

Learning Innovation: System-Based Student Assessment Based on the Perspective of Learning Motivation and the Influence of System Use

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ABSTRAK

Proses penilaian yang dilakukan oleh dosen terhadap mahasiswa masih menggunakan tata cara pemanfaatan terdahulu seperti mengolah nilai dengan Microsoft Excel sehingga kurang efektif. Tujuan penelitian ini yaitu menganalisis penilaian mahasiswa berbasis sistem berdasarkan perspektif motivasi belajar dan pengaruh penggunaan sistem. Jenis penelitian ini yaitu penelitian kuantitatif. Jumlah populasi penelitian yaitu 100 mahasiswa. Sampel penelitian sejumlah 55 mahasiswa dengan menggunakan teknik random sampling. Metode pengumpulan data menggunakan kuesioner. Instrumen pengumpulan data berupa lembar kuesioner. Teknik yang digunakan untuk menganalisis data yaitu statistik inferensial dengan perhitungan korelasi Pearson digunakan untuk menganalisis hubungan antara kedua variabel tersebut. Hasil analisis menunjukkan bahwa terdapat korelasi positif yang kuat antara motivasi belajar dan efek penggunaan sistem penilaian. Nilai korelasi mendekati sempurna, menunjukkan bahwa semakin tinggi motivasi belajar mahasiswa, semakin besar juga efek positif penggunaan sistem penilaian terhadap hasil belajar. Hasil signifikan ini menegaskan pentingnya sistem penilaian yang transparan dalam meningkatkan motivasi belajar mahasiswa. Mahasiswa yang memahami dengan jelas bagaimana penilaian dilakukan dan bagaimana nilai-nilai diberikan cenderung lebih termotivasi untuk mencapai prestasi akademik yang lebih tinggi. Kontribusi penelitian ini yaitu inovasi pengembangan dan peningkatan sistem penilaian berbasis teknologi menjadi sangat relevan dalam mendukung pencapaian hasil belajar yang lebih baik.

ABSTRACT

The assessment process carried out by lecturers for students still uses previous utilization procedures, such as processing grades with Microsoft Excel, so it is less effective. This research aims to analyze system-based student assessments based on the perspective of learning motivation and the influence of system use. This type of research is quantitative research. The total research population is 100 students. The research sample was 55 students using random sampling techniques. The data collection method uses a questionnaire. The data collection instrument is a questionnaire sheet. The technique used to analyze the data is inferential statistics with Pearson correlation calculations used to analyze the relationship between the two variables. The analysis results show a strong positive correlation between learning motivation and the effect of using the assessment system. The correlation value is close to perfect, indicating that the higher the student's learning motivation, the greater the positive effect of using the assessment system on learning outcomes. These significant results emphasize the importance of a transparent assessment system in increasing student learning motivation. Students who clearly understand how assessments are carried out and how grades are assigned tend to be more motivated to achieve higher academic achievements. The contribution of this research is that innovation in the development and improvement of technology-based assessment systems is very relevant in supporting the achievement of better learning outcomes.

1. INTRODUCTION

Education is the main foundation in community development and individual development. One type of education that can shape human resources and form a high-quality workforce in a country is higher education (Mahnun, 2018; Risdiyanto & Kurniyati, 2015). Higher education is the main pillar in a person's development. Higher education can help create skilled, educated and competitive individuals, so they can contribute to global progress and prosperity (Mustofa et al., 2019; Raharja et al., 2019). The college provides a variety of professional training and academic programs after completing secondary education. Colleges can be universities, institutes, high schools, or similar institutions. Universities must be able to provide an environment that causes students to receive high quality education (Handayani & Supriati, 2018; Putera & Shofiah, 2021; Saraswati et al., 2021). The college offers academic programs taught by skilled and experienced teaching staff. This will help students to develop skills, understanding and in-depth knowledge in the field of study (Rupilele & Palilu, 2019; Supriati, 2018). Higher education also has an important role in developing the skills needed for career success. The skills that will be obtained are creative, analytical, critical, communication and collaboration thinking skills (Arianto et al., 2020; Masriah et al., 2018; Wahab, 2016). These skills are very relevant in everyday life. It is concluded that higher education helps students prepare themselves to enter the world of work. This is why learning activities must be well designed by following advances in science and technology.

Currently, information technology has changed the educational landscape by providing a variety of tools and systems that can improve the learning process (Arifin & Sukmawidjaya, 2020; NLPJ Dewi & Sujana, 2021; Nshimbi et al., 2020; Sahudra et al., 2021; Shahin & Arfaj, 2022). Amid this transformation, systems-based student assessment has become an important topic in efforts to understand how technology use and students' perceived learning motivation can impact educational outcomes. Assessment is very important including school students and college students (Suwena, 2016; Wildan, 2017; P. Wulandari et al., 2018). Assessment functions as a measure of learning ability during the learning process. Assessments provide valuable information, measure progress, and demonstrate student achievement (Ibarra-Sáiz et al., 2020; Río & Rodríguez, 2022; Setiaji & Dinata, 2020). Assessments serve as a measure of academic progress and provide direction for better learning strategies. Assessment results make people think, help them improve, and tell them how to improve students' abilities (Ajjawi et al., 2020; Floryantini et al., 2019; Mudanta et al., 2020). To assess the total cumulative grade point average, also known as GPA, a student's ability to complete and submit assignments and quizzes is one of the most important assessment factors.

In traditional education systems, student performance assessments are usually carried out manually by teachers or academic staff using certain rubrics or criteria. A manual approach, on the other hand, can help in making decisions about students' academic performance and their level of learning progress. However, this approach is considered outdated and impractical (Alruwais et al., 2018; Astalini et al., 2019). Previous research findings also reveal that there are still many teachers who do not pay attention to good research instruments, which results in inaccurate measurements (Aji & Winarno, 2016; Astiwi et al., 2020; Wulandari & Radia, 2021). Other findings also confirm that inaccurate assessments have an impact on the invalidity of the measurement results you want to know (Lestari & Harjono, 2021; Utami & Wardani, 2020). The results of observations and interviews at Padang State University found that the assessment process carried out by lecturers on students still used previous utilization procedures such as processing grades with Microsoft Excel and then using e-learning as a medium for collecting assignments and giving grades to these assignments. However, at the end of the semester, the lecturer still recalculates the grades of students' assignments and quizzes one by one using Microsoft Excel. Then it is input into the academic portal to find out the student's final grade. Courses that have different grade percentage components cause lecturers to experience difficulty in being able to calculate exactly how and where the student's grades are lacking. Apart from that, the results of the interview show that the weakness of the current assessment system is that it is not clear to students about their weekly or monthly achievements regarding the assignments and quizzes given to them, and students tend to only know the assessment results at the end of the semester. Therefore, it is considered important to use expert systems to assess student achievement.

Student assessment is an important process in assessing student understanding and learning progress. On the other hand, learning motivation is a key factor in determining the extent to which students are involved in learning (Jamaludin et al., 2020; Pelikan et al., 2021; Sugiyanto et al., 2019). When information technology is used as a learning support tool, it is necessary to understand how the effects of using the system can influence student learning motivation (Hediansah & Surjono, 2019; Wijayanti & Widodo, 2021). Academic assessment and vocational education are closely related in determining students' competencies and their readiness to face the challenges of the world of work. In vocational

education, assessment places more emphasis on assessing practical skills related to the field of work to be taken (Ediyanto, 2016; Juliantari et al., 2017). In vocational education, the assessment process usually centers on real tasks, additionally, academic assessments in vocational education are unique in that they are conducted in collaboration with industry and stakeholders to ensure that they meet current industry standards and requirements. Academic assessment in education is essential to prepare students to work in a competitive world of work by teaching them practical skills and abilities appropriate to job demands (Rattu, 2017; Sinaga, 2020).

Previous research findings also reveal that the assessment system is very important for teachers to pay attention to (Nurhaeni et al., 2020; Perkasa et al., 2015). Other findings also confirm that an assessment system is needed that can display the achievement of learning activities so that teachers will know the achievement of learning objectives (Khatami, et al., 2022; Utomo, 2017). The web-based system really helps students, lecturers and related parties such as parents to carry out double checking anytime and anywhere with an internet connection. Based on this, Novelti's research provides valuable insight into how technology-based assessment systems can influence student learning motivation. This information can be used by educational institutions to design more effective learning strategies and combine technology with efforts to increase student learning motivation. This research can also contribute to further development in the fields of education and information technology. The aim of this research is to analyze system-based student assessment based on the perspective of learning motivation and the influence of system use.

2. METHOD

This type of research is quantitative research. This research requires a careful and structured methodological approach using random sampling as a form of data collection and then testing correlations using the Pearson formula to take perceptions based on quantitative data that has been tested statistically, with the steps as follows (Herayono & Simatupang, 2022). The first step is to identify the student population who will be the research subjects. This population can include various study programs and levels, which will provide diversity in perceptions of learning motivation and use of the system, the questions and samples taken are students who are currently studying. The total research population is 100 students. After the population is identified, we will apply the random sampling method to select a representative sample from the population. The use of random sampling will ensure that each student has an equal opportunity to be part of the sample, thereby reducing bias in the research. The research sample was 55 students. The data collection method uses a questionnaire. Data collection was taken from student samples using research instruments that had been designed with the indicators presented in Table 1.

Table 1. The Questionnaire Indicators

Variable	Indicator	Question Items	Number of Items
Variable X (Learning Motivation)	Active Participation	10 Items	60 Items
	Desire for Achievement	20 Items	
	Perseverance	15 Items	
	Learning objectives	15 Items	
Variable Y (Effects of System Use)	Increasing Student Achievement	10 Items	35 Items
	Student Engagement	10 Items	
	Transparency	15 Items	

(Masriah et al., 2018)

Instruments based on these indicators will include questionnaires designed to measure perceptions of learning motivation and the effect of system use on each student. The questions in the questionnaire will be carefully designed to cover various aspects of learning motivation, such as intrinsic and extrinsic motivation, as well as the use of assessment systems in the learning process. The technique used to analyze data is inferential statistics. After the data is collected, the next step is to apply the Pearson correlation method. This method will allow us to analyze the data and measure the extent to which there is a linear relationship between learning motivation and system use. The results of the analysis will produce a correlation coefficient, which will indicate the strength and direction of the relationship between variable X (Learning Motivation) and variable Y (Effect of System Use). This research has the potential to provide valuable insight into how student learning motivation relates to system use (Kalkan et al., 2020). The basis for decision making used is presented in Table 2.

Table 2. The Base Pearson Correlation and Kolmogorov Smirnov

Basis for Decision Making Pearson Correlation	
Significance Value	
<0.05	Correlate
>0.05	Not Correlated
Relationship Degree Guidelines	
Pearson Correlation value 0.00 to 0.20	No correlation.
Pearson Correlation value 0.21 to 0.40	Weak correlation.
Pearson Correlation value 0.41 to 0.60	Moderate correlation.
Pearson Correlation value 0.61 to 0.80	Strong correlation.
Pearson Correlation value 0.81 to 1.00	Perfect correlation.
Kolmogorov Smirnov's Basis for Decision Making	
Significance Value	
<0.05	Normally distributed
>0.05	Not Normally Distributed

3. RESULT AND DISCUSSION

Result

The respondents obtained after the questionnaire were distributed using a random sampling technique, namely by distributing it to colleagues, junior/senior writers who were then instructed to distribute it again to other respondents so that they got 100 respondents with qualifications and were re-filtered with the condition that they were students who were currently undertaking courses or had studied with different systematic learning assessments, and obtained data that had been re-screened with 55 respondents who met the requirements. After going through the process of collecting data and calculating based on the total answers from the questionnaires or instruments that have been analyzed, we then carry out statistical testing using SPSS 23 software. This testing is carried out using the Pearson correlation calculation method.

Based on the results of data processing that has been filtered and calculated according to the total answers to the questionnaire or research instrument, the next step is to test the normality of the data. This test aims to assess the extent to which the data that has been collected has a distribution that is close to a normal distribution. The results of this normality test can provide an idea of whether the data can be used in statistical analysis that requires the assumption of a normal distribution, such as parametric tests.

Normality testing was carried out using the Kolmogorov-Smirnov test method. The results of this normality test will influence the selection of appropriate statistical analysis methods for the data. If the data is proven to have a normal distribution, then parametric statistical analysis can be used. However, if the data do not follow a normal distribution, non-parametric statistical analysis may be more appropriate. Thus, this normality testing step is an important stage in ensuring the validity of data analysis in this research. Normality test results are presented in [Table 3](#).

Table 3. The Normality Test Results (Kolmogorov-Smirnov Test)

Kolmogorov-Smirnov Test		Unstandardized Residual
N		55
Normal Parameters, b	Mean	0.0000000
	Std. Deviation	4.85595632
Most Extreme Differences	Absolute	0.082
	Positive	0.082
	Negative	-0.61
Statistical Tests		0.082
Asym. Sig (2-tailed)		0.200c,d

The results of data analysis obtained a significance value of 0.200. To evaluate the results of this test, we refer to the rules that apply to the Smirnov method. According to these rules, if the significance value obtained exceeds 0.05, then the data tested can be considered normally distributed. In this context, because the significance value found at 0.200 is higher than 0.05, it can be concluded that the data that has been tested tends to have a distribution that is close to normal. This indicates that the data used in this

study meet the normal distribution assumptions required for certain parametric statistical analyses. Thus, we can proceed with advanced statistical analysis with confidence that the data used has adequate distribution characteristics. Using data that approaches a normal distribution in statistical analysis is very important because the resulting analysis results will be more valid and can be interpreted more precisely. Thus, this step provides a strong basis for continuing data analysis with appropriate statistical methods to achieve research objectives.

The next statistical analysis is the result of the analysis which shows the results of statistical tests that describe the relationship between learning motivation variables and the effects of using the assessment system. These results provide further understanding of the extent to which these two variables are correlated with each other. Thus, the data obtained from the questionnaire analysis has been analyzed statistically to examine the relationship between learning motivation and the effects of using the assessment system. The results of this statistical test are an important step in evaluating and interpreting the data that has been collected in this research. Pearson correlation analysis provides an overview of the strength and direction of the relationship between these two variables. Furthermore, the findings from this analysis will help in drawing deeper conclusions and research implications. The results of the Pearson Correlation Test are presented in [Table 4](#).

Table 4. The Pearson Correlation Test Results

Correlations		Learning Motivation	Effect of Use
Learning Motivation	Person Correlation	1	0.828**
	Sig (2-tailed)		0,000
	N	55	55
Effect of Use	Person Correlation	0.828**	1
	Sig (2-tailed)	0,000	
	N	55	55

Based on the calculation results presented in [Table 4](#), statistical analysis shows that the significance result is 0.00. According to the rules established in the Pearson correlation test, if the significance value (p-value) is less than 0.05, it can be concluded that the two variables are correlated. In this context, significance values are much lower than 0.05 with the figure 0.00 indicating a very high level of significance. Therefore, based on the results of this analysis, it can be stated strongly that the two variables, namely learning motivation and the effect of using the assessment system, are significantly correlated.

Next, analysis using Pearson correlation, obtained a correlation value of 0.828 with a detailed positive value. According to the guidelines commonly used in the Pearson method, if the Pearson correlation value is above 0.8, this indicates that the relationship between the two variables can be categorized as a very strong correlation or perfect correlation. Thus, the results of the analysis show that there is a very strong relationship between the learning motivation variable and the effect variable of using the assessment system.

Discussion

The results of data analysis show that there is a very strong positive correlation between the learning motivation variable and the effect variable of using the assessment system, with a correlation value reaching 0.8, indicating a very close and perfect relationship between these two variables. This very strong and positive correlation can be interpreted as meaning that changes in the learning motivation variable are directly and strongly related to changes in the effect variable of using the assessment system. These findings illustrate that the higher the student's learning motivation, the greater the positive effect produced by the use of the assessment system in the learning process. This perception gives rise to a very important conclusion, namely that the assessment system has a very urgent role in increasing student learning motivation. In this context, the strong positive relationship between these two variables shows that the better the assessment system implemented, the higher the student's learning motivation ([Dewi, 2017](#); [Wahyudin et al., 2022](#)).

Learning motivation is an important factor in determining the extent to which students will actively participate in the learning process ([Cain, 2020](#); [Hidajat et al., 2020](#); [Thaariq et al., 2019](#)). Motivation can influence their attitudes towards the level of persistence in carrying out tasks, and the intensity of effort made to understand and master learning. Students who have high motivation tend to be more involved, focused, and enthusiastic about learning ([Amdany et al., 2018](#); [Gopalan et al., 2017](#); [Pelikan et al., 2021](#); [Wallace & Leong, 2020](#)). The assessment system is an important tool in providing feedback regarding students' understanding and performance in learning ([Amalia & Brata, 2018](#); [Nurhaeni et al.,](#)

2020). The use of a good scoring system can have several positive effects. Assessment systems can help in measuring student learning progress (Ediyanto, 2016; Juliantari et al., 2017). When students feel that the assessment is carried out objectively and fairly it can give students a clear picture of the extent to which they have mastered the subject matter. This can be additional motivation to continue learning and improve understanding.

The developed assessment system provides constructive feedback regarding student strengths and weaknesses. This will help students to identify areas they need to improve and design more effective learning strategies (Alruwais et al., 2018; Amalia & Brata, 2018; Kalleney, 2020; Nurhaeni et al., 2020). If students feel that their efforts are recognized and assessed well, students tend to be more persistent in facing learning challenges. This gives students the encouragement to continue trying and overcome difficulties. Previous research findings also reveal that assessments help in assessing student achievement, which is important for the academic process and student development (Darmaji et al., 2019; Liao et al., 2018). This can provide encouragement to achieve high achievements and be a spur for those who want to improve their achievements (Alruwais et al., 2018; Fety & Meini, 2020). The scoring system can also motivate healthy competition. When students realize that assessments will compare their performance to their classmates, it can encourage them to work harder.

This has important implications in the context of this research. The significant correlation between learning motivation and assessment system use indicates that when students' learning motivation increases, the positive effect on assessment system use also increases simultaneously. This emphasizes the importance of a good assessment system in influencing and maximizing student learning motivation (Darmaji et al., 2019; Liao et al., 2018). Thus, these findings provide strong confirmation that the two are interrelated in the context of this research. This significant correlation provides a strong basis for further developments in assessment systems that may further increase student learning motivation in the future (Sahulatta & Suparman, 2023). With advances in technology, there is potential to utilize tools such as artificial intelligence (AI), expert systems (Expert Systems), and decision support systems (Decision Support Systems) to increase transparency and effectiveness in the assessment process. This will help create a better learning environment and encourage students to continue to be enthusiastic in pursuing their academic achievements (Alnassar et al., 2021; Effendi & Nurcahyo, 2020; Kebritchi et al., 2017).

Thus, this research not only provides further understanding of the relationship between learning motivation and the effects of using assessment systems on students, but also underlines the urgency of developing assessment systems that are more capable, transparent and digitalized to support the achievement of better learning outcomes in the future. These findings provide a strong foundation for the development of better assessment systems in the future, with a focus on increasing student learning motivation. In the ever-changing world of education, understanding these positive relationships will be the basis for improving the quality of learning and achieving better outcomes for students. Therefore, developing an assessment system in education is very urgent. Assessment systems that are better, transparent, and support student engagement can maximize student learning motivation, produce better learning outcomes, and create a more effective educational environment (Rizky & Puspita, 2022).

4. CONCLUSION

The results of data analysis show that students' perceptions of learning motivation and the effects of using assessment systems have a very strong relationship and interdependence. In this context, the transparency demonstrated by the assessment system plays an important role in spurring student learning motivation. Students who have a clear understanding of how assessments are carried out, how grades are given, and how their performance is evaluated, tend to be more motivated to achieve maximum learning outcomes.

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