially (Rasmitadila *et al*., 2020), who are rapidly adapting to the changes and uncertainties brought by the COVID-19 pandemic while studying online (Besser, Flett, & Zeigler-Hill, 2020).

Physical education can be used as a means of forming character and character in human life, because through physical education in schools, students can develop various potentials. The development of students' self-potential can be achieved through various kinds of sports activities and games which contain several elements, namely cognitive, affective and psychomotor. Sports and game activities are given according to the level of growth and development of students at school, the physical activities carried out must be planned in a systematic and sustainable manner, which can develop the totality of the functions of the human body itself. Thus, the learning outcomes of students' physical education will be better (Bailey *et al*., 2009).

Good learning outcomes in learning physical education in particular are expected to be able to play a role in producing quality students, namely as humans who are able to think critically, creatively, and logically and take the initiative in dealing with the symptoms of life both socially and technologically that is developing in the middle. society in the current era of globalization. To express the above description, physical education aims to develop knowledge, skills, self-confidence, and personality values related to physical activity, such as aesthetic development, and social development (Casey & Goodyear, 2015).

In online learning, the tendency to understand feedback may be a problem, due to the lack of a human touch dimension between the learner and educator, thus it can be a psychological challenge. Users, which in this case are students, may face many technical difficulties that hinder and slow down the teaching and learning process (Favale, Soro, Trevisan, Drago, & Mellia, 2020). The varying conditions of students' abilities, levels of self-confidence, and diverse motivations cause some students to feel uncomfortable when learning online, resulting in increased frustration and confusion during online learning (Dhawan, 2020). A large number of research results focus on students who are psychologically affected and exhibit symptoms of depression and anxiety. However, many studies show contradictory results (Thandevaraj *et al*., 2021), as well as have not presented cooperatively with regard to students' psychological perceptions of online learning outcomes in high school (Kibele, 2011; Salam, Younis, & Saqib, 2020). To understand better, structure, and comprehensively the understanding of online learning outcomes during Covid-19, an analysis of psychological factors such as self-efficacy, and motivation, through the learning environment is needed. This analysis can help physical education teachers and senior high school leaders in making policies, to improve quality online physical education learning outcomes related to the psychological aspects of students (Khattar, Jain, & Quadri, 2020; Simegn *et al*., 2021).

Several psychological factors that have an impact on online learning that will be highlighted are self-efficacy, motivation, and learning environment (Chamorro-Koc, Peake, Meek, & Manimont, 2021; Wang & Zhan, 2020; Zapata-Cuervo, Montes-Guerra, Shin, Jeong, & Cho, 2021). Higher online learning with self-efficacy was found to have higher learning satisfaction and expect better grades (Jaradat & Ajlouni, 2020; Rafique, Mahmood, Warraich, & Rehman, 2021; Tsai, Cho, Marra, & Shen, 2020). Student motivation can be the main indicator of their learning success (Clayton, Blumberg, & Auld, 2010), especially in online learning. Motivation refers to the desire of students to engage and participate in academic activities to achieve their goals (Goh & Kim, 2021). Therefore, this research will present data on psychological perceptions and student learning environments on online learning outcomes during Covid-19.

METHOD

This study used a quantitative method using a path analysis approach, with structural equations to see the causality of the dimensions of self-efficacy (X1), motivation (X2), directly on physical education learning outcomes (Y), or indirectly through the learning environment (X3). Path analysis technique was used to see the magnitude of the contribution indicated by the path coefficient on each path diagram of the causal relationship between exogenous variables X1, X2, X3 to endogenous variables Y. The research framework of this study is described in Figure 1.

Figure 1. Research Framework
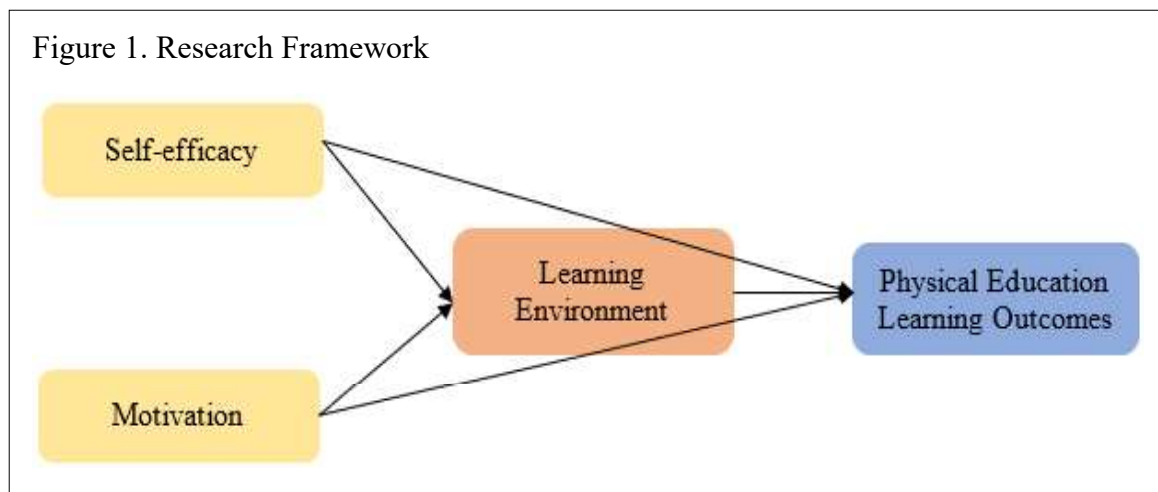
The population of this research was a senior high school in Padang City, consisting of Senior High School 2 Padang, Senior High School 3 Padang, Senior High School 4 Padang, and Senior High School 5 Padang. Sampling was done randomly and obtained a sample of 160 people. The profile of the respondents is listed in Table 1.

To verify the proposed hypothesis, it is necessary to carry out measurements related to self-efficacy, motivation, and learning environment on learning outcomes (Bui *et al*., 2019; Fiske, Cuddy, & Glick, 2007). The instrument used in this research was using a survey questionnaire with open and closed questions providing perceptions or views and experiences held by students. Students' self-efficacy with online learning is measured by five items adapted from Artino and McCoach (2008). Students' academic motivation was measured by

Table 1
Profile of respondents

Information Target (N=160)	N	%	2 (n=40)		3 (n=40)		4 (n=40)		5 (n=40)	
			n	%	n	%	n	%	n	%
Man	67	41.9	17	85.0	17	85.0	17	85.0	16	80.0
Woman	93	58.1	22	110.0	25	125.0	23	115.0	23	115.0

five items adapted from Vallerand *et al.*, (1992). The learning environment was measured by six items by Nordquist *et al.* (2019). Learning outcomes were measured by two items adopted from Eom, Wen, and Ashill (2006). All items were analyzed on a 5-point Likert scale. After the items were revised to ensure their validity and reliability, the questionnaire was distributed to four senior high schools in Padang City.

To prove the proposed hypothesis, data analysis was carried out with the following steps: a descriptive statistical analysis was conducted to describe the general abilities of self-efficacy, learning motivation, and learning environment as well as physical education learning outcomes. Furthermore, to assess the conceptual relationship between the proposed variables, using IBM SPSS software. Significance was determined at the level of $p < 0.05$.

FINDINGS AND DISCUSSION

Finding. The results of the analysis in Table 2 present the results of the factors extracted from the average item and item Cronbach's alpha (α). As expected, three factors, namely self-efficacy, learning motivation, and learning environment. All items are loaded into their respective constructs. Cronbach scores ranged between 0.856 and 0.945. Cronbach's value of 0.9 or more indicates very good reliability.

The mean of the items and the scale was only 2.5 (midpoint) in all cases. This implies that the perception of psychology and the learning environment and learning outcomes have a low distribution. To determine if there is a significant difference in the responses (mean value) the results of the analysis of variance (ANOVA) were carried out for each construct, namely self-efficacy, learning motivation, learning environment, and learning outcomes. The results show that no significant difference was found because all variables were on average on a scale of 2.5. The results in Table 2 show that Cronbach'sranged between 0.856 and 0.945 and was greater than the associated SIC of 0.7. This indicates the existence of discriminant validity.

Research hypotheses were tested using regression analysis. The results are presented in Table 3. As shown in Table 3, self-efficacy positively predicted online student learning outcomes (β = 0.046, t = 2.224, p 0.028). Therefore H is accepted. Learning motivation positively predicts student learning outcomes online (β = 0.019, t = 2.235, p 0.027). Therefore H is accepted. The learning environment positively predicts student learning outcomes online (β = 0.914, t = 7.843 p 0.000). Therefore H is accepted. Self-efficacy → learning environment does not predict student learning outcomes online (β = 0.203, t = 1.961 p 0.012). Therefore H is accepted. Learning motivation → learning environment positively predicts student learning outcomes online (β = 0.097, t = 2.001 p 0.047).

Table 2
Descriptive statistics among public high schools in the city of Padang

Target Variable	Mean (senior high school in Padang City)				Cronbach's
	2	3	4	5	
Self Evacuation	57.8	61.2	61.2	57.8	0.856
I can perform well at my own pace, in online classes.	3.85	4.45	4.5	4.55	
Even in the face of technical difficulties, I believe I can learn the material presented in the online class.	3.40	3.2	2.85	2.35	
I believe I can do a great job at activities independently, in online classes.	2.32	2.8	3.5	2.6	
I believe I can understand the most difficult material presented independently, in an online class	2.40	2.35	2.35	2.4	
Even with distractions, I believe I can learn the material presented online.	2.25	2.5	2.1	2.55	
Motivation	45.6	50.0	48.5	50.0	0.923
I really like taking online classes.	2.40	2.8	2.5	2.6	
Learning online is fun	2.34	2.34	2.43	3.22	
Online learning will help me better prepare for the career I have chosen.	2.25	2.2	2.35	2.4	
Learning environment	62.67	64.8	63.8	60.7	0.945
I feel comfortable with my current learning environment	3.40	3.2	2.85	2.35	
The online education process that is carried out can make me better in preparing my learning outcomes	2.40	2.8	3.5	2.6	
It's very difficult to run online learning in learning socio-cultural	2.25	2.35	2.35	2.4	
Learning online The architecture of the learning space doesn't affect my learning outcomes	2.55	2.5	2.1	2.55	
Online learning brings me closer to literacy skills, one of which is technology literacy	3.90	4.1	4.2	4.1	
In online learning, there is diversity and equity for each student who participates in online learning	4.30	4.5	4.15	4.2	
Learning outcomes	46.5	49.5	50.5	50.5	0.897
I feel that I learned a lot more from online classes than face-to-face	2.30	2.1	2.3	2.45	
The quality of experiential learning in online classes is better than face-to-face classes	2.35	2.85	2.75	2.6	

Note: All items were measured on a 5-point Likert scale.

Discussion. Based on the results of the study, it was found that self-efficacy, learning motivation, and learning environment influenced online physical education learning outcomes during the Covid-19 pandemic. The results of this study are only related to the direct and

Table 3

Results of regression analysis (direct impact) and path analysis (indirect impact)

Hypothesis	Prediction	β	t	p	Hypothesis
H1	Self- efficacy → Finished learning	0.046	2,224	0.028	H1 Accepted
H2	Motivation → Have learned	0.019	2,235	0.027	H2 Accepted
H4	Learning environment → Learning results	0.914	7,843	0.000	H4 Accepted
H5	Self-efficacy → Learning environment	0.203	1,961	0.012	H5 Accepted
H6	Motivation → Learning environment	0.087	2,001	0.047	H6 Accepted
H1	Self-efficacy →Learning results → Learning Environment	0.046	2,224	0.028	H1 Accepted
H2	Motivation → Learning outcomes → Learning environment	0.019	2,235	0.027	H2 Accepted

β= standard Beta coefficient, t = T statistic, p = probability, * = p value less than 0.05

indirect effects of psychological perception variables and online learning outcomes through the learning environment. Self-efficacy has a direct positive effect on online learning outcomes and does not affect indirectly the learning environment. While the learning motivation factor is a predictor factor that directly affects online learning outcomes and indirectly affects the learning environment. The learning environment directly has a high impact on online learning outcomes during the Covid-19 period. But not on self-efficacy, which does not directly affect the learning environment. Meanwhile, learning motivation has a direct effect on the learning environment.

These results imply that students' psychological factors and the learning environment affect online learning outcomes during the Covid-19 period. This is due to the limitations of previous research which did not specifically explain the factors that play a role in online learning. However, this study provides pioneering evidence. Because the results of this study have strategic implications for designing online learning that considers psychological factors and future researchers. This research also supports previous research (Knudson, 2010; Wallace & Knudson, 2020), one of the strongest variables related to learning is the psychological factor, namely learning motivation in these subjects. It is more Zapata-Cuervo, Montes-Guerra, Shin, Jeong, and Cho, (2021) found that students' self-efficacy significantly affects learning outcomes. Furthermore, it is also supported by findings in other fields that the intrinsic value of learning motivation in learning a subject is strongly related to the use of cognitive strategies and self-regulation, which is then correlated with academic achievement (Leedahl, Brasher, LoBuono, Wood, & Estus, 2020)

According to this theory, learning motivation increases when a person succeeds in fully mastering the task. This shows that individuals who consider themselves physically competent tend to exert greater effort in motor skills and mastery efforts than those who have poor self-perception of physical competence, thus indirectly affecting student learning outcomes (Yu *et al.*, 2015). Based on the results of the study, it turns out that learning motivation has a direct influence. In this case, learning motivation is identical to how a student can focus and be enthusiastic in doing physical education learning, in terms of getting good learning outcomes. The low ability of students' learning motivation will imply a negative impact on student learning outcomes themselves. Therefore, it is necessary for a physical education

teacher to create a conducive and interesting learning atmosphere so that it can lead to student motivation to learning.

CONCLUSION

From the preceding discussion, it can be concluded that the power of direct influence identifies that self-efficacy and learning motivation, significantly affect online learning through the learning environment, which has an impact on learning outcomes. From the results of the study, if the teaching and learning process must be carried out through an online system, it is necessary to make improvements to various models and learning designs, so that the learning process is avoided negative influences that can reduce student learning outcomes.

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