Relationship of the student's learning readiness and learning outcomes on technical drawing training

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Abstract

This research aims to determine the correlation between learning readiness and learning outcomes of students in the Technical Drawing training course at SMK Negeri 1 Bukittinggi. The research method used is a quantitative descriptive method. Due to the population being less than 100 people, this research uses a population sample as the research sample, namely 34 students. Data collection techniques used were documentation, questionnaires and posttest questions. The results of this research show that learning readiness has an average (mean) distribution of scores of 86.50% (external indicators), 78.41% (internal indicators). Meanwhile, the learning outcomes with this score distribution obtained an average (mean) of 84.12%. Hypothesis testing on Learning Readiness (X) with Learning Outcomes (Y) of class So there is a positive and significant relationship between learning readiness and the learning outcomes of class X students majoring in Mechanical Engineering at SMK Negeri 1 Bukittinggi. The existence of a significant relationship is shown by r count = 0.978 > r table = 0.339. The relationship between learning readiness and learning outcomes is 97.8% or very high criteria. So this means that there is a significant relationship between learning readiness and student learning outcomes at SMK Negeri 1 Bukittinggi.

Keywords: Learning Readiness, Learning Outcomes, Techkical Drawing

Introduction

Learning is an activity that must be carried out by everyone and is a right for every individual. Learning is the process of receiving knowledge delivered by teaching staff to students in a learning group. By learning, it is hoped that all individuals will gain knowledge and broad insights to improve their standard of living. In teaching and learning activities, students not only absorb the knowledge conveyed by the teacher but students can also involve themselves in learning activities so as to improve their learning outcomes. Then students are also expected to be able to experience a process of change both in terms of attitude and knowledge. Basically, the principles of learning include: attention and motivation, activeness, direct involvement / experience, readiness to learn, repetition, challenge, feedback or reinforcement, and individual differences. These principles must be fulfilled so that students get maximum learning results.

Learning readiness is basically a ready condition of students to respond to all questions from the teacher and respond to all learning materials. to be able to respond to questions from the teacher, the student must have knowledge that can be obtained from reading the lesson guidebook that has been obtained or from other sources that can support student learning readiness, so that it can provide good learning outcomes.

Engineering drawings are references used to assemble, design or change a machine with standard agreements in the form of lines,

symbols and writing applied in the form of drawings. Technical drawing learning is the initial learning for class X vocational students who are new to technical drawings. The teacher is the main source whose role is to convey information related to Engineering Drawing material, so the teacher must set a strategy in conveying information so that it is easily understood by students. According to (Sari & Ain, 2022) The achievement of a learning objective proves that students are successful in the learning process. The success of students in learning can be measured by the learning outcomes that students have achieved. Learning outcomes are a change in students for the better through the teaching and learning process in a certain time. Student learning outcomes are the abilities that students acquire through the process of learning activities.

Based on observations and observations made by researchers at SMK Negeri 1 Bukittinggi, researchers found several problems, especially in the learning process in the class X TM Technical Drawing training course: The lack of optimal student readiness in learning in class X TM SMK N 1 Bukittinggi, this can be seen by the presence of less active students in learning. then there are still many students who do not have drawing tools so they borrow from friends in class. Based on observations made, it was also found that the application of discipline is still very lacking so that learning concentration is disrupted such as the use of smartphones to start learning and lack of learning readiness, this is when the teacher explains that there are still many students who are busy on their own such as chatting with friends so that students still ask a lot of questions when learning takes place.

Based on the description above, the researcher wants to conduct a study to see how much correlation there is between learning readiness and students' Technical Drawing learning outcomes.

Methods

The method used in this research is quantitative descriptive method. Data collection techniques using documentation, questionnaires and postests. The population of this study were all students of class X mechanical engineering 1 SMK Negeri 1 Bukittinggi in technical drawing training subjects totalling 34 students. In connection with the population of less than 100 people, this study used a population sample or the total population was used as a research sample.

The data analysis technique was carried out with the help of SPSS 25.0 for windows software with the step of testing the analysis requirements with the normality test using the Kolmogorov Smirnov technique, while the linearity test used the help of the SPSS 25.0 for windows software program, and for hypothesis testing was carried out using the help of (Special Package For Social Sciences) 25.0 for windows or the person product moment formula.

Finding and discussion
Learning Readiness Data

Learning readiness data (X) was collected through a questionnaire consisting of 52 question items (outer and inner indicators) which had been tested for validity and reliability. Furthermore, the questionnaire was distributed to 34 respondents to be filled in. From the research data, it is known that the distribution of answer scores spreads from the lowest score of 62 (outside and inside indicator questionnaire) and the highest score of 105 (outside indicator questionnaire) and 93 (inside indicator questionnaire). Based on the distribution of these scores, the average (mean) is 86.50 (outside indicator), 78.41 (inside indicator), the middle score (median) 87.50 (outside indicator), 77.00 (inside indicator), the frequently occurring score (mode) 80 (outside indicator), 75 (inside indicator) and standard deviation (standard deviation) 10.293 (outside indicator), 8.128 (inside indicator). To get a clear picture of the frequency distribution of learning readiness can be seen in Table 1 below.

Table 1. Questionnaire Outer Indicator

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	62	1	2,9	2,9	2,9
	68	1	2,9	2,9	5,9
	69	1	2,9	2,9	8,8
	72	1	2,9	2,9	11,8
	75	1	2,9	2,9	14,7
	77	1	2,9	2,9	17,6
	79	1	2,9	2,9	20,6
	80	2	5,9	5,9	26,5
	81	2	5,9	5,9	32,4
	82	1	2,9	2,9	35,3
	83	1	2,9	2,9	38,2
	84	2	5,9	5,9	44,1
	86	1	2,9	2,9	47,1
	87	1	2,9	2,9	50,0
	88	1	2,9	2,9	52,9
	89	1	2,9	2,9	55,9
	90	1	2,9	2,9	58,8
	91	2	5,9	5,9	64,7
	92	2	5,9	5,9	70,6
	93	1	2,9	2,9	73,5
	94	2	5,9	5,9	79,4
	95	2	5,9	5,9	85,3
	98	1	2,9	2,9	88,2
	99	1	2,9	2,9	91,2
	101	1	2,9	2,9	94,1
	104	1	2,9	2,9	97,1
	105	1	2,9	2,9	100,0
	Total	34	100,0	100,0	

Table 2. Questionnaire Inner Indicator

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	62	1	2,9	2,9	2,9
	64	1	2,9	2,9	5,9
	66	1	2,9	2,9	8,8
	67	1	2,9	2,9	11,8
	71	1	2,9	2,9	14,7
	72	1	2,9	2,9	17,6
	73	1	2,9	2,9	20,6
	74	2	5,9	5,9	26,5
	75	6	17,6	17,6	44,1
	76	1	2,9	2,9	47,1
	77	3	8,8	8,8	55,9
	78	1	2,9	2,9	58,8
	79	1	2,9	2,9	61,8
	80	1	2,9	2,9	64,7
	81	1	2,9	2,9	67,6
	83	3	8,8	8,8	76,5
	84	1	2,9	2,9	79,4
	89	1	2,9	2,9	82,4
	90	2	5,9	5,9	88,2
	91	3	8,8	8,8	97,1
	93	1	2,9	2,9	100,0
	Total	34	100,0	100,0	

Based on table 1 and 2, it can be seen that learning readiness is above average. Furthermore, the histogram of the frequency distribution of learning readiness scores (X) can be seen in Figure 1 and 2 below.
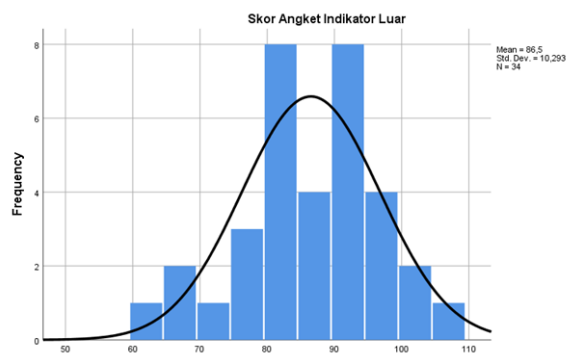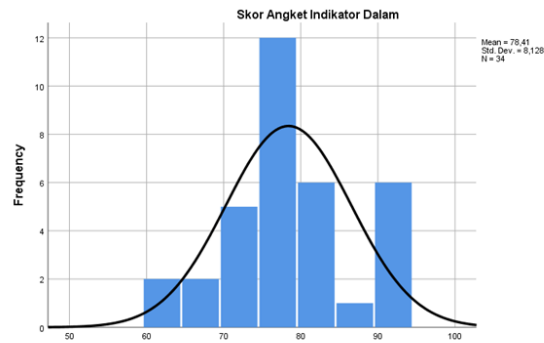

Figure 1. Outer indicator questionnaire score

Figure 2. indicator questionnaire scores inner

From Figure 1 and 2, it can be seen that most of the learning readiness scores are above the average score. So it can be concluded that learning readiness has got good results.

Learning Outcome Data

Learning Outcome data is taken from Posttest scores (multiple choice questions). From the data it is known that the distribution of student learning outcomes spreads from the lowest score of 80 and the highest score of 90. Based on the distribution of these scores, the average (mean) is 84.12, the median score is 85.00, the score that often appears (mode) is 88 and the standard deviation is 3.191. To get a clear picture of the score distribution of industrial work practice results can be seen in Table 3 as follows.

Table 3. Frequency distribution of learning outcome scores

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	80	10	29,4	29,4	29,4
	83	4	11,8	11,8	41,2
	85	9	26,5	26,5	67,6
	88	10	29,4	29,4	97,1
	90	1	2,9	2,9	100,0
	Total	34	100,0	100,0	

Based on table 3, it can be seen that student learning outcomes are above the KKTP (Criteria for Achievement of Learning Objectives) score for Technical Drawing training. So it can be concluded that student learning outcomes have obtained good results. Furthermore, the frequency distribution of student learning outcomes scores (Y) can be seen in Figure 3 below.
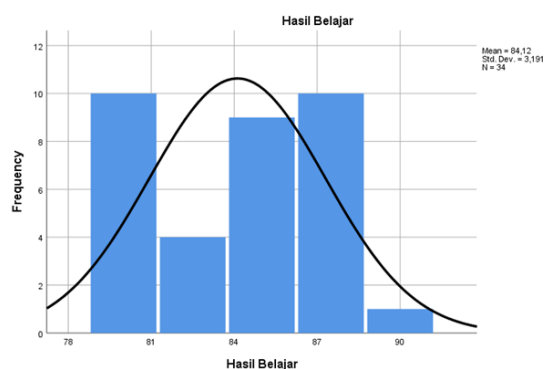

Figure 3. Histogram of learning outcome scores

Based on the frequency distribution, the score of learning outcomes at SMK Negeri 1 Bukittinggi Mechanical Engineering Department is categorised into 4 value categories. Value A (91.00-100.00), value category B (81.00-90.00), value category C (71.00-80.00) and value category D (00.00-70.00) then for the classification of variable scores the value of learning outcomes can be grouped in categories A, B, C and D for details can be seen in the table below.

Table 4. Frequency Distribution of Learning Outcome Score Classification

Learning Outcomes	Assessment Criteria	Number of Students	%Fo
A (91.00-10.00)	Very good	0	0
B (81.00-90.00)	Good	24	58,54
C (71.00-80.00)	Fair	10	41,46
D (00.00-70.00)	Needs Guidance	0	0
Total		34	100

From the score classification frequency distribution table above, it can be explained that out of 34 students, those who got grade A (91.00-100.00) had no excellent students. Grade B (81.00-90.00) is owned by 24 students with a percentage of 58.54%. Grade C (71.00-80.00) is owned by 10 students with a percentage of 41.46%. And grade D (00.00-70.00) there are no students who need guidance. From this statement it can be concluded that the score of learning outcomes is in the good category which can be seen from the high percentage of these categories, and can also be seen from the number of students who score in category (B) which amounts to 24 students out of 34 students in class X majoring in Mechanical Engineering SMK Negeri 1 Bukittinggi.

Discussion

Based on the results of the analysis which consists of external & internal indicators, external indicators include: 1) Learning Environment, 2) Social Support, 3) Motivation, while the inner indicators include: 1) Learning Skills, 2) Intelligence, 3) Mental & Physical Health. It was found that the outer and inner indicators have a significant relationship with student learning outcomes. Based on the results of the correlation analysis of all research data, it was found that there is a positive and significant relationship between learning readiness and student learning outcomes, where the correlation coefficient value is r = 0.978. This indicates a correlation that occurs in the learning readiness variable (X) with student learning outcomes (Y). Based on the t-test analysis above, it can be concluded that there is a meaningful and significant relationship between learning readiness (X) and student learning outcomes (Y) in class X SMK Negeri 1 Bukittinggi. Based on the analysis of the coefficient of determination obtained 0.978. This shows that learning readiness gives a positive effect on student learning outcomes in class X SMK Negeri 1 Bukittinggi by 97.8%.

Conclusion

Based on the results of the data analysis that has been described, it can be concluded that in this study there is a significant correlation between learning readiness and student learning outcomes in the Technical Drawing training subjects at SMK Negeri 1 Bukittinggi, as evidenced by the tests carried out rcount> rtable; 0.978> 0.339. The magnitude of the relationship between student learning readiness and student learning outcomes is 97.8%, which is included in the criteria for a very high relationship.

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Declaration
Author's Contribution

Amad Arif Fauzi as a data collector, lecturer Andre Kurniawan, S.T., M.T. as the Director of this Research Concept, lecturer Primawati, S.Si, M.Si as Data Analyst, lecturer Wanda Afnison, S.Pd., M.T as a lecturer evaluating research methods.

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Conflict interest

The author states that there was no conflict when conducting the research.

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