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Original Article

TEACHER AND PARENTAL SUPPORT AFFECT ACADEMIC ACHIEVEMENT THROUGH STUDENTS' PASSION IN PHYSICAL EDUCATION?

O APOIO DE PROFESSORES E PAIS AFETA O DESEMPENHO ACADÊMICO POR MEIO DO ENTUSIASMO DOS ALUNOS NA EDUCAÇÃO FÍSICA?

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RESUMO
Este estudo tem como objetivo investigar a relação entre o apoio do professor (TS) e o apoio dos pais (PS) que foi mediado pela paixão dos alunos (SP) pelo desempenho acadêmico (AA) dos alunos na aprendizagem de educação física (EF). Um total de 490 de 6 escolas secundárias da cidade de Surabaya (Indonésia) com gênero (masculino = 269, feminino = 221) foram recrutados para este estudo. O questionário TS foi a Escala de Apoio Percebido ao Professor (PTSS), PS com a Escala de Apoio Social Percebido (PSSS), SP com a Escala de Paixão (TPS) e Média de Notas (GPA). Análise de trilha e regressão linear foram realizadas para compreender a relação das variáveis. Os resultados dos efeitos diretos mostraram que todos os fatores estavam positivamente relacionados com os escores: TS → AA (estimativa = 0,135, p < 0,001) e PS → AA (estimativa = -0,199, p < 0,001). Enquanto isso, os resultados da análise dos efeitos indiretos mostraram que TS → SP → AA (estimativa = 0,035, p = 0,002) e PS → SP → AA (estimativa = 0,033, p = 0,004). Além disso, os resultados sobre os coeficientes de caminho mostraram que TS → AA (estimativa = 0,135, p < 0,001), TS → SP (estimativa = 0,083, p = 0,001), PS → AA (estimativa = -0,199, p < 0,001), PS → SP (estimativa = 0,071, p = 0,003), SP → AA (estimativa = 0,471, p < 0,001). A análise de regressão linear obteve valor de R2 = 0,303 (30,3%), portanto afirmou-se que o modelo possui alta qualidade de ajuste. TS e PS que foram mediados por SP foram fatores importantes na previsão do desempenho de AA na aprendizagem de EF, portanto, professores e alunos devem priorizar e prestar atenção a essas variáveis
Palavras-chave: Desempenho acadêmico, paixão, papel dos pais, apoio do professor

ABSTRACT
This study aims to investigate the relationship between teacher support (TS), parental support (PS) which was mediated by students' passion (SP) towards students' academic achievement (AA) in physical education (PE) learning. A total of 490 from 6 high schools from the city of Surabaya (Indonesia) with gender (male = 269, female = 221) were recruited for this study. The TS questionnaire was the Perceived Teacher Support Scale (PTSS), PS with the Perceived Social Support Scale (PSSS), SP with The Passion Scale (TPS) and Grade Point Average (GPA). Path analysis and linear regression were performed to understand the relationship of variable. The direct effects results showed that all factors were positively related to scores: TS → AA (estimate = 0.135, p < .001), and PS → AA (estimate = -0.199, p < .001). Meanwhile, findings from the indirect effects analysis showed that TS → SP → AA (estimate = 0.035, p = 0.002), and PS → SP → AA (estimate = 0.033, p = 0.004). Furthermore, the findings on the path coefficients showed that TS → AA (estimate = 0.135, p < .001), TS → SP (estimate = 0.083, p = 0.001), PS → AA (estimate = -0.199, p < .001), PS → SP (estimate = 0.071, p = 0.003), SP → AA (estimate = 0.471, p < .001). The linear regression analysis obtained value of R2 = 0.303 (30.3%), thus it was stated that the model has high goodness of fit. TS and PS which was mediated by SP were important factors in predicting AA achievement in PE learning, therefore, teachers and students must prioritize and pay attention to these variables.
Keywords: Academic achievement, Passion, Parents role, Teacher support

Introduction

There was gap in the physical education (PE) results, both rural and urban schools which occurred in several countries. This gap included academic achievement (AA) which

had not been achieved optimally[1]. AA became limelight and challenge for teachers and researchers to overcome this issue, because previous research reported that AA was closely related to student success in the future[2]. Apart from that, AA can be interpreted as the Cumulative Achievement Index (GPA), which is a general indicator to assess the success of students in carrying out academics at school and as an indicator in achieving educational goals at all levels of education[3], including high school. Data from previous studies reported that students with high AA were proven had more confident[1], so that they would have a greater chance of getting a job after graduating[4]. On the other hand, other reports show that low AA had several negative impacts on students, for example depression, causing students to drop out of school[5]. Several factors related to AA had been reported by previous studies, for example academic engagement, study process and grit[2], but it was not explain the relationship factors between AA and several other variables such as teacher support (TS), parental support (PS), students' passion (SP).

TS is an effort to provide assistance and encouragement to students[6]. TS can be used as an important theoretical framework in PE to help students learn more optimally and ultimately obtain ideal learning outcomes[7]. In addition, according to Chen et al[8], that TS has the potential to create a positive classroom atmosphere, so that students can learn a lot of knowledge and skills. Based on the literature, TS in practice is demonstrated by teacher behavior such as providing quick positive feedback, appreciating students' efforts, caring and willing to listen to all their complaints[9]. TS had been documented by previous studies had positive impacts, for example increasing engagement[10], motivation[11], and help students overcome difficulties or obstacles in the PE learning process[12]. Lobo[13], reported the results of his research that there was a direct relationship between TS and school involvement among undergraduate students in the Philippines. Another benefit of TS was the positive influence towards the emotional attention aspect among students[14]. Meanwhile, Hoferichter et al[15], reported that TS was a positive factor in reducing stress levels in students while studying at school.

In these several decades, PS has been claimed to be the focus of attention in PE or sports[16], and has become attention by researchers in the world[17]. PS is a theory that explains the role of parents to support, help or encourage their children to be successful in becoming the best students at school[18]. In the classroom, students are supervised by teachers, but when students are at home, parents have a crucial role, involvement and support to motivate students in doing their assignments and more diligent in studying at school[19]. In Indonesia, PS has been regulated in Minister of Education and Culture Regulation Number 30 of 2017 and has become a culture passed down from generation to generation, every parent is required to provide support to their children[20]. Support or involvement from parents towards their children can be conducted in several ways, for example guiding homework assignments, discussing favorite subjects, providing motivation[21], and frequently talking with teachers about their children's development[22]. According to previous studies, parents have an important role for students, for example parental support is a factor in improving physical health[23], cognitive[24], behaviour[25], and ultimately results in significantly better academic performance[26]. Additionally, Kääpä et al[27], explained that if consistently carried out PS, can be associated with increased enjoyment and self-efficacy. In addition, PS has also been proven based on reports from previous studies to have a positive impact on increasing engagement in physical activity (PA) for children and adolescents in 711 schools in Shanghai[28].

In the context of PE, SP is interpreted as a strong passion for investing time and energy in carrying out an activity[29, 30]. Meanwhile, Lopes & Vallerand[31], defines passion as a strong tendency to do activities that are preferred, considered important, so that students can devote all their time to do it. According to the Dual Passion Model (DMP) theory,

passion is divided into two types[32, 33], namely harmonious passion (HP) which is defined as passion that is raised when a student feels free to participate in an activity without coercion or pressure[34]. According to Castillo et al[29], this type of HP, activities are controlled by the students (e.g., stopping training or exercising when injured), has an important space but not excessive. Meanwhile, obsessive passion (OP) is defined as passion that emerged when students feel obsessed by continuously participating in an activity. In other words, this type of passion causes students to be unable to control or stop their activities (e.g., continuing to practice or exercise even though they are injured)[35]. A previous study reported several benefits from SP which can significantly increase academic achievement[36], and resilience[37]. In addition, research conducted on students in Henan (China) showed that SP was proven to have a positive relationship with academic engagement and self-efficacy[38].

There were multiples studies explained factors associated with AA[26, 15, 12, 1]. However, based on our knowledge, there has been no previous research that has analysed the variables TS, PS with AA, considering SP as a mediator in this relationship. Therefore, the study of the relationship of these variables can be useful for a better understanding of the parameters associated with AA through path analysis.

Thus, this study aims to analyze the relationship between the variables TS, PS and AA, by considering SP as a mediator in this relationship. We hypothesized that:

Hypothesis (H1): TS is significantly directly related to AA.
Hypothesis (H2): TS has a relationship with AA mediated by SP.
Hypothesis (H3): PS is significantly directly related to AA.
Hypothesis (H4): PS is significantly directly related to AA through SP mediation.
Hypothesis (H5): SP is significantly directly related to AA

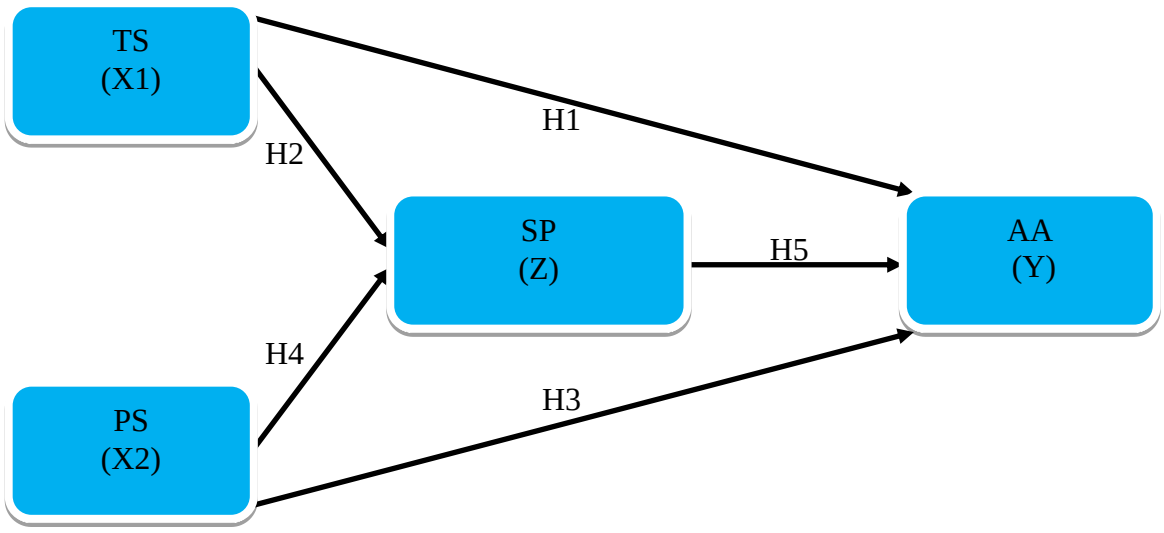

Figure 1. The hypothesized model
Source: Authors

Methods

Participants

This research planned to involve 488 students from grades 10 to 12 from 6 high schools in Surabaya city, East Java Province (Indonesia). These 6 high schools are located less than 1 to 2 hours from the research facility (Surabaya State University), and these schools were selected through convenience sampling, included participants were contacted

and invited directly by the research team via WhatsApp. The students and their parents should sign the letter of concerned. An a priori power analysis was using G*Power (Version 3.1.9.7, University of Kiel, Germany). A previous study recommended a minimum sample size of 488 participants was appropriate for the application of path analysis[2]. Therefore, the sample size in this study was 490 students, which fulfilled the requirements for a path analysis. Ethical approval was obtained from the Local Ethics Committee of the Surabaya City Education Service (reference number: 689/436.7.1/02.02/2024), and Surabaya State University (number: B/40942/UN38.6/LT.02.02/2024). In addition, this research procedure follows the latest 2013 Helsinki Declaration[2]. Information about demographic characteristics is presented in Table 1.

Table 1. Demographic characteristics (N = 490)

Information		N(%)
School		
	High school 1	95(19%)
	High school 2	71(14%)
	High school 3	59(12%)
	High school 4	88(18%)
	High school 5	101(21%)
	High school 6	76(16%)
Grades		
	10	157(32%)
	11	203(41%)
	12	130(27%)
Gender		
	Male	269(55%)
	Female	221(45%)
Age (year)		
	15	57(12%)
	16	103(21%)
	17	211(43%)
	18	119(24%)

Source: Authors.

Measures

Teacher support (TS)

TS was measured by adopting the Perceived Teacher Support Scale (PTSS)[10]. TS has 8 question items from two dimensions: (i) Teacher Academic Support Scale (4 items), for example "My teacher cares about my learning development in class", and (ii) Teacher Emotional Support Scale (4 items), for example "My teacher understands how I feel in various things". TS can be answered by participants using a Likert scale from 1 (strongly disagree) to 5 (strongly agree). High scores indicate higher levels of perceived teacher support. We use PTSS which has been changed to the Indonesian version.

Parental support (PS)

PS was measured using the Perceived Social Support Scale (PSSS)[19]. PSSS has 14 items from 3 dimensions: (i) autonomy support (5 question items), for example "My parents encourage me to express my opinions". (ii) Emotion support (5 items), for example "My parents always accompany me to study at home". Ability support (4 items), example question "My parents help me to create a good study plan". To answer all question items, you can use a Likert scale, from 1 (extremely inconsistent) to 5 (extremely consistent).

High scores indicate higher levels of perceived parental support. We use PSSS which has been changed to the Indonesian version.

Students' passion (SP)

SP was measured by adopting The Passion Scale (TPS) from previous studie[29], but in this study the question items in the TPS was translated in Bahasa. TPS has 12 question items from 2 dimensions: (i) Harmonious passion (HP) consists of 6 items, for example "PE allows me to encounter unforgettable experiences". (ii) Obsessive passion (OP) consists of 6 items, for example "I have an obsessive feeling for being in PE classes". TPS were responded by using a 5-point Likert scale (1 = strongly disagree until 5 strongly disagree). A high score indicates a great level of passion perceived by the students. We use TPS which has been changed to the Indonesian version.

Academic achievement (AA)

AA was measured through grade point average (GPA) in PE courses to show the students' achievements[2]. In this study, we determined that students with a GPA exceeding 1.0 were considered successful in passing the PE course.

Procedures

This research adopted the relationship method with path analysis which was carried out from 6 February until 09 February 2024 at Surabaya State University in Surabaya city, East Java Province (Indonesia). All participants were contacted and asked to carry out the test at Surabaya State University by filling in the TS, PS, SP and AA questionnaires. On February 6, 2024, participants filled out the TS and PS questionnaires from 08.00-10.00 am. Then filling out the SP questionnaire on Wednesday (07/02/2024) from 09.00-11.00 am. These activities were directly supervised by the research team to obtain objective answers from the participants.

Statistics Analysis

Descriptive statistics testing is carried out to find the mean, standard deviation (SD), minimum, maximum. Data from each variable will be tested for normality (all, $p > 0.05$). The reliability of all variables was assessed by calculating the intra-class correlation coefficient (ICC). The variable relationships between TPS, SP and AA were analyzed using the Pearson correlation matrix. Path analysis using mediation, linear regression was used to investigate the relationship model between variables. JASP 0.18.3 statistical calculations were used to test all data and the significance level used was 0.05.

Results

Table 2 presents the ICC on the variables TS, PS, SP and AA, the results show the ICC in the range of 0.89-0.96. The mean, SD, maximum, maximum and normality values are presented in Table 3, while the correlation values show that there is a significant relationship for all variables (Table 4).

Table 2. Results of intra-class correlation coefficient (ICC) on all variables

Measures	Dimensions	ICC	95% CI
TS	Teacher academic support Teacher emotional support	0.94	0.36 to 0.90
PS	Autonomy support Emotion support Ability support	0.92	0.45 to 0.94
SP	Harmonious passion Obsessive passion	0.96	0.53 to 0.92
AA	Grade point average	0.89	0.56 to 0.92

Note: TS = Teacher support, PS = Parental support, SP = Students' passion, AA = Academic achievement, CI = Confidence Interval.
Source: Authors.

Table 3. Descriptive statistics variables (N = 490)

Variables	TS	PS	SP	AA
Mean	44.2	43.9	34.1	3.24
Standard deviation	5.80	6.20	4.42	0.793
Minimum	20	21	21	2.00
Maximum	54	54	47	4.00
Shapiro-Wilk p	0.291	0.124	0.227	0.145

Note: TS = Teacher support, PS = Parental support, SP = Students' passion, AA = Academic achievement.
Source: Authors.

Table 4. Pearson correlation coefficients variables

Variables		1	2	3	4
1. Teacher Support	Pearson's r	—			
	df	—			
	p-value	—			
	N	—			
2. Parental Support	Pearson's r	0.962 ***	—		
	df	488	—		
	p-value	< .001	—		
	N	490	—		
3. Students' Passion	Pearson's r	0.410 ***	0.427 ***	—	
	df	488	488	—	
	p-value	< .001	< .001	—	
	N	490	490	—	
4. Academic Achievement	Pearson's r	-0.206 ***	-0.275 ***	0.267 ***	—
	df	488	488	488	—
	p-value	< .001	< .001	< .001	—
	N	490	490	490	—

Note: * p < .05, ** p < .01, *** p < .001.
Source: Authors

The direct effects analysis results showed that all factors were positively related to scores: TS → AA (estimate = 0.135, p < .001), and PS → AA (estimate = -0.199, p < .001). Meanwhile, findings from the indirect effects analysis showed that TS → SP → AA

(estimate = 0.035, p = 0.002), and PS → SP → AA (estimate = 0.033, p = 0.004). Findings on the total effect show that TS → AA (estimate = 0.134, p < .001), and PS → AA (estimate = -0.165, p < .001) (see Table 5).

Furthermore, the findings on the path coefficients showed that TS → AA (estimate = 0.135, p < .001), TS → SP (estimate = 0.083, p = 0.001), PS → AA (estimate = -0.199, p < .001), PS → SP (estimate = 0.071, p = 0.003), SP → AA (estimate = 0.471, p < .001) (see Table 5 and Figure 2). The linear regression analysis obtained value of R2 = 0.303 or 30.3%, thus it was stated that the model has high goodness of fit.

Table 5. Results of mediation analysis, path coefficients and regression factors of teacher support (TS), parental support (PS) on academic achievement (AA) mediated by student passion (SP)

					95% Confidence Interval	
Variables	Estimate	Std. Error	z-value	p	Lower	Upper
Direct effects						
TS → AA	0.135	0.024	5.712	< .001	0.089	0.182
PS → AA	-0.199	0.022	-8.884	< .001	-0.242	-0.155
Indirect effects						
TS → SP → AA	0.035	0.014	2.980	0.002	0.012	0.058
PS → SP → AA	0.033	0.012	2.866	0.004	0.011	0.056
Total effects						
TS → AA	0.134	0.027	5.048	< .001	0.082	0.186
PS → AA	-0.165	0.025	-6.639	< .001	-0.214	-0.116
Path coefficients						
TS → AA	0.135	0.024	5.712	< .001	0.089	0.182
TS → SP	0.083	0.025	3.658	0.001	0.025	0.122
PS → AA	-0.199	0.022	-8.884	< .001	-0.242	-0.155
PS → SP	0.071	0.024	2.963	0.003	0.024	0.118
SP → AA	0.471	0.042	11.287	< .001	0.389	0.553
Linear Regression						
Model Fit Measures: R = 0.550, R^2 = 0.303, RMSE = 0.662						

Note: TS = Teacher support, PS = Parental support, SP = Students' passion, AA = Academic achievement, significant at the p < 0.05.
Source: Authors.

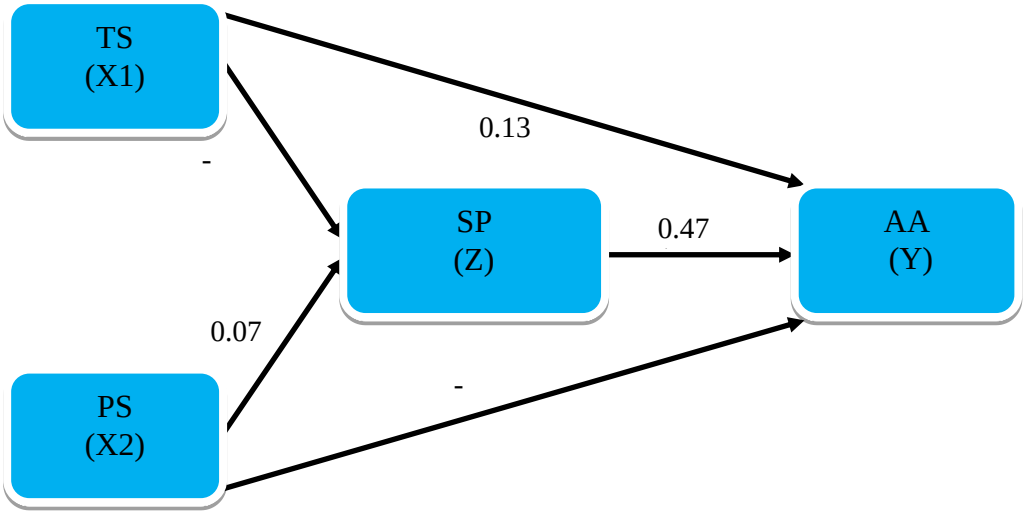

Figure 2. Final model of teacher support (TS) and parental support (PS) factors on academic achievement (AA) mediated students' passion (SP)
Source: Authors.

Discussion

The current research aims to investigate the relationship between the variables TS, PS and AA, considering SP as a mediator through path analysis.

Overall, the hypothesis in the research is proven that there is a high correlation between the variables. The first hypothesis, TS was found to have a significant direct relationship with AA in students. This is because TS as a pedagogical tool to help students to learn more easily, which can influence the achievement of optimal learning outcomes. This result is also in line with a previous study which reported that support from a teacher is a crucial factor to enhance student engagement and active interaction between teachers and students in PE[7]. In line with research by Jia & Cheng[39], the findings showed a significant positive relationship between teacher support with positive emotions and learning engagement among students. Meanwhile, other findings explained that teacher support was highly positively correlated with students' positive academic emotions in China[8]. Hoferichter et al[15], reported the results of their research, teacher support at school was related to students' ability to overcome learning problems. Second hypothesis, TS had a significant relationship indirectly or mediated by SP on AA in students. This is because mediation from SP can stimulate students' enthusiasm to be more motivated or involved in the PE learning process at school. Previous findings also reported similar results, passion was closely related to high or low academic engagement among students[38].

Third, PS also had a significant direct relationship with students' AA. This result could be explained based on the fact that students' academic achievement did not only depend on support from teachers while studying at school, but also the role and support from parents at home[26]. This result was reinforced by previous research which reported that various types of support from parents had an important impact on the ability to study well at home[20]. In addition, Kantova[24], reported that great parental involvement, attention or support had the potential to help children to graduate with a high GPA. Basically, parental

support factors such as guiding and assisting their children study at home can be an effective effort in improving learning outcomes[21, 22]. Other research supported this finding, parents should be able to spend more time assisting their children with assignments at home, so that they can obtain information and knowledge not only from teachers at school[27], parents play a key role and responsible for teaching their children when studying at home[16]. Fourth, PS was also found to have a significant relationship indirectly or mediated by SP on AA. Previous study reported that passion was positively related to students' academic engagement[32].The fifth hypothesis was proven that SP had a direct relationship with AA. These results supported previous studies, two types of passion, namely HP and OP, are positively correlated with engagement and encourage student performance in learning[36]. In addition, other studies reported that passion had an important role in the development of students' motivation in sports activities in PE[33]. In line with Shen[40], revealed his findings that passion could encourage students to increase their AA and success in their academics by obtaining a high GPA.

Finally, despite the results obtained in this study, there are still some limitations. First, the data were obtained from 6 schools that located in the same area, namely Surabaya City, so this can affect the generalization of the results. Second, measuring academic achievement was only based on GPA and did not involve other academic success indices (e.g., exam pass rate, number of credits or achievement of additional degrees). It is recommended that future research should attempt to overcome limitations, such as: (i) involving diverse students from several cities in Indonesia, (ii) using other academic success indices, and (iii) trying other variables that may influence students' AA, such as the relationship between teachers and students, socioeconomic status, or self-efficacy. In addition, this study could try to integrate insights from existing literature regarding other potential dimensions to influence AA, such as practical skills or students' engagement in physical education. Finally, future research is attempted to involve other aspects that can influence AA such as exploring the cultural context, norms and educational practices in Indonesia. By comparing several aspects, this will add new findings to this study.

Conclusion

Based on our current knowledge, this is the first study that carried out simultaneously test for TS, PS and SP with AA. Thus, it can be concluded that TS and PS mediated by SP are important factors in predicting AA. These results will be useful for teachers, lecturers, parents to understand the factors that influence students' AA achievement levels in PE learning.

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