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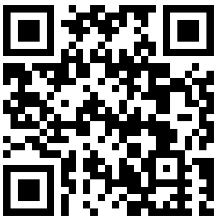
Analysis of the Relationship between Attitude, Learning Motivation, and Learning Strategies with Academic Performance of Grade 9 Junior High School Students in Banten Province



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ABSTRACT: This study aims to analyze the influence of attitudes, motivations and learning strategies on the academic achievement of 8th grade students in the Serang District, Tangerang District and Pandeglang District. The study uses a quantitative approach with a survey method involving samples of eighth grade students from several schools in the three districts. Data collected through questionnaires that evaluate attitude variables, motivation, learning strategy and academic achievement. Results of data analysis using descriptive statistical techniques and double regression analysis showed a significant positive influence of attitudes, motivations and learning strategies on academic performance of 8th grade students. Implications of these findings suggest that applying learning strategies that address these aspects can improve students' academic achievement. Therefore, it is recommended that schools and teachers pay more attention and develop these factors in order to improve the quality of education in the region. This research can be a basis for further research in an effort to improve the quality of education at the level of SMEs, especially in Serang District, Tangerang District and Pandeglang District.

KEYWORDS: attitude, motivation, learning strategy, and academic achievement

INTRODUCTION

According to the Law No. 20 of 2003 on the National Education System, the objective of national education is to develop the potential of students to be human: 1) believing and fearing the One God, 2) being noble, 3) being healthy, 4) being knowledgeable, 5) being competent, 6) being creative, 7) being independent, 8) and becoming a democratic and responsible citizen.

Education in Indonesia is focused not only on the transfer of knowledge but also on the development of the character and moral aspects of the pupils. This holistic education is aimed at creating individuals who are not only intellectually intelligent, but also have the emotional, social, and spiritual readiness to contribute to the society, nation, and country. This goal is a comprehensive vision of education, where education is directed to the full development of each individual, as well as its role in society and its contribution to the social, economic, and cultural well-being of the Indonesian nation in general.

In the educational system, the goal is generally directed at forming individuals who have knowledge, skills, as well as values and good attitudes. In its implementation, the objectives of education are closely related to the learning outcomes of students. The learning outcome is a real proof of the achievement of these objectives, which includes material understanding, development of critical thinking skills, social skills, and others. There are several factors that influence learning outcomes, among others: 1) Internal factors: a) Motivation: The degree of student's desire to learn can affect their concentration, effort, and ultimately their learning outcome, b) Interests: Students are more likely to understand and master lessons that match their interests, c) Learning readiness: Includes the physical, emotional, and psychological conditions of students in receiving the learning material. (John W. Santrock (2021) d) Learning styles: Each student has a different way or method of learning that best suits them. 2) External factors: a) Learning environments: A conducive environment, both at school and at home, that supports the absorption of material by students, b) Teaching methods: How teachers communicate material, use tools or technologies, and manage the class influences student understanding, c) Curriculum: The structure and content of the curriculum affect what and how students learn, d) Educational facilities: Availability of learning resources such as books, laboratories, and educational technology. 3) Socio-cultural factors: a) Social support: support from family, friends, and society can motivate students to perform, b) Culture: Values and norms in a particular culture can influence the attitude of students towards education.

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Education, as one of the pillars of society, is limited not only to what the educator teaches the student, but also to how the student internalizes and applies the knowledge acquired. In this context, aspects such as attitude, motivation, learning strategies, memory, and metacognitive abilities play an important role in determining student learning outcomes. Locke & Latham (2006:266) in Goal-Setting Theory emphasizes the importance of goal setting in the learning process. Clear and challenging goals, with relevant feedback, tend to increase motivation and achievement levels. Among the important concepts in education proposed by John Dewey are: the child as an active learner, the child's education as a whole, the emphasis on the adaptation of the child to the environment, and the ideals of democracy that all children are entitled to quality education. E.L.Thorndike. William James emphasizes the importance of classroom observation for improving education. Thorndike, a supporter of the scientific foundation of learning, argued that schools should sharpen children's abilities of reasoning skills (John W. Santrock (2021:25).

To achieve a good learning outcome, a teacher must pay attention to various aspects of the teaching process. Here are some important things to consider: 1) Effective Learning Planning: Teachers should draw up a clear and structured lesson plan with specific learning objectives. This plan should include relevant lesson materials, interesting activities, and evaluation methods to measure student understanding, 2) Use of diverse teaching methods: Using different methods of teaching can meet different learning needs among students. Group discussions, case studies, project-based learning, or the use of interactive media are some examples of strategies that can be applied, 3) Create a Positive Learning Environment: A safe, supportive, and inclusive environment can encourage students to participate actively. This includes appreciating the opinion of each student, avoiding favoritism, and dealing with issues such as intimidation or harassment quickly and effectively, 4) Constructive Feedback: Teachers must give honest and constructive feedback. It helps students understand which areas they master and where they need to make improvements. Specific, timely, and relevant feedback for learning purposes is crucial, 5) Development of Metacognitive Skills: Teaching students how to learn effectively is crucial. These include strategies for organizing time, making efficient records, reading strategies, memorizing techniques, and reflection on their learning processes, 6) Fair and Balanced Assessment: Using various forms of assessment—such as tests, projects, presentations, and so on—enables teachers to measure students' abilities more holistically. The assessment must be fair, transparent, and in line with the learning objectives, 7) Recognition and Support for Individual Needs: Each student is an individual with their own needs, strengths, and weaknesses. Teachers should recognize this and be prepared to adapt their approach, by providing additional help or challenges to those who need it, 8) Integrating Technology: The use of technology in learning can enhance student involvement and enable access to diverse resources. It also helps prepare students for a modern working environment that is increasingly dependent on technology, 9) Effective communication with parents: The involvement of parents or guardians in the learning process helps support the development of students. Teachers should communicate regularly with parents about students' progress, needs, and achievements, 10) Sustainable Professional Development: Teachers must be committed to lifelong learning, always seeking to improve their skills and knowledge through professional training, workshops, conferences, and other educational resources.

By considering these aspects, teachers will be better prepared to support their students in achieving optimal learning outcomes, not only in academic contexts but also in personal and social development. Based on the background above then the formula of the problem of this study is based on the definition that has been presented above, can be formulated some problems as follows: How is the relationship between the attitude learning variable and the learning motivation and the relationship of the attitudes learning variables with the learning outcome (Grade 9 Ascension Score)? How is the relationship of the Learning Strategy variable with the Learning Motivation and the Learning Strategies variable to the Learning Outcome (Grade 9 Ascension Score)? How does the learning motivation variable relate to learning outcomes (Grade 9)?

THEORETICAL FRAMEWORK

Student Academic Achievement

Education, as one of the pillars of society, is limited not only to what the educator teaches the student, but also to how the student internalizes and applies the knowledge acquired. In this context, aspects such as attitude, motivation, learning strategies, memory, and metacognitive abilities play an important role in determining student learning outcomes. According to Suryabrata (2006: 297), academic achievement is the whole of the achievements that have been achieved (achievement), obtained through the academic learning process (academic Achievement). Locke & Latham (2006:266) in Goal-Setting Theory emphasizes the importance of goal setting in the learning process. Clear and challenging goals, with relevant feedback, tend to increase motivation and achievement levels.

Attitude, Motivation, Learning Strategy

A learning attitude is the behavior and emotional response of a person to learning activities. This attitude has a strong influence on learning outcomes because it affects how effectively a person processes and understands information. A number of factors,

such as motivation, learning strategies, memory, and metacognitive abilities, play an important role in strengthening the link between learning attitudes and learning outcomes. A positive learning attitude can increase learning motivation. A person who has a positive attitude towards learning tends to be more motivated to the goal of learning, than a person with a negative or indifferent attitude. (Ormrod, 2008:357).

Motivation is the basic impetus in the learning process. According to Ryan and Deci (2000:56), intrinsic motivation, i.e. motivation that comes from the students themselves, has a significant positive impact on the quality of learning processes and outcomes. Motivated students tend to show higher levels of attendance, attention, and participation in learning activities, which ultimately contribute to better learning outcomes.

A good learning attitude can encourage a person to choose an effective learning strategy. For example, someone who is serious about learning may be more likely to use techniques such as concept mapping or elaboration techniques. (Woolfolk, 2010:329). Both can improve the understanding and retention of information. Learning strategy is also a key factor related to learning outcomes. According to Weinstein (2011:49) and Barry J. Zimmerman (2002:69), learning strategies include a variety of tactics chosen by students to facilitate the process of information acquisition. This could include planning, monitoring understanding, using repetition techniques, organizing information, and searching for additional sources. Research has shown that students who use effective learning strategies tend to better results in academic evaluations.

According to the model of information processing, memory is divided into several stages: sensory memory, short-term memory, and long term memory. The process of transferring information from one stage to another requires processing, which can be enhanced by repeating or rearranging the information (Atkinson, R. C., & Shiffrin,R. M. (1968:182). The role of memory is crucial because it affects how well students can store and then retrieve the information they have learned. Without effective memory skills, it is difficult for students to build the knowledge and long-term skills necessary for in-depth understanding and practical application. Someone with a good learning attitude tends to be more able to monitor, evaluate, and regulate their learning strategies.

In synthesis, the interaction between attitudes, motivations, and learning strategies affects student learning outcomes. To optimal student potential, education must be designed to support the development of all these aspects, giving students the tools they need to succeed not only in school but also in their lives. Learning strategy and motivation are interrelated. Strong motivation can encourage students to implement more effective learning strategies, while the use of good strategies can also increase motivation as it helps students their academic goals. Therefore, an approach that integrates both is important for optimal learning outcomes. Learning motivation and learning strategy are two key aspects that play an important role in achieving good learning outcomes. There are two theories of learning motivation: (1) Extrinsic and Intrinsic Motivation Theory (Ryan & Deci:2000). According to this theory, extrinsic motivation arises from external factors, such as appreciation or punishment, whereas intrinsic motivation is the learning impulse that originates within the individual, like curiosity or interest in a particular topic. (2) Performance motivation theory (Harvey, O. J., David McClelland 1954). This theory emphasizes the need of individuals to excellence, overcome challenges, and enhance competence. This motivation influences how high goals a person sets a goal and how hard they work to achieve them.

RESEARCH METHODS

Research Methodology

Research Design This study uses quantitative with correlational design to measure the relationship between variables. In this study, the descriptive method is used to describe the quality of the details of the research instrument that will be used to test the relationship of attitudes, motivations and learning strategies with the performance of elevation to grade 9 (Junior High School).

Population, Samples Research and Data Collection

Population and Samples: High school students, with simple random sampling techniques against each 25 - 30 respondents (Junior school students) in SMPN 3 Kramatwatu District of Serang, SMPN 1 Curug District of Tangerang and SMPN 8 City of Tengerang, Province of Banten.

Data collection:

a. Questionnaire: To measure learning motivation and learning strategies, using the Likert scale.

b. Learning Outcome Test: Official academic evaluation (e.g. school exam) to measure student learning outcomesfor elevation to grade 9.

RESEARCH METHOD

The research variable consists of two variables, namely: a. Exogenous variables: attitudes, motivations and learning strategies. b. Endogenic variables (dependent variables): learning outcomes for elevation to grade 9 (Junior school students). **Results and**

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Discussion on the Analysis of the Relationship Between Attitude, Learning Motivation, and Learning Strategies with Academic Performance of High School Students of Grade 9 in Banten Province

Validity and Reality Analysis Attitude (X1): Validity Analysis

Table 1. Table Correlation analysis attitude validity

Correlations

		P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	Total
P1	Pearson Correlation	1	1.000**	1.000**	1.000**	1.000**	1.000**	1.000**	1.000**	.994**	1.000**	-.004
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000	.000	.000	.000	.967
	N	88	88	88	88	88	88	88	88	88	88	87
P2	Pearson Correlation	1.000**	1	.999**	1.000**	1.000**	1.000**	1.000**	1.000**	.994**	1.000**	.333**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000	.000	.000	.000	.002
	N	88	88	88	88	88	88	88	88	88	88	87
P3	Pearson Correlation	1.000**	.999**	1	1.000**	.999**	1.000**	1.000**	1.000**	.994**	1.000**	.342**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000	.000	.000	.000	.001
	N	88	88	88	88	88	88	88	88	88	88	87
P4	Pearson Correlation	1.000**	1.000**	1.000**	1	1.000**	1.000**	1.000**	1.000**	.994**	1.000**	.128
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000	.000	.000	.000	.236
	N	88	88	88	88	88	88	88	88	88	88	87
P5	Pearson Correlation	1.000**	1.000**	.999**	1.000**	1	1.000**	1.000**	1.000**	.994**	.999**	.195
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000	.000	.000	.000	.070
	N	88	88	88	88	88	88	88	88	88	88	87
P6	Pearson Correlation	1.000**	1.000**	1.000**	1.000**	1.000**	1	1.000**	1.000**	.994**	1.000**	.201
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000	.000	.000	.000	.062
	N	88	88	88	88	88	88	88	88	88	88	87
P7	Pearson Correlation	1.000**	1.000**	1.000**	1.000**	1.000**	1.000**	1	1.000**	.994**	1.000**	.356**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000		.000	.000	.000	.001
	N	88	88	88	88	88	88	88	88	88	88	87
P8	Pearson Correlation	1.000**	1.000**	1.000**	1.000**	1.000**	1.000**	1.000**	1	.994**	1.000**	.343**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000		.000	.000	.001
	N	88	88	88	88	88	88	88	88	88	88	87
P9	Pearson Correlation	.994**	.994**	.994**	.994**	.994**	.994**	.994**	.994**	1	.994**	.877**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000		.000	.000
	N	88	88	88	88	88	88	88	88	88	88	87
P10	Pearson Correlation	1.000**	1.000**	1.000**	1.000**	.999**	1.000**	1.000**	1.000**	.994**	1	.380**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000		.000
	N	88	88	88	88	88	88	88	88	88	88	87
Total	Pearson Correlation	-.004	.333**	.342**	.128	.195	.201	.356**	.343**	.877**	.380**	1
	Sig. (2-tailed)	.967	.002	.001	.236	.070	.062	.001	.001	.000	.000	
	N	87	87	87	87	87	87	87	87	87	87	87

**. Correlation is significant at the 0.01 level (2-tailed).

Significant level: α = 0.05

Rejection area:

rhit > rtable = valid

rhit < rtabel = invalid

Conclusion

Table 2. Table r Calculate attitude aspects

Question	r counting		r tabel (N=87, α = 0.05)	Statements
P1	-0.004	<	0.208	invalid
P2	0.333	>		Valid
P3	0.342	>		Valid
P4	0.128	<		invalid
P5	0.195	<		invalid
P6	0.201	<		invalid
P7	0.356	>		Valid
P8	0.343	>		Valid
P9	0.877	>		Valid
P10	0.380	>		Valid

Since r values (P1, P4, P5, P6) are < rtable, then P1, P4 and P5 are invalid. Whereas r (P2, P3, P7, P8, P9, P10) > rtable are valid, P2, P3 and P7 are valid.

Reliability Statistics

Cronbach's Alpha	N of Items
.999	10

Figure 1. Reality Analysis

Significant side: α = 0.05

Rejection area:

rhit > rtable = reliable (consistent)

rhit < rtabel = unreliable (inconsistent)

Conclusion: Since the value of rhit> rtable is 0.999 > 0.208, then the data from 10 questions are reliable (konsisten).

Learning motivation (X2):

Validity analysis Table

3. Table Correlation analysis validity Motivation learning

Correlations

		P11	P12	P13	P14	P15	P16	P17	P18	P19	P20	Total
P11	Pearson Correlation	1	.090	-.124	.371**	.124	.100	.138	.198	.144	.314**	.578**
	Sig. (2-tailed)		.407	.253	.000	.253	.357	.203	.066	.183	.003	.000
	N	87	87	87	87	87	87	87	87	87	87	87
P12	Pearson Correlation	.090	1	.559**	.086	.037	-.161	.052	.051	.128	.113	.379**
	Sig. (2-tailed)	.407		.000	.428	.733	.137	.632	.640	.238	.298	.000
	N	87	87	87	87	87	87	87	87	87	87	87
P13	Pearson Correlation	-.124	.559**	1	-.012	-.166	-.087	.172	.009	.049	.118	.190
	Sig. (2-tailed)	.253	.000		.913	.125	.423	.110	.938	.653	.278	.079
	N	87	87	87	87	87	87	87	87	87	87	87
P14	Pearson Correlation	.371**	.086	-.012	1	.176	-.069	.263*	.372**	.061	.564**	.662**
	Sig. (2-tailed)	.000	.428	.913		.102	.527	.014	.000	.574	.000	.000
	N	87	87	87	87	87	87	87	87	87	87	87
P15	Pearson Correlation	.124	.037	-.166	.176	1	-.076	.079	-.010	.114	.240*	.429**
	Sig. (2-tailed)	.253	.733	.125	.102		.482	.465	.925	.292	.025	.000

	N	87	87	87	87	87	87	87	87	87	87	87
P16	Pearson Correlation	.100	-.161	-.087	-.069	-.076	1	.072	-.065	-.022	-.109	.166
	Sig. (2-tailed)	.357	.137	.423	.527	.482		.508	.548	.841	.314	.125
	N	87	87	87	87	87	87	87	87	87	87	87
P17	Pearson Correlation	.138	.052	.172	.263*	.079	.072	1	.095	-.068	.321**	.438**
	Sig. (2-tailed)	.203	.632	.110	.014	.465	.508		.381	.530	.002	.000
	N	87	87	87	87	87	87	87	87	87	87	87
P18	Pearson Correlation	.198	.051	.009	.372**	-.010	-.065	.095	1	.193	-.028	.458**
	Sig. (2-tailed)	.066	.640	.938	.000	.925	.548	.381		.073	.796	.000
	N	87	87	87	87	87	87	87	87	87	87	87
P19	Pearson Correlation	.144	.128	.049	.061	.114	-.022	-.068	.193	1	-.087	.432**
	Sig. (2-tailed)	.183	.238	.653	.574	.292	.841	.530	.073		.424	.000
	N	87	87	87	87	87	87	87	87	87	87	87
P20	Pearson Correlation	.314**	.113	.118	.564**	.240*	-.109	.321**	-.028	-.087	1	.498**
	Sig. (2-tailed)	.003	.298	.278	.000	.025	.314	.002	.796	.424		.000
	N	87	87	87	87	87	87	87	87	87	87	87
Total	Pearson Correlation	.578**	.379**	.190	.662**	.429**	.166	.438**	.458**	.432**	.498**	1
	Sig. (2-tailed)	.000	.000	.079	.000	.000	.125	.000	.000	.000	.000	
	N	87	87	87	87	87	87	87	87	87	87	87

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Significant level: α = 0.05

Rejection area:

rhit > rtable = valid

rhit < rtabel = invalid

Conclusion

Table 4. Table r Calculate learning motivation aspects

Question	r counting		r tabel (N=87, α = 0.05)	Statement
P11	0.578	>	0.208	Valid
P12	0.379	>		Valid
P13	0.190	<		invalid
P14	0.662	>		Valid
P15	0.429	>		Valid
P16	0.166	<		invalid
P17	0.438	>		Valid
P18	0.458	>		Valid
P19	0.432	>		Valid
P20	0.498	>		Valid

Because r (P13, P16) is < rtable, then P13, P16 is invalid. Whereas r values (P11, P12, P14, P15, P17, P18, P19, P20) > rtable are valid.

Reliability Statistics

Cronbach's Alpha	N of Items
.490	10

Figure 2. Reality Analysis

Significant side: α = 0.05

Rejection area:

rhit > rtable = reliable (consistent)

rhit < rtabel = unreliable (inconsistent)

Conclusion:

Since the value of rhit> rtable is 0.490 > 0.208, then the data from 10 questions are reliable (consistent).

Learning Strategy (X3):

Validity Analysis

Table 5. Correlation Table for validity analysis of Learning Strategies

Correlations

		P21	P22	P23	P24	P25	P26	P27	P28	P29	P30	Total
P21	Pearson Correlation	1	.176	.074	.202	.170	.087	-.376**	-.178	-.111	.227*	.184
	Sig. (2-tailed)		.103	.497	.061	.115	.424	.000	.098	.307	.035	.088
	N	87	87	87	87	87	87	87	87	87	87	87
P22	Pearson Correlation	.176	1	-.072	.145	.311**	-.237*	-.182	-.204	.045	.123	.114
	Sig. (2-tailed)	.103		.506	.181	.003	.027	.091	.058	.677	.255	.294
	N	87	87	87	87	87	87	87	87	87	87	87
P23	Pearson Correlation	.074	-.072	1	.343**	.089	.109	.337**	.481**	.304**	.451**	.670**
	Sig. (2-tailed)	.497	.506		.001	.413	.316	.001	.000	.004	.000	.000
	N	87	87	87	87	87	87	87	87	87	87	87
P24	Pearson Correlation	.202	.145	.343**	1	-.092	.040	.236*	.299**	.132	.396**	.591**
	Sig. (2-tailed)	.061	.181	.001		.398	.710	.028	.005	.224	.000	.000
	N	87	87	87	87	87	87	87	87	87	87	87
P25	Pearson Correlation	.170	.311**	.089	-.092	1	-.101	-.024	-.315**	.047	.036	.185
	Sig. (2-tailed)	.115	.003	.413	.398		.354	.822	.003	.665	.742	.086
	N	87	87	87	87	87	87	87	87	87	87	87
P26	Pearson Correlation	.087	-.237*	.109	.040	-.101	1	.301**	.144	-.061	.194	.363**
	Sig. (2-tailed)	.424	.027	.316	.710	.354		.005	.182	.573	.072	.001
	N	87	87	87	87	87	87	87	87	87	87	87
P27	Pearson Correlation	-.376**	-.182	.337**	.236*	-.024	.301**	1	.525**	.358**	.204	.649**
	Sig. (2-tailed)	.000	.091	.001	.028	.822	.005		.000	.001	.058	.000
	N	87	87	87	87	87	87	87	87	87	87	87
P28	Pearson Correlation	-.178	-.204	.481**	.299**	-.315**	.144	.525**	1	.399**	.103	.589**
	Sig. (2-tailed)	.098	.058	.000	.005	.003	.182	.000		.000	.344	.000
	N	87	87	87	87	87	87	87	87	87	87	87
P29	Pearson Correlation	-.111	.045	.304**	.132	.047	-.061	.358**	.399**	1	.001	.530**
	Sig. (2-tailed)	.307	.677	.004	.224	.665	.573	.001	.000		.991	.000
	N	87	87	87	87	87	87	87	87	87	87	87
P30	Pearson Correlation	.227*	.123	.451**	.396**	.036	.194	.204	.103	.001	1	.544**
	Sig. (2-tailed)	.035	.255	.000	.000	.742	.072	.058	.344	.991		.000
	N	87	87	87	87	87	87	87	87	87	87	87
Total	Pearson Correlation	.184	.114	.670**	.591**	.185	.363**	.649**	.589**	.530**	.544**	1
	Sig. (2-tailed)	.088	.294	.000	.000	.086	.001	.000	.000	.000	.000	
	N	87	87	87	87	87	87	87	87	87	87	87

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Significant level: α = 0.05

Rejection area: rhit > rtable = valid

rhit < rtabel = invalid

Conclusion

Table 6. Table r Calculate learning strategy aspects

Questions	r counting		r tabel (N=87, α = 0.05)	Statement
P21	0.184	<	0.208	Invalid
P22	0.114	<		Invalid
P23	0.670	>		Valid
P24	0.591	>		Valid
P25	0.185	<		Invalid
P26	0.363	>		Valid
P27	0.649	>		Valid
P28	0.589	>		Valid
P29	0.530	>		Valid
P30	0.544	>		Valid

Because r values (P21, P22, P25) are < rtable, then p21, p22, p25 are invalid. Whereas r (p23, p24, p26, p27, p28, p29, p30) > rtable, then P23, P24, P26, P27, P28, P29, P30 are valid.

Reliability Statistics

Cronbach's Alpha	N of Items
.567	10

Figure 3. Reality Analysis

Significant level: α = 0.05
Rejection area: rhit > rtable = reliable (consistent)
rhit < rtabel = not reliable (inconsistent)

Conclusion: Since the rhit value > rtable is 0.567 > 0.208, then the data from 10 questions is reliable (konsisten). Validity and reliability test data are presented in the following table:

Table 7. The validity and reliability test table of the question

# Question Number	Variable	Valid/Invalid	Reliable/ Consistent
P2, P3, P7, P8, P9, P10	Attitude	Valid	Reliable
P1, P4, P5, P6		Invalid	
P11, P12, P14, P15, P17, P18, P19, P20	Learning Motivation	Valid	Reliable
P13, P16		Invalid	
P23, P24, P26, P27, P28, P29, P30	Learning Strategy	Valid	Reliable
P21, P22, P25		Invalid	

RESEARCH OF RESULTS

Analysis of Relationships Between Variables

Dependent variable (Endogenous/Dependent Variable):
Y (Ascension Value to Grade 9)
Independent variables (Exogenous/Independent Variable):
1. Attitude (X1)
2. Motivation to Learn (X2)
3. Learning strategy (X3)
Classical Assumption Test
1. Normality

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		87
Normal Parameters [a,b]	Mean	.0000000

	Std. Deviation	4.58295279
Most Extreme Differences	Absolute	.112
	Positive	.082
	Negative	-.112
Test Statistic		.112
Asymp. Sig. (2-tailed)		**.009[c]**

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

On the Kolmogrov Smirnov One-Sample table, it can be seen that the value is not sig. (0,009) < α (0,05), so the normality assumption test is not met.

2. Multicolinearity

Coefficients[a]

Model		Collinearity Statistics Tolerance	**VIF**
1	(Constant)		
	X1	.944	**1.060**
	X2	.423	**2.364**
	X3	.429	**2.333**

The VIF value (Variance Inflation Factor) gives an indication of how much the influence of multicolinearity on the accuracy of coefficient estimates is. As a general guideline:

• VIF value = 1: No multicolinearity.

• Vif value between 1 and 5: Multicolinarity may exist, but may not be too serious.

•VIF value greater than 5 (some sources recommend a limit value of 10)

On the Coefficients table, it can be seen that VIF values for all variables have values < 10, so the multicolinary assumption test is fulfilled.

3. Heteroscience

			X1	X2	X3	Unstandardized Residual
Spearman's rho	X1	Correlation Coefficient	1.000	.413**	.346**	.029
		Sig. (2-tailed)	.	.000	.001	**.790**
		N	87	87	87	87
	X2	Correlation Coefficient	.413**	1.000	.597**	.016
		Sig. (2-tailed)	.000	.	.000	**.883**
		N	87	87	87	87
	X3	Correlation Coefficient	.346**	.597**	1.000	.015
		Sig. (2-tailed)	.001	.000	.	**.894**
		N	87	87	87	87
	Unstandardized Residual	Correlation Coefficient	.029	.016	.015	1.000
		Sig. (2-tailed)	.790	.883	.894	.
		N	87	87	87	87

The heteroskedastisity test uses the Spearman correlation:

The sig value X1 (0,790) > α (0,05), so the data of the variable X1 is not heterogeneous

The sig value X2 (0,883) > α (0,05); so that X2 variable data is not heterogeneous

The sig value X3 (0,894) > α (0.05), and so that Variable data is non-heterogenous

If a data is no hetero (not heterocedastic), then the data is homoscedastic. This means that the variance of the *error term* in the regression model is the same at all levels of independent variables.

Spearman's correlation coefficient values range from -1 to 1. A value of 1 indicates perfect positive correlations, a value of -1 indicates a perfect negative correlates, and the value of 0 indicates no corelations. It is important to note that Spearman's correlation coefficient only measures the strength and direction of the monotonous relationship between two variables, and does not indicate a cause-and-effect relationship.

To find out how much influence each exogenous variable (X1.X2 and X3) has on the endogenic variables (Y, learning outcomes), analysis is done using structural equations (SEM) with SmartPLS 4 software, where S1, S2 and so on as observed variable/indicator/manifest variable of X1 (Status/Learning Attitude); SB1, SB2, and so forth are observedvariables of X2 (Learning Strategy); MB1, MB2 and So forth is observed variant of X3 (Motivation/Leaning Motivation). Since such indicators are measured directly, they are also referred to as observed variables or observed, manifest variables, indicators or references.

The relationship model between variables is described as follows:

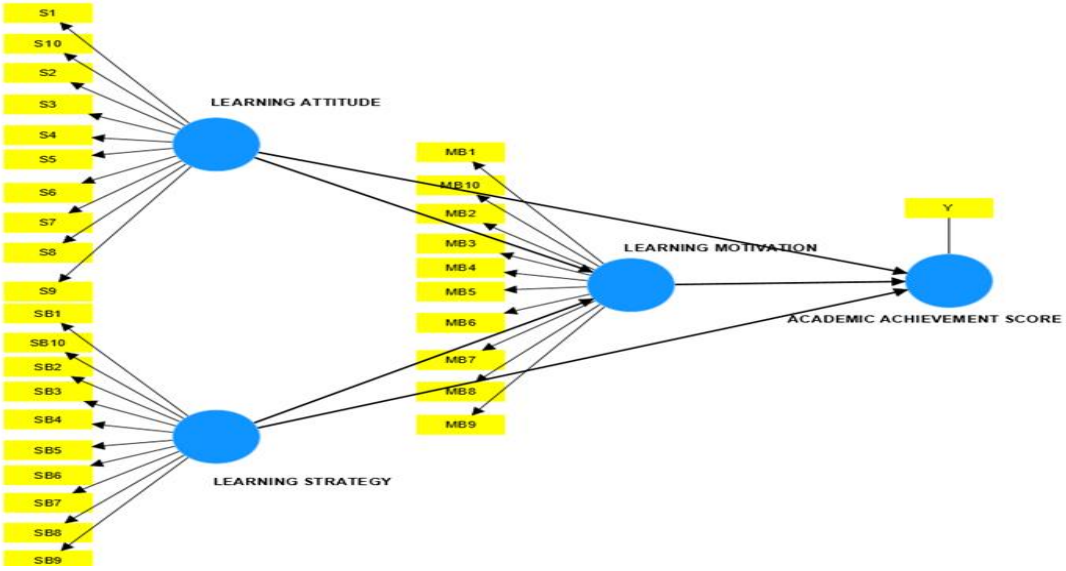

Figure 4. Model of Relationships Between Variables in PLS-SEM

Evaluation of measurement models in PLS-SEM is a crucial step in supporting researchers in confirming the reliability and validity of the structures used in the research. It also guarantees that the measurements carried out are credible as representations of the phenomenon being studied (Hair et al., (2017:121). As for the concept, utility and criteria of its value are presented in the following table:

Table 8. Test criteria with PLS-SEM

Concept	Utility	Value Criteria
Average Variance Extracted (AVE)	Convergence Validity Testing	>0,5
Cronbach's Alpha	Measures Model Reliability	>0,7
Composite Reliability	Measures Model Reliability	>0,7
f-square (f^2)	Assessing the significance of the contribution of independent variables to dependent variables.	Small: 0.02, Medium: 0.15, Large: 0.35
R-square (R^2)	Assess the strength of the model in explaining the dependent variable.	>0.1
R-square Adjusted (R^2 Adjusted)	As a more appropriate measure of the strength of the model by considering predictors.	Higher values indicate a stronger model.
Variable Inflation Factor (VIF)	Detecting collinearity problems in models	Values <5 or <10 are considered not to have co-linearity problems.
Path Coefficients	Assess relationships between variables and test research hypotheses.	Values close to -1 or +1 indicate a strong relationship.

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From the calculations with the SmartPLS 4 software obtained data of the influence of each exogenous variable (X1.X2 and X3) on the endogenic variables (Y, academic score) as follows: The results of the path analysis are presented in Figure 2.

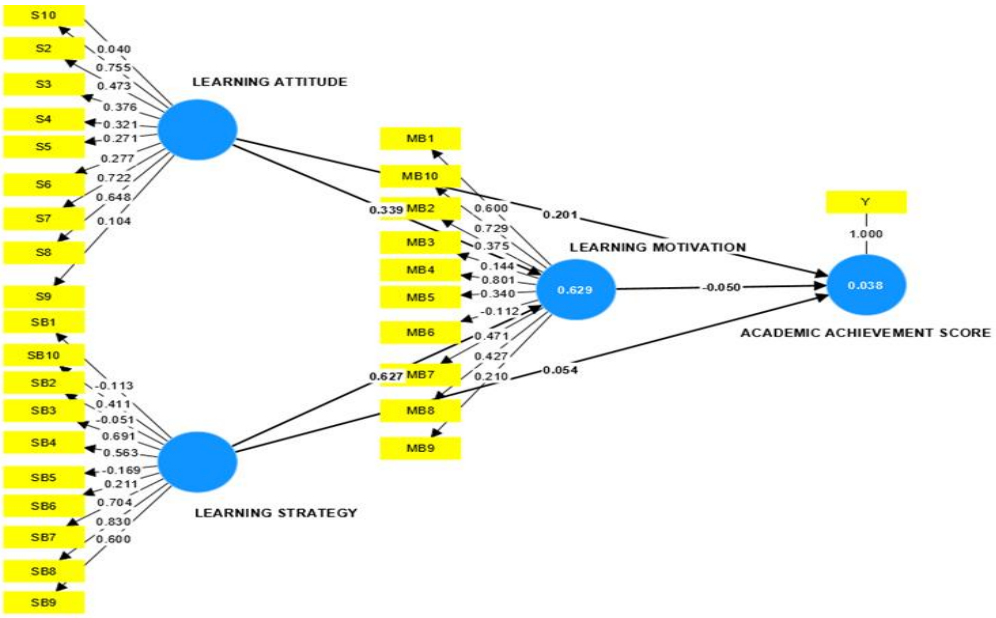

Figure 5. PLS-SEM calculation results

Reliability Data and Model Validity

Table 9. Construct Reliability and Validity

	Cronbach's alpha	*Composite reliability (rho_a)*	*Composite reliability (rho_c)*	*Average variance extracted (AVE)*
LEARNING ATTITUDE	0.491	0.634	0.669	0.214
LEARNING MOTIVATION	0.516	0.688	0.673	0.227
LEARNING STRATEGY	0.563	**0.774**	0.646	0.260

The following values are often considered as general rules in PLS-SEM to determine whether a structure is considered reliable and valid:

1. **Cronbach's Alpha**: Measures the internal consistency of items in a structure. Higher values indicate better reliability. Normally, values above 0.7 are deemed acceptable. However, in this table, all structures have Cronbahs Alpha values below 0.6 (0.491 for Learning Attitude, 0.516 for Learning Motivation, and 0.563 for Learning Strategy), which indicates low reliability
2. **Composite Reliability (Rho_a and Rho_c):** Measuring overall construction reliability. Values above 0. 7 are generally considered good. For Rho _a, Learning Attitudes have a value of 0.634, Learning motivation of 0.688, and Learning Strategies of 0.774. This suggests that the composite reliability for Learning Strategy is quite good, while for Attitude and Learning Motivation is still below the desired threshold.
3. **Average Variance Extracted (AVE):** Measures the variance level described by the constructor compared to the number of variants due to measurement errors. A good AVE value is above 0.5. However, in this table, all constructs have AVE values that are well below 0.5 (0.214 for Learning Attitude, 0.227 for Learning Motivation, and 0.260 for Learning Strategy), indicating that the convergence validity of these constructs is low.

Overall, these results show that while there are some adequate reliability aspects

f-square (f2)

In the context of Partial Least Squares Structural Equation Modeling (PLS-SEM), f-Square(f2) is a measure used to evaluate the effect of the measurement of an independent variable (predictor) on the dependent variables (criteria) in a model.

Table 10. f-Square

	f-square
LEARNING ATTITUDE -> ACADEMIC ACHIEVEMENT SCORE	0.030
LEARNING ATTITUDE -> LEARNING MOTIVATION	0.286
LEARNING MOTIVATION -> ACADEMIC ACHIEVEMENT SCORE	0.001
LEARNING STRATEGY -> ACADEMIC ACHIEVEMENT SCORE	0.001
LEARNING STRATEGY -> LEARNING MOTIVATION	**0.977**

The f-square value is used to assess how much an independent construct contributes to the dependent variable in the model. The following is the interpretation of the f-square value in the table:

1. **Learning Attitude (LEARNING ATTITUDE)** -> Academic Achievement (ACADEMIC ACHIEVEMENT SCORE): The f-square value is 0.030, which shows a very small influence from Learning Attitude on Academic Achievement.
2. **Learning Attitude (LEARNING ATTITUDE)** -> Learning Motivation (LEARNING MOTIVATION): With an f-square value of 0.286, this shows the moderate influence of Learning Attitude on Learning Motivation.
3. **Learning Motivation (LEARNING MOTIVATION)** -> Academic Achievement (ACADEMIC ACHIEVEMENT SCORE): The f-square value is very small, 0.001, indicating that Learning Motivation has almost no influence on Academic Achievement.
4. **Learning Strategy (LEARNING STRATEGY)** -> Academic Achievement (ACADEMIC ACHIEVEMENT SCORE): Just like Learning Motivation, Learning Strategy also has a very small f-square value, 0.001, on Academic Achievement, indicating a very minimal influence.
5. **Learning Strategy (LEARNING STRATEGY)** -> Learning Motivation (LEARNING MOTIVATION): With an f-square value of 0.977, this shows the very large influence of Learning Strategy on Learning Motivation.

Overall, these results show that, in the context of this study, Learning Strategies have a very significant influence on Learning Motivation, while their influence upon Academic Achievement is minimal. Similarly, Learning Attitudes have a moderate influence over Learning motivation but a very small influence in academic achievement.

R-square (f^2) and adjusted R-square

In Partial Least Squares Structural Equation Modeling (PLS-SEM), R-square and adjusted R-square are two important metrics used to assess model strength and quality.

Table 11. R-Square and R-square Adjusted

	R-square	R-square adjusted
ACADEMIC ACHIEVEMENT SCORE	0.038	0.003
LEARNING MOTIVATION	0.629	0.620

From the results of the calculation can be interpreted:

1. **Academic Achievement Score:**
   R-square: The value is 0.038, which indicates that the independent variable in the model only explains about 3.8% variance in academic performance. This is a very low explanation rate, indicating that other factors outside the model may have a more significant influence on academic achievement.
2. **Learning Motivation**
   R-square: With a value of 0.629, this indicates that the independent variable in the model explains about 62.9% of the variance in the Learning Motivation. This is a fairly high level of explanation, indicating that the model is quite effective in explaining changes in the learning motivation. Adjusted-R-sqare: The value is 0.620, which is still high enough and close to the R-quare value, suggesting that adjustments to the number of independent variables do not much change the model's explanatory ability.

Overall, these results show that the model used has an excellent ability to explain the variance in Learning Motivation, but its ability is very limited in describing Academic Achievement. This means that the variables included in the model are more relevant or correlated with Learning motivation compared to academic achievements.

Variance Inflation Factor (VIF)

Variable Inflation Factor (VIF), is an important tool for assessing whether there are collinearity problems between predictor variables in the internal model. In statistics, collinearity occurs when two or more predictor variables in a model are highly correlated with each other. This can be problematic because it can reduce the model's ability to identify unique relationships between certain predictor variables and the dependent variable. To show how much of the variance of a predictor variable can be attributed to collinearity with other predictor variables, a VIF value greater than 5 or 10 is often considered to indicate a serious collinearity problem or in other words, the VIF value must be smaller than 5 or 10 From the calculation results, the VIF value is obtained:

Table 12. Variance Inflation Factor (VIF) Table

	VIF
LEARNING ATTITUDE -> ACADEMIC ACHIEVEMENT SCORE	1.397
LEARNING ATTITUDE -> LEARNING MOTIVATION	1.087
LEARNING MOTIVATION -> ACADEMIC ACHIEVEMENT SCORE	2.696
LEARNING STRATEGY -> ACADEMIC ACHIEVEMENT SCORE	2.148

Here is an interpretation of the VIF values from the table:

1. **Learning Attitude (LEARNING ATTITUDE**) -> Academic Achievement (ACADEMIC ACHIEVEMENT SCORE): A VIF value of 1.397 indicates that there is no significant multicollinearity problem. In general, VIF values below 5 are considered to indicate the absence of serious multicollinearity.
2. **Learning Attitude (LEARNING ATTITUDE)** -> Learning Motivation (LEARNING MOTIVATION): With a VIF value of 1.087, this also shows that there is no serious multicollinearity problem in this relationship.
3. **Learning Motivation (LEARNING MOTIVATION)** -> Academic Achievement (ACADEMIC ACHIEVEMENT SCORE): The VIF value of 2.696 is slightly higher but still below the threshold of 5, which indicates that while there may be a slight dependence between the variables, it is not significant enough to cause major concerns about multicollinearity.
4. **Learning Strategy (LEARNING STRATEGY)** -> Academic Achievement (ACADEMIC ACHIEVEMENT SCORE): With a VIF score of 2.148, the same conditions apply as in the previous point; there is a slight dependence, but not significant multicollinearity.

Overall, the VIF values in this table indicate that multicolinearity may not be a serious problem in this model, which means that model estimates are quite reliable in terms of independence between independent variables.

Path coefficients and influence of free variables against bound variables.

The path coefficient is a key element in the *Partial Least Squares Structural Equation Modeling* (PLS-SEM). It describes the strength and direction of the relationship between variables in a structural model. Track coefficients are calculated using the PLS algorithm and are generally presented in standard form, which means their values range from -1 to +1. A positive value indicates a positive (directional) relationship between the exogenous variable (free variable) and the endogenic (binding variable). A negative value shows a negative relationship (in the opposite direction). A value close to 0 indicates that there is no significant relationship. The closer to -1 or +1, the stronger the relationship.

From the calculation results obtained results that describe the total effect of several predictor variables on endogenous variables (academic achievement):

Table 13. Table Path Coefficients

	Path coefficients/Koefisien Jalur	
LEARNING ATTITUDE -> ACADEMIC ACHIEVEMENT SCORE	0.201	
LEARNING ATTITUDE -> LEARNING MOTIVATION		0.339
LEARNING MOTIVATION -> ACADEMIC ACHIEVEMENT SCORE	-0.050	
LEARNING STRATEGY -> ACADEMIC ACHIEVEMENT SCORE	0.054	
LEARNING STRATEGY -> LEARNING MOTIVATION		0.627

Here is the interpretation:

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1. **Learning Attitude (LEARNING ATTITUDE)** -> Academic Achievement (ACADEMIC ACHIEVEMENT SCORE): The path coefficient is 0.201, which indicates that there is a positive and moderate relationship between Learning Attitude and Academic Achievement. This means that an increase in Learning Attitude tends to be followed by an increase in Academic Achievement.
2. **Learning Attitude (LEARNING ATTITUDE**) -> Learning Motivation (LEARNING MOTIVATION): With a path coefficient of 0.339, this shows a stronger positive relationship between Learning Attitude and Learning Motivation compared to Academic Achievement. This means that an increase in Learning Attitude will likely result in a more significant increase in Learning Motivation.
3. **Learning Motivation (LEARNING MOTIVATION)** -> Academic Achievement (ACADEMIC ACHIEVEMENT SCORE): The path coefficient -0.050 indicates a negative relationship, although very weak, between Learning Motivation and Academic Achievement.
4. **Learning Strategy (LEARNING STRATEGY)** -> Academic Achievement (ACADEMIC ACHIEVEMENT SCORE): Path coefficient 0.054, indicating a very weak positive relationship between Learning Strategy and Academic Achievement. This means that improvements in Learning Strategies have little effect on improvements in Academic Achievement.
5. **Learning Strategy (LEARNING STRATEGY)** -> Learning Motivation (LEARNING MOTIVATION): With a path coefficient of 0.627, this shows a very strong positive relationship between Learning Strategy and Learning Motivation. This means that improvements in Learning Strategies will likely greatly increase Learning Motivation.

Overall, these results show that Learning Strategy has a very strong influence on Learning Motivation, while Learning Attitude has a smaller but positive influence on Academic Achievement and Learning Motivation. On the other hand, Learning Motivation has a very small negative relationship with Academic Achievement.
From calculations with SmartPLS 4, the correlation for each variable is also obtained:

Table 14. Correlation between four latent variables

	ACADEMIC ACHIEVEMENT SCORE	LEARNING ATTITUDE	LEARNING MOTIVATION	LEARNING STRATEGY
ACADEMIC ACHIEVEMENT SCORE	1.000	0.190	0.093	0.075
LEARNING ATTITUDE	0.190	1.000	0.517	0.283
LEARNING MOTIVATION	0.093	0.517	1.000	0.723
LEARNING STRATEGY	0.075	0.283	0.723	1.000

This table displays the correlation between four latent variables: Academic Achievement, Learning Attitude, Learning Motivation, and Learning Strategy. Correlation ranges from -1 to 1, where values close to 1 indicate a strong positive correlation, values close to -1 indicate a strong negative correlation, and values close to 0 indicate no significant correlation. Here is the interpretation:

1. **Academic Achievement and Learning Attitude**: A correlation of 0.190 indicates a weak positive relationship between Academic Achievement and Learning Attitude. This means that an increase in one variable tends to be accompanied by a small increase in the other variable.
2. **Academic Achievement and Learning Motivation**: With a correlation of 0.093, the relationship between Academic Achievement and Learning Motivation is also positive but very weak, almost insignificant.
3. **Academic Achievement and Learning Strategies**: A correlation of 0.075 between Academic Achievement and Learning Strategies shows a very weak positive relationship, almost non-existent.
4. **Learning Attitude and Learning Motivation**: A correlation of 0.517 indicates a moderate positive relationship between Learning Attitude and Learning Motivation. This means that an increase in Learning Attitude tends to be accompanied by a more significant increase in Learning Motivation.
5. **Learning Attitudes and Learning Strategies:** Correlation 0.283 indicates a weak to moderate positive relationship between Learning Attitudes and Learning Strategies.
6. **Learning Motivation and Learning Strategy**: With a correlation of 0.723, the relationship between Learning Motivation and Learning Strategy is positive and strong. This means that an increase in one variable tends to be followed by a significant increase in another variable.

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Overall, the strongest relationship was seen between **Learning Motivation and Learning Strategy**, while the relationship between the other variables ranged from insignificant to moderate. This shows that in the context of this research, Learning Strategy is very closely related to Learning Motivation. Based on the analysis that has been carried out regarding the relationship between the variables Learning Attitude (X1), Learning Motivation (X2), and Learning Strategy (X3) on the Value of Promotion to Grade 9 (Y), several conclusions can be drawn:

1. **Classic Assumption Test:**
   - **Normality**: From the results of the One-Sample Kolmogorov-Smirnov test, it is known that the normality assumption is not met ($p = 0.009 < \alpha = 0.05$). This shows that the residual distribution is not normal.
   - **Multicollinearity**: The VIF values obtained for all variables < 10 indicate that there is no serious multicollinearity between the independent variables, so the regression model is quite stable.
   - **Heteroscedasticity**: Test using Spearman Correlation shows there is no heteroscedasticity in all independent variables, with a sig value. > 0.05, so the homoscedasticity assumption is met.

2. Analysis of the Influence of Variable Relationships (Multiple Regression):
   - **Influence of Learning Attitude**: Has a moderate positive relationship to Learning Motivation and a small influence on Academic Achievement.
   - **Effect of Learning Motivation**: Does not have a significant influence on Academic Achievement (even slightly negative) and is strongly correlated with Learning Strategy.
   - **Influence of Learning Strategy**: Has a very large influence on Learning Motivation but a small influence on Academic Achievement.

3. Correlation between Variables:
   - The strongest relationship is seen between Learning Motivation and Learning Strategies.
   - The correlation between Learning Attitude and Learning Motivation is moderate.
   - The relationship between other variables (especially between independent variables and Academic Achievement) tends to be weak.

4. Evaluation of Measurement Models in PLS-SEM:
   - **Reliability:** Cronbach's Alpha and Composite Reliability values (rho_a and rho_c) show that the model reliability for Learning Strategies is quite good, while for Attitudes and Learning Motivation it is below the desired threshold.
   - **Convergent Validity:** Average Variance Extracted (AVE) values for all constructs are well below 0.5, indicating low convergent validity.

CONCLUSION

1. From the results of the validity test of the 50 questions answered by respondents, there were nine questions that were invalid. Then, more instrument question items must be created to replace the invalid question items.
2. Reliability of the 50 research instrument items, all of them are reliable. So the instrument question items are suitable for use in research.
3. Overall, this research shows that Learning Strategies have a significant influence on Learning Motivation, but their influence on Academic Achievement is very limited. On the other hand, Learning Attitude has a positive effect on Learning Motivation and has a weak correlation with Academic Achievement. However, there are deficiencies in the reliability and validity aspects of the model that need to be considered in interpreting the results.

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