

Evaluation Instrument of Learning Assessment Satisfaction Using Importance Performance Analysis

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Abstract

Purpose: Prevention of the spread of Corona Virus Disease-19 (COVID-19) is changing public services and learning processes online. Learning activities are carried out online with various existing platforms. This is important to study to get an idea of whether the ongoing process meets overall student satisfaction. This study aims to evaluate the quality of learning assessment on student satisfaction using the Importance Performance Analysis (IPA) method.

Design/Methodology/Approach: This type of research is qualitative descriptive research. The data collection method uses a non-test method with a questionnaire instrument. The subjects of this study consisted of 2 validation tests and 174 students. Data analysis techniques using quantitative and qualitative analysis.

Findings: Based on the results of data processing on satisfaction evaluations of learning assessments that have been carried out using IPA, the level of conformity between expectations and reality is at 96%.

Conclusion: Of the 25 attributes used to measure the suitability of the level of satisfaction, there are 6 attributes that are in quadrant I of the Cartesian diagram. This means that, there are 6 attributes that are the main priority for improvement. Meanwhile, there are 4 attributes that are in quadrant IV which means "excessive". Thus, the level of satisfaction is higher than the existing expectations.

Keywords: *Importance Performance Analysis, Online, Learning Evaluation.*

1. INTRODUCTION

The scope of assessment is very broad compared to evaluation. The act of a measurement that is quantitative and an assessment that is qualitative in nature is an integral part that cannot be separated from the assessment [1]–[3]. Assessment functions as a selective, diagnostic, placement, and measure of success [4]–[8]. Implementation of the assessment is used to improve the learning

process. Conversely, without carrying out an assessment the teacher will not be able to find out the extent of students' learning achievement abilities [9]–[11]. Activities in the learning process educators can carry out assessments of students in three stages, namely before, during, and after the material is presented [12]–[15]. The main purpose of conducting assessments in the learning process is to obtain accurate information about the level of achievement of

the learning process. Based on this information, follow-up can be carried out which is an evaluation function, which can be in the form of appropriate placement, giving feedback, diagnosing learning difficulties, and determining the level of promotion or graduation of education at a certain level of education. After the assessment is carried out, what is no less important is related to the satisfaction of the results of the assessment itself for students.

However, the conditions of the Coronavirus Disease-19 (COVID-19) pandemic have significantly changed the order of all people's lives [16]–[20]. Changes in the order of people's lives are not only in terms of social life, but also include fundamental life, namely patterns and learning processes in the field of formal education [21]–[23]. The COVID-19 pandemic has changed learning patterns from Early Childhood Education (PAUD) to Higher Education (PT) [24]–[26]. In addition, during the pandemic there were also major changes in aspects of people's lives. For example, changing teaching and learning patterns at schools or universities from face-to-face to remote [27], [28]. Ganesha University of Education (Undiksha) as one of the state universities in Indonesia, is very adaptive to existing changes. This was proven when the COVID-19 pandemic was sweeping the world including Indonesia massively, the Chancellor of Undiksha issued instructions to prevent its spread. The instruction regulates the implementation of learning activities, academic services, and public services to prevent the spread of Corona Virus Disease-19 (COVID-19) at Ganesha University of Education.

Learning activities become one of the major changes from the instruction. Learning activities must be carried out online with various existing platforms [29]–[31]. This

activity was carried out suddenly, so of course there are still many things that must be corrected and standardized [32], [33]. Even though online learning is actually not something new for lecturers, because this process is fully online, there are still variations or imbalances between one lecturer and another, which have a direct impact on students. The variation and inequality referred to can be in the form of platforms used, content delivery models, number of assignments, number of meetings, including the model and type of evaluation used by each lecturer [26], [34], [35]. The models and types of evaluation used by teachers are of serious concern in online learning [36], [37]. This becomes important and determines the success of the learning process. The act of a measurement that is quantitative and an assessment that is qualitative in nature is an integral part that cannot be separated from the assessment [7], [8], [38]. Important assessments are carried out to reveal or obtain information related to the overall competency achievement of students. Thus, the target assessment of students concerns all components of the process and results of students in learning activities.

Specifically at the Engineering and Vocational Faculty, during the COVID-19 pandemic in the odd semester of the 2020-2021 academic year, lecturers have conducted learning and assessments for students online. The next question is whether the model and type of assessment carried out by the lecturer has met student expectations or satisfaction. This question arises because the conditions and learning processes of lecturers and students are very diverse, both in terms of the devices used and the media or platform chosen by the lecturers. For this reason, it is important to study this to get an idea of whether the ongoing process meets overall student satisfaction. In

this case, student/user or customer satisfaction can be defined as feelings of pleasure or disappointment that arise after comparing the performance (result) of a product that is thought of against the expected performance (or results) [39], [40]. Student satisfaction can be measured by achieving student expectations through experience in process involvement and learning assessment [41], [42]. Student satisfaction can be determined by perceptions of performance or service performance in meeting student expectations [43], [44]. The performance referred to here is how the results of the assessment given by the lecturer have met student expectations (Edriati et al., 2015; Pratiwi et al., 2017). For this reason, to measure satisfaction with the results of assessment performance by lecturers, it can be done by measuring the gap between performance (assessment results) and expectations/level of interest of students. This measurement is based on the attributes of the applicable assessment standards in achieving student competency.

One of the methods used to measure this gap is Importance Performance Analysis (IPA). IPA is a method used to determine satisfaction by measuring the level of importance and level of implementation [47]–[51]. The level of importance is how important the service attribute is in this case the evaluation of learning, while the level of implementation is the performance carried out by lecturers in assessing student learning [1], [52]. IPA is very reliable to use as an evaluation tool for practitioners and academics to find out which attributes are functioning properly and which attributes need to be improved, which require immediate action [53]. Several findings suggest the success of this type of assessment in learning. An example is applying peer review to programming assignments. The benefits obtained by applying peer-review are that students can learn from others and get

feedback, and teachers are helped by assessments that have been carried out by other students [52], [54]. Matter. Peer-reviews with reviews submitted from other participants are very useful [54]. What was most helpful were textual responses with reasoned comments.

The impact of peer assessment and feedback strategies on computer programming subjects (Efsa, 2016). The findings in this study indicate that students are satisfied with peer assessment and feedback strategies in learning computer programming. In addition, their performance is also better when compared to using traditional teaching methods [56]. So far, student learning assessments have been carried out and integrated with the online learning process. However, whether students are satisfied or not with the assessment that has been given in accordance with the standard assessment attributes, it is necessary to conduct a study to reveal it. So, this study aims to analyze the evaluation of the quality of learning assessment on student satisfaction using the Importance Performance Analysis (IPA) method.

2. METHOD

This research is qualitative descriptive research to reveal the gap between performance and the interests (expectations) of the assessments that have been carried out by lecturers. This study used a survey method by giving questionnaires to respondents. Surveys are used to collect data with the aim of uncovering facts or feelings of respondents based on existing symptoms. This method is oriented towards the stimulus given by the respondent to determine the location of the continuum, then the number given becomes the score for each given item. To be able to calculate the gap between performance and expectations related to satisfaction in the assessment, an instrument is needed for its measurement. The instrument used to measure

this gap is a non-test instrument in the form of a questionnaire from the satisfaction variable in the assessment.

The instrument goes through five stages that must be carried out, namely: compiling conceptual definitions, compiling operational definitions, compiling instrument grids, compiling instrument items, and conducting validity tests and reliability calculations. The validation process was carried out in two stages, namely expert validation with the aim of examining the determination of the instrument items in terms of three aspects including content, construction and language based on expert judgment, and empirical validation carried out with the aim of testing the accuracy of the items and the reliability of the instrument based on trials on sample from the study population group.

Question items or statements on the instrument will refer to the conceptual and operational definitions of the satisfaction variable. Based on satisfaction indicators, questions or statements are adjusted to the lecturer's assessment process carried out during online lectures. Based on the attributes of the satisfaction variable, dominant attributes will be obtained according to the quadrants in the satisfaction evaluation model using Importance Performance Analysis (IPA).

Furthermore, the results of the analysis using IPA will show whether the assessment attributes are in Quadrant I (which is the quadrant that has a very low level of satisfaction so that it is a top priority for improvement), Quadrant II (which is the quadrant expected by students and the attributes is in accordance with what is felt by students), Quadrant III (which is a low priority quadrant which means that this quadrant contains attributes that are considered less

important by students and in fact their performance is not too special), or Quadrant IV (a quadrant that has a high level of low importance, but has a high level of implementation performance).

Methods of data collection using non-test method with the instrument in the form of a questionnaire. Data analysis uses content validity which is used in expert assessment, using the Gregory formula with a mechanism. The judges test here uses 2 (two) experts in the field of evaluation. Questionnaires were distributed to all active students in the Informatics Engineering Department in the 2021/2022 odd semester, a total of 174 people.

3. RESULTS AND DISCUSSION

There are five stages in the development of this satisfaction instrument, namely compiling conceptual definitions, compiling operational definitions, compiling instrument grids, compiling instrument items, and conducting validity tests and reliability calculations. The first stage of the conceptual definition, student satisfaction is a positive attitude of students towards the teaching and learning process carried out by the teacher because of the compatibility between what is expected and needed with the reality it receives [57]. The operational definition of student satisfaction is a score obtained from a positive attitude of students towards the teaching and learning process services carried out by the teacher because of the conformity between what is expected and needed with the reality it receives, which can be measured from the indicators of reliability, tangibles, responsiveness, certainty and empathy. Third, based on the operational definition, an instrument grid is then made. The instrument grid of satisfaction variable is presented in Table 1.

Table 1. Instrument grid.

Dimension	Indicators
Reliability	<ol style="list-style-type: none"> 1. The lecturer uses standard and clear instruments in the assessment 2. The instrument used reflects the material to be measured 3. The assessment process has utilized existing technological advances 4. Information on the implementation of the assessment is clear 5. The assessment is carried out in a professional manner
Instrumental Being	<ol style="list-style-type: none"> 1. There are instruments used in the assessment 2. Existing instruments use a clear scale 3. Time needed in rational assessment 4. The content or material assessed is clear and real 5. The instruments used in the assessment are appropriate
Responsiveness	<ol style="list-style-type: none"> 1. A forum for discussion regarding the assessment grid is provided 2. There was a review done for the previous materials 3. Provided time and space for issues on certain topics 4. There is review information and assessment results 5. There is facilitation for appeals or objections to the results of the assessment
Certainty	<ol style="list-style-type: none"> 1. Types of assessment according to the characteristics of the course 2. The assessment material is in accordance with the demands of the course competence 3. Assessment grids are presented and discussed openly 4. The rubric used in the assessment exists and is clear 5. The assessment rubric is openly informed
Empathy	<ol style="list-style-type: none"> 1. There is attention from lecturers to students in achieving competence 2. Students are given the opportunity to assess or provide input to lecturers 3. There is student confidence in lecturers in learning and assessment 4. Lecturers treat students fairly 5. Lecturers provide remedial for students who have not reached the minimum criteria

The judges (expert) test is carried out to test the instruments that have been developed before the empirical test is carried out. Expert testing was carried out to see the suitability of the contents of the instrument with the indicators, construction and language of the instrument for each variable. The judges test here uses 2 (two) experts in the field of evaluation. Based on the results of the expert's assessment of the instrument, it is then corrected according to the input given regarding the suitability of the items with the indicators, the suitability of the indicators with the material, and the suitability of language use and the suitability of the items

with the respondents. Content validity used in expert assessment, using the Gregory formula.

Based on the content validation test, the results of the assessment of the two experts on the satisfaction instrument obtained a content validity coefficient of 0.92. Because the CV value is more than 0.9, the instrument can be said to be valid and can be continued for reliability testing. The instrument reliability test can be carried out using the ANOVA Hoyt formula, based on the scores given by two experts. By using the ANOVA Hoyt formula in calculating the reliability of inter-rater responses regarding test items or

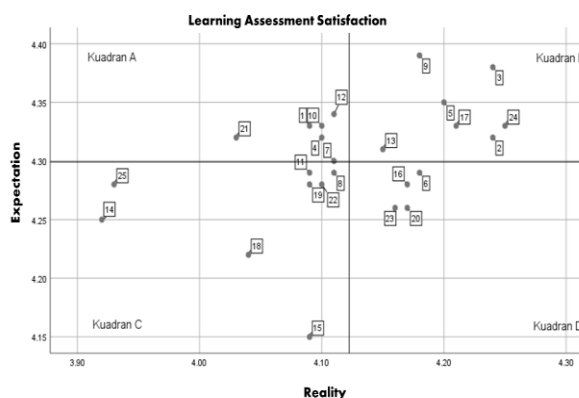
questionnaires, the scores of the assessment results from assessors I and II are included in the formula. Test criteria: if the coefficient value is $r_{11} > 0.70$, it means that the reliability of the response between assessors is classified as stable, which means that the test or questionnaire that has been prepared can actually be used further. Calculation of instrument reliability using the ANOVA Hoyt formula.

After testing the reliability of responses between assessors using Hoyt's formula, it turns out that r_{11} (r-count) is 0.816. Because the r-count is greater than 0.70, the response between assessors for this instrument is reliable, which means that this questionnaire can be used further. Student satisfaction data related to learning assessment using a satisfaction questionnaire. Questionnaires were distributed to students via the Google form.

The questionnaire was distributed to all active students in the Informatics Engineering Department in the 2021/2022 odd semester, a total of 174 people who have filled out the satisfaction questionnaire. The results of the research were from respondents who had filled in until the deadline for filling in data via the Google form that had been distributed. The result of the conformity level of expectations and reality is 0.96 (96%). The results of the calculation of the degree of conformity between expectations and reality from the evaluation of the quality of student learning assessments are obtained from the sum of the response scores for each item filled by respondents between reality and expectations. The instrument items consist of 25 items from 5 satisfaction indicators, namely reliability, tangibles, responsiveness, certainty and empathy. The next step is to calculate the average of each instrument item from each answer given by the respondent.

This average calculation needs to be done to make a Cartesian diagram in order to determine the quadrants of each existing attribute. The results of the calculation of the average of each item from the respondents' answers are the average range of reality (4.12) and the average range of expectations, namely 4.30. The mean of reality will be the X-axis on a Cartesian diagram. Meanwhile, the average expectation will be the Y-axis on the Cartesian diagram. In the Cartesian diagram, all instrument items on the average reality and expectation scores will be included in each existing quadrant. The quadrants in the Cartesian diagram are divided into 4 parts, namely parts A, B, C and part D. Based on the results of data analysis, the Cartesian diagram that has been made is as shown in Figure 1.

Figure 1. Cartesian diagram of learning assessment satisfaction.



Based on the results of the study, 6 items were in quadrant A, 7 items were in quadrant B, 8 items were in quadrant C, and 4 items were in quadrant D. Based on IPA theory, the quadrants in the Cartesian diagram are divided into 4 quadrants, namely, quadrants I (high priority), quadrant II (maintain achievement), quadrant III (low priority), and quadrant IV (excessive).

There are 6 attributes in Quadrant I, namely High Expectations and Low Reality. Included

in this attribute are lecturers using standard and clear instruments in the assessment (Item 1/Reliability). Information on the implementation of the assessment is clear (Point 4/Reliability). Existing instruments use a clear scale (Item 7/ Tangibility). The instruments used in the assessment are appropriate (Item 10/Evidence). There was a review done for the previous materials (Point 12, Responsiveness). The attention of lecturers to students in achieving competence (Item 21/Empathy).

In Quadrant II, namely High Expectations and High Reality, there are 7 attributes. Included in this attribute are the instruments used that reflect the material to be measured (Item 2/Reliability). The assessment process has utilized existing technological advances (Point 3/Reliability). The assessment is carried out in a professional manner (Point 5/Reliability). The content or material assessed is clear and real (Point 9/ Tangibility). Provided time and space for issues on certain topics (Point 13/Responsiveness). The assessment material is in accordance with the competency demands of the course (Item 17/Certainty). Lecturers treat students fairly (Item 24/Empathy).

In Quadrant III, namely Low Expectations and Low Reality, there are 8 attributes. Included in this attribute is the time needed in a rational assessment (Item 8/Ability). A forum for discussion regarding the assessment grid (Item 11/Responsiveness) is provided. There is review information and assessment results (Point 14/Responsiveness). There is facilitation for appeals or objections to the results of the assessment (Point 15/Responsiveness). Assessment grids are presented and discussed openly (Item 18/Certainty). The rubric used in the assessment exists and is clear (Item 19/Confirmation). Students are given the opportunity to assess or provide input to

lecturers (Item 22/Empathy). Lecturers provide remedial for students who have not reached the minimum criteria (Item 25/Empathy).

In Quadrant IV, namely Low Expectations and High Reality, there are 4 attributes. Included in this attribute is the belief that students have in lecturers in learning and assessment (Item 23/Empathy). The assessment rubric is openly informed (Item 20/Certainty). The type of assessment is in accordance with the characteristics of the course (Item 16/Certainty). There is an instrument used in the assessment (Item 6/ Tangibility). When viewed from the results of the Cartesian diagram, there are only 6 attributes that need to be improved and become the top priority. If presented it is at 24% of the total attributes of 25 attributes. This means that the attributes included in this percentage need to be seriously improved so that the satisfaction of the learning assessment is getting better.

IPA is a method used to determine satisfaction by measuring the level of importance and level of implementation [47]–[51]. The level of importance is how important the service attribute is in this case the evaluation of learning, while the level of implementation is the performance carried out by lecturers in assessing student learning [1], [52]. IPA is very reliable to use as an evaluation tool for practitioners and academics to find out which attributes are functioning properly and which attributes need to be improved, which require immediate action [53]. Several findings suggest the success of this type of assessment in learning. An example is applying peer review to programming assignments. The benefits obtained by applying peer-review are that students can learn from others and get feedback, and teachers are helped by assessments that have been carried out by other students [52], [54]. Matter. Peer-reviews with

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4. Conclusion and Recommendations

Based on the results of data processing on satisfaction evaluation of learning assessments that have been carried out using Importance Performance Analysis (IPA), the level of conformity between expectations and reality is at 96%. It can be said that, between expectations and reality, the quality of the assessment is very good. Of the 25 attributes used to measure the suitability of the level of satisfaction, there are 6 attributes that are in quadrant I of the Cartesian diagram. This means that, there are 6 attributes that are the main priority for improvement. Meanwhile, there are 4 attributes that are in quadrant IV which means "excessive". The meaning of "excess" means having a higher level of satisfaction compared to existing expectations. In order to increase satisfaction with the quality of student learning assessments, it is necessary

to make immediate improvements to the attributes in quadrant I, so that student satisfaction in the assessment process can be maximized.

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