

Correlation Of Learning Styles, Parental Roles, and Gadget Use With Physical Education Learning Outcomes at SMK Muhammadiyah 2 Semarang

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Abstract

Based on observations and interviews conducted at SMK Muhammadiyah 2 Semarang, it was found that teachers have not been able to identify all student learning styles. In addition, limited parental involvement and excessive gadget use contribute to low student learning outcomes. This study aims to determine whether there is a correlation between factors that influence student learning outcomes at SMK Muhammadiyah 2 Semarang. The research design employed a descriptive correlational approach using quantitative methods. The research sample consisted of all students at SMK Muhammadiyah 2 Semarang. Data collection methods included observation, interviews, and questionnaires. The results indicate that there is a correlation between learning styles and physical education learning outcomes of 26%. A correlation between parental roles and physical education learning outcomes was found to be 50%. Gadget use was correlated with physical education learning outcomes at 24%. The combined correlation between learning styles and parental roles with physical education learning outcomes was 26 %. The correlation between learning styles and gadget use with physical education learning outcomes was 25%. The correlation between parental roles and gadget use with physical education learning outcomes was 36%. Furthermore, the combined correlation of parental roles, learning styles, and gadget use with physical education learning outcomes at SMK Muhammadiyah 2 Semarang reached 70%.

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INTRODUCTION

According to DePorter as cited in Falah (2019), there are three main learning styles, namely visual learning through visualization or sight, auditory learning through listening, and kinesthetic learning through movement or motor activities (Effendi, Cahyono, and Ummah, 2023). Students differ in their ability to understand and absorb information. Some learn quickly, others at a moderate pace, and some more slowly. Therefore, students often require different approaches to comprehend learning materials effectively. When students understand their own learning styles, they are better able to process learning materials and information, which supports long term memory retention (Irawati et al., 2021).

Research conducted by Cindy Yulia (2022) entitled *Analysis of Learning Styles of Grade X Students at SMA Negeri 2 Samarinda* shows that learning styles have a significant influence on student learning outcomes. Teachers are required to understand and identify student learning style needs so that learning objectives can be achieved as expected. Educators must also master learning strategies that align with student learning styles to enable students to achieve optimal results and improve academic achievement (Prasetya et al., 2022).

Sadirman Agus, in his book on interaction and motivation in teaching and learning, states that parents function as primary educators because children receive their first education within the family environment. Therefore, parents play a crucial and influential role in shaping childrens education (Sadirman, 1987; Desriarwen, 2021). The importance of parental involvement in educating children should not be underestimated, as education serves as a fundamental asset that enables children to face the challenges of societal and technological development.

A study conducted by Desriarwen (2021) entitled *The Importance of Parental Roles in Improving Student Academic Achievement* indicates that parents who create a comfortable home environment and maintain effective communication contribute positively to student learning achievement. Parental roles are essential in supporting students to improve academic performance. This support includes supervision and guidance to enhance student

motivation and educational development (Asiva Noor Rachmayani, 2015).

Excessive and prolonged gadget use can negatively affect student learning outcomes, as it may lead to decreased academic performance (Harahap, 2018). Conversely, when used wisely, gadgets can provide positive benefits, such as facilitating access to educational resources through internet searches and digital learning platforms. Gadget use should be accompanied by supervision and guidance from parents, teachers, or other responsible adults to ensure that usage remains appropriate to the users age and educational needs.

Research by Manumpil et al. (2015) entitled *The Relationship Between Gadget Use and Student Achievement at SMA Negeri 9 Manado* found a positive correlation between gadget use and student academic performance, with a p value of 0.016 indicating statistical significance. This finding suggests that appropriate gadget use can support student learning achievement. Students commonly use gadgets to access information and social media, which can have beneficial effects when directed toward educational purposes.

Based on observations and interviews conducted with teachers and students across four different departments, namely Computer and Network Engineering, Motorcycle Engineering, Light Vehicle Engineering, and Heavy Equipment Engineering, it was found that students exhibit diverse learning styles. However, teachers have not yet been able to fully identify individual student learning styles, resulting in uneven and suboptimal learning outcomes. Parental involvement among students at SMK Muhammadiyah 2 Semarang also varies considerably. Some parents demonstrate limited concern, leading to insufficient attention toward their children. As a result, students experience difficulties in following classroom learning activities, which negatively affects learning outcomes. In addition, frequent gadget use that is not directed toward learning support but rather toward gaming and social media significantly influences student academic performance.

This study aims to examine the correlation between learning styles, parental roles, and gadget use in relation to student learning outcomes at SMK Muhammadiyah 2 Semarang. The study provides empirical data and percentage values reflecting the

contribution of these three factors to student learning outcomes. These factors were acknowledged by the school principal and teaching staff at SMK Muhammadiyah 2 Semarang as key contributors to suboptimal learning outcomes. The study received positive responses and institutional support, encouraging the researcher to proceed with the investigation.

Based on the background of the study, several problems can be identified. These include unrecognized student learning styles, which require teachers to identify individual learning preferences to achieve optimal learning outcomes; limited or indifferent parental involvement; inappropriate gadget use that does not support learning activities; and student learning outcomes that remain below expected levels.

METHODS

Research methodology refers to a systematic and scientific process used to obtain and collect data for specific research purposes. This study employed a quantitative approach using a descriptive correlational research design. The descriptive correlational method was selected to examine the relationships among several variables without manipulating them.

According to Sugiyono (2012), descriptive research aims to determine the value of independent variables, whether a single variable or more, without making comparisons or establishing causal relationships with other variables. Sudjana and Ibrahim (2004) define descriptive research as an approach that seeks to describe phenomena, events, or conditions that occur in the present. The quantitative approach, as explained by Arikunto (2013), emphasizes numerical data processing, starting from data collection, data interpretation, and the presentation of results (Jayusman and Shavab, 2020). The primary objective of this study was to determine the presence or absence of correlations among the examined variables, which were expressed in the form of correlation coefficients.

The population of this study consisted of all students at SMK Muhammadiyah 2 Semarang, totaling 454 students, comprising 400 male students and 54 female students. In quantitative research, a population refers to a generalization area consisting of objects or subjects with specific characteristics

determined by the researcher for analysis and conclusion drawing. A sample represents a subset of the population (Effendi et al., 2023).

The sampling technique used in this study was purposive sampling. This technique involves selecting participants intentionally based on specific criteria considered relevant to the research objectives. Purposive sampling allows researchers to focus on groups or individuals who are most relevant to the research problem, thereby producing more focused and meaningful data. However, due to its subjective nature, the results may have limited generalizability (Subhaktiyasa, 2024).

The variables in this study were classified into independent variables and a dependent variable. The independent variables consisted of learning style (X1), parental role (X2), and gadget use (X3). The dependent variable was student learning outcomes (Y). Data collection techniques included field observations, interviews with teachers and students, and the administration of questionnaires for each variable.

The learning style instrument used in this study was adopted from a validated and reliable questionnaire developed by Widayanti (2013) in a previous study entitled *The Importance of Understanding Student Learning Styles in Classroom Activities*. The instrument consisted of 12 items categorized into three learning styles, namely visual, auditory, and kinesthetic.

Table 1. Learning Style Instrument

Statement	Often	Sometimes	Never
Do you speak at a slow pace when communicating, do you touch other people to get their attention, do you stand very close to others when speaking, are you physically oriented and frequently moving, do you learn through manipulation and hands-on practice, do you memorize more easily while walking and observing, do you use your finger to point at text while reading, do you frequently use body gestures when communicating, do you find it difficult to sit still for long periods of time, do you make decisions based on feelings, do you often tap a pen, fingers, or feet while listening, and do you find it difficult to sit still for long periods of time.			

The parental role instrument was adopted from a validated and reliable questionnaire developed by Ummah (2019).

Table 2. Parental Role Instrument

Question	Alternative Answers		
	Very Often	Sometimes	Never
Parents provide attention and empathy, fulfill allowance needs, provide or purchase items required for school, check textbooks in advance, remind me of the importance of attending religious activities, teach proper social behavior, prepare breakfast, prepare lunch when I return from school, set an example of discipline in practicing worship, check the condition of school equipment such as bags, shoes, uniforms, books, and others, replace school equipment when it is damaged, ask about learning difficulties that I experience and provide solutions, give examples of completing tasks properly, and remind me about which peers I am allowed to associate with.			

The gadget use instrument was adapted from a validated and reliable questionnaire developed by Uswatul Hasanah.

Table 3. Gadget Use Instrument

Questions	Answer Options		
	Often	Sometimes	Never
I always feel restless when I do not use a gadget, I prefer playing with gadgets rather than reading books, I prefer using gadgets rather than playing with friends or family members, I do not like it when my parents limit my gadget use, I often feel angry when my parents take my gadget forcibly, I experience headaches and dizziness when using gadgets excessively, I use gadgets to watch YouTube and play games, I have difficulty concentrating on learning when I use gadgets for too long, I do not like it when my parents supervise me while using gadgets, I am happy when my parents allow me to study while using gadgets, I have social media accounts such as TikTok, I use gadgets every day, I complete school assignments quickly so that I can immediately use gadgets, I use gadgets until I forget to eat, I feel socially isolated when I do not use gadgets, I prefer using gadgets while lying down rather than sitting, I spend more time using gadgets than studying, I do not like it when my parents borrow my gadget, I prefer using gadgets rather than spending time with my family.			

Data analysis was conducted after all data were collected from respondents. The analysis techniques employed in this study included statistical procedures, comprising prerequisite tests such as normality testing, linearity testing, and homogeneity testing. Hypothesis testing was conducted to examine the correlations among variables, supported by validity and reliability testing of the research instruments.

RESULTS AND DISCUSSION

Description of Research Data

The descriptive statistics of the research data are presented as follows.

Table 4. Descriptive Statistics of Research Data

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Learning Style	454	12.00	36.00	24.0903	3.80348
Parental Role	454	14.00	42.00	33.3106	6.70561
Gadget Use	454	19.00	57.00	35.8656	6.65432
Learning Outcomes	454	75.00	98.00	82.2225	4.00070
Valid N (listwise)	454				

The measurement results obtained were subsequently processed using descriptive statistical analysis to identify the characteristics of each variable. The data for the learning style variable indicate a minimum score of 12, a maximum score of 36, and a mean value of 24.09, with a standard

deviation of 3.80. The descriptive statistical analysis of the parental role variable shows a minimum score of 14, a maximum score of 42, and a mean value of 33.31, with a standard deviation of 6.70. The descriptive statistical analysis of the gadget use variable reveals a minimum score of 19, a maximum score of 57, and a mean value of 35.86, with a standard deviation of 6.65. Furthermore, the analysis of learning outcomes indicates a minimum score of 75, a maximum score of 98, a mean score of 82.22, and a standard deviation of 4.00.

Description of Respondent Gender

The descriptive results of respondent gender in this study indicate that there were 400 male students

Gender	Frequency	Percentage
Male	400	88.11%
Female	54	11.89%

Description of Student Learning Outcomes

Mean Score	82.22%
Maximum Score	98
Minimum Score	75

Overall learning outcomes were obtained from the final scores of the even semester, commonly referred to as the Final Summative Assessment. These scores were accumulated from assignment scores, theoretical assessments, practical assessments, daily quizzes, and mid semester examinations in the subject of Physical Education, Sports, and Health. The average score obtained in this assessment was 82.22%, with a minimum score of 75 and a maximum score of 98.

Description of Data Normality Test Results

The data normality test was conducted using the Kolmogorov Smirnov Test. The results showed that the Absolute Most Extreme Differences value was 0.037 and the N value was 0.081. Therefore, the data are normally distributed because 0.037 is smaller

than 0.081. This result is further supported by the Asymp Sig. (2 tailed) value of 0.168, which is greater than 0.05, indicating that the data follow a normal distribution.

Description of Data Linearity Test Results

The results of the linearity test can be observed in the ANOVA tables. The Sig Deviation From Linearity values obtained from the three tests were 0.449, 0.628, and 0.306, respectively. All of these values are greater than 0.05, indicating that the relationships between variables are linear.

Description of Data Homogeneity Test Results

Based on the homogeneity test results, the Sig Based on Mean value for the learning outcomes variable (Y1) was 0.122. Since this value is greater than 0.05, it can be concluded that the learning outcome data are homogeneous.

Description of Hypothesis Testing

Based on the results and discussion regarding learning styles, parental roles, and gadget use on learning outcomes in Physical Education, Sports, and Health among students of SMK Muhammadiyah 2 Semarang, the following conclusions can be drawn:

- 1) There is a correlation between learning styles and Physical Education learning outcomes among students of SMK Muhammadiyah 2 Semarang of 26%.
- 2) There is a correlation between parental roles and Physical Education learning outcomes among students of SMK Muhammadiyah 2 Semarang of 50%.
- 3) There is a correlation between gadget use and Physical Education learning outcomes among students of SMK Muhammadiyah 2 Semarang of 24%.
- 4) There is a correlation between learning styles and parental roles on Physical Education learning outcomes among students of SMK Muhammadiyah 2 Semarang of 26%.
- 5) There is a correlation between learning styles and gadget use on Physical Education learning outcomes among students of SMK Muhammadiyah 2 Semarang of 25%.

6) There is a correlation between parental roles and gadget use on Physical Education learning outcomes among students of SMK Muhammadiyah 2 Semarang of 36%.

7) There is a correlation between parental roles, learning styles, and gadget use on Physical Education learning outcomes among students of SMK Muhammadiyah 2 Semarang of 70%.

CONCLUSION

According to the journal written by Ramli (pages 5 to 7, 2022) entitled *Recognizing Three Types of Learning Styles* (Ramli, 2022), there are three main types of learning styles, namely visual, auditory, and kinesthetic. Furthermore, Kurniati et al. (2021:244–252) explain several parental roles in supporting children, including maintaining and ensuring that children practice clean and healthy lifestyles, accompanying children while completing school assignments, engaging in joint activities at home, creating a comfortable home environment, establishing intensive communication with children, playing together with children, serving as role models, supervising family members, providing financial support and meeting family needs, guiding and motivating children, providing education, maintaining religious values, and implementing variations and innovations in home activities.

In the journal by Yusuf (2024), based on Anshori (2018), technology is defined as knowledge used to create tools, process materials, and extract objects. Each individual understands technology differently. Technology assists in solving daily problems in the form of products, processes, or organizational systems. In addition, technology extends human capabilities, making humans a central component of every technological system.

Based on the results of the research conducted, it can be concluded that there are many factors that influence student learning outcomes or academic achievement, particularly at SMK Muhammadiyah 2 Semarang, which contribute to learning outcomes that are low and not yet optimal. Therefore, the data obtained in this study are expected to assist teachers in understanding the magnitude of the influence of learning styles, parental roles, and gadget use on student learning outcomes.

The implications of these research findings can serve as a foundation for teachers to adapt learning approaches according to different learning styles across various departments, develop perspectives on parental roles that are centered on education, and regulate gadget use so that it becomes more optimal and effective. Ultimately, these efforts are expected to improve the learning outcomes of students at SMK Muhammadiyah 2 Semarang.

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