The effect of students’ perception on classroom assessment to students’ attitudes

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Abstract. The objectives of this research were to analyze the students’ perceptions on classroom assessments, the differences in the students’ perceptions on classroom assessment based on gender and lecturers, and the effect of students’ perceptions on classroom assessment to their attitudes. The subjects were UMM students who attended Descriptive Statistics course. The data were collected using a Students’ Perception of Assessment Questionnaire (SPAQ) and attitudes questionnaire. The SPAQ and attitude questionnaire were reliable. Mixed method used in this study. Descriptive method was used to analyze students’ perception on the classroom assessment. The independent sample t-test was used to test the differences in students’ perceptions on classroom assessments by gender and lecturers. The linear regression analysis was used to examine the effects of students’ perceptions on classroom assessment to their attitudes. The results of this study showed that the students’ perceptions on classroom assessment were positive for all aspects, except for the students’ perceptions on their ability to prepare for the test on assignments and feedback. There were no difference perceptions of the students on classroom assessments based on gender and the lecturers to all aspects of classroom assessments and the students’ perceptions on classroom assessment influenced the students’ attitudes.

1. Introduction
Assessment should be a part of learning, rather than apart from learning [1]. This view is an important perspective in carrying out the learning process aiming at achieving certain competences, so as to achieve learning objectives optimally [2]. Assessment activities are intended to streamline the learning processes to match the expected objectives [3].

Classroom assessment is an assessment administered by teachers to determine students' mastery level on certain competences, having internal characteristics, a part of learning, and as a basis for improving the quality of students’ learning outcomes [4]. The information on students’ competence mastery was obtained during the process of learning and can be collected through the procedures and assessment tools in accordance with the competences to be assessed. Classroom assessment is not an assessment that is only done in the classroom, but it can be done outside the classroom as well, such as in a laboratory, field, formal or informal way, or be specifically administered, and be integrated in the learning activities.

Classroom assessment constitutes an authentic assessment [5]. It is administered by teachers to get necessary information about students’ development and learning achievement [2]. The steps of which
could include various techniques to reveal, prove, and accurately show the achieved learning objectives and mastered competences [6].

Classroom assessment is a crucial component of the instructional process [7]. This assessment is not only intended for determining the grades as well as whether the students achieve desired learning goals, but also has been utilized as the learning facility [8]. Traditionally, the varieties of assessment and task that are employed in common schools have been completely determined by the teachers as well as administrators [9]. Nonetheless, in the effective instructional activity, the students are to apprehend the assessment process as well as its implication for the students themselves as the [10]. For this goal, the students must be involved in any decision taken for classroom assessment [11]. Despite that fact, researches that outline the students’ involvement within the process of assessment planning are very few [11]. Therefore, this research constitutes one of studies that is intended to test the senior high school students’ perception, especially in the assessment for Mathematics.

1.1. Mathematics Classroom Assessment

The classroom assessment constitutes form of assessment that is employed by the teachers to identify the level of students’ competence which is considered internal and is a part of instructional process as the basis for upgrading the students’ learning quality [4]. The information regarding the students’ competence is acquired during the instructional process that can be collected/tapped by means of assessment procedures and instruments that are relevant to the desired competences to be assessed.

Classroom assessment belongs to authentic assessment, which is a process of collecting information conducted by the teachers related to the students’ learning development as well as achievement through various techniques that are utilized to uncover, prove, and state precisely that the learning goals and competences have been completely mastered and achieved [6].

As an introduction to the authentic assessment, the followings are the principles of the authentic assessment [12]: the assessment is to be a part of instruction, not apart from instruction; the assessment is to cover real world problems, not school work-kind of problems; the assessment is to use various measurements, methods, and criteria that meet the essence of learning experience; the assessment is to be holistic, including the whole aspects of the learning goals comprising cognitive, affective, and psychomotor aspects based on KTSP 2006 curriculum, and comprising cognition, skill, and affective aspects.

According to the newest report from Organization of Economic and Company Development [13], summative and formative assessments are the integral part of education process. The summative assessment constitutes main detectors of what the students are learning and the school’s responsibility for the students’ performance [14]. By means of formative assessment, the teachers supervise the students’ development, give feedback, and suit instructional approach to the instructional process.

The assessment in Mathematics classroom has been experiencing some obstacles to aim for the students’ success. Some of the obstacles are concerned on: (1) the most noticeable difference of the formative assessment designed by the teachers and the summative assessment which is for the school accountability [13]; (2) the focus on memorizing every single item out of cognitive aspect [15], [16]; (3) the weakness of equalizing the assessment task to the students’ real world problems [17]; (4) the students’ problems that are not able to consult or to propose what should be inserted into the assessment task [10]; (5) the secret process of the criteria setting to assess the students’ performance [18]; (6) the injustice or bias on the students with various backgrounds [19], [20]; and (7) the lack of awareness of the effect of gender in affecting the students’ performance on the Mathematics assessment.

To improve the students’ learning achievement, the assessments for Mathematics classroom should be congruent to the pre-planned instruction [21], be related to the students’ life experiences [17], and provide the students with chances for optimally showing their mathematic strengths [12]. By involving the students into the instruction, assessment, and grading, the validity in the assessment process could be improved and the invalid assessment instruments that yield highly inaccurate results could be withdrawn [22]. Students will also learn the assessment when the expectation and scoring procedure are openly explained and discussed altogether [12].
Based on the aforementioned elaboration, classroom assessment is developed by means of considering several aspects, namely: (1) the assessment for Mathematics classroom should be of congruence to the pre-planned instruction [23]; (2) the assessment should be related to the students’ real lives [12]; (3) the assessment should involve the students to decide the score [14]; and (4) the assessment should be transparent [12].

1.2. Students’ Perception on Classroom Assessment

Students have an obvious perception on most of aspects of the school life as how they are assessed [11]. Students also feel anxious about the importance and justice of the assessment task, the harmony they feel when in the classroom, and the relevance with their real life [14]. According to [23], students’ perception on the classroom assessment comprises 5 main characteristics, including: the suitability between the assessment and lesson plans, authenticity, students’ consultation, transparency, and accommodation of the students’ diversity. Ideally, students should confirm the followings: (1) the assessment task suits the instructional goals, objectives, and sessions; (2) the assessment task draws the real life that is relevant to them; (3) students consult and involve in any form of assessment task employed; (4) the goals and forms of the assessment task are clearly stated; and (5) all students have the same opportunity to accomplish the assessment tasks.

To arrive at the goal of this research, SPAQ proposed by [14] and [24] as well as [23] was adopted by means of making changes based on the instructional practice. SPAQ comprises 30 items (6 sub-scales). Scale 1 (item 1-5) measures the suitability between the assessment and lesson plans; Scale 2 (items 6-10) measures the authenticity; Scale 3 (items 11-15) measures the students’ consultation; Scale 4 (items 15-19) measures the transparency; Scale 5 (item 20-24) measures the students’ readiness in assessment; and Scale 6 (items 25-30) measures the assessment feedback.

In accordance with the background of this research, therefore, this research aimed at analyzing the students’ perception on the classroom assessment of Descriptive Statistics course. In specific detail, this research was intended to analyze: the students’ perception on classroom assessment, the difference of the students’ perception on the assessment of Descriptive Statistics course in accordance with five main aspects for the classroom assessment based on the gender and the lectures and the effect of the students’ perception on classroom assessment to the students’ attitudes.

2. Methods

SPAQ was created by using google form containing 30 items. The researcher required the students who attended Descriptive Statistics course in academic year 2015/2016 to fill in the questionnaire via online. Out of 112 respondents filling in the questionnaire, only 106 respondents were valid.

The subject of this research constituted 106 students of Mathematics Education Department of University of Muhammadiyah Malang who were attending Descriptive Statistics course in academic year 2015/1016, consisting of 31 males and 75 females. Descriptive Statistics course was taught by two lecturers; therefore, the classroom assessment used by both lecturers was also developed and studied. The reliability of Students’ Perception of Assessment Questionnaire (SPAQ) was measured by using Alpha Cronbach that was 0.938. The reliability coefficient of each item was significantly high (α >0.90). This proved that Students’ Perception of Assessment Questionnaire (SPAQ) was reliable. Besides, the instrument of the students’ attitudes was reliable with the reliability coefficient (α) of 0.872. This result was also in line with the previous research stating that the reliability coefficient of Alpha Cronbach Mathematics Self Concept (MSC) resulted 0.88 [25].

Mixed method used in this study. The data analysis was by means of SPSS by calculating the frequency and percentage of the students’ response (comprising: strongly disagree, disagree, neutral, agree, and strongly agree) for each item. The result was arranged and reported through descriptively statistical way for each of six main elements. Besides, the independent sample t-test with 95% confidence interval was used to test the differences in students' perceptions on classroom assessments by gender and the lecturers. Also, the linear regression analysis was used to examine the effects of students' perceptions on classroom assessment to their attitudes.
3. Results and Discussion

3.1. The Students’ Perception on Classroom Assessment

The response of the respondents that was related to the students’ attitudes and perceptions on the classroom assessment in Descriptive Statistics course was stated in Table 1 until Table 3.

Table 1. The Students’ Attitudes and Perceptions on the Classroom Assessment

| Items | Variables | Average | SD | Responses (%) |
|-------|-----------|---------|----|---------------|
| 01-05 | The suitability between the assessment and lesson plans | 4.23 | 0.609 | 84 |
| 06-10 | Assessment authenticity | 3.98 | 0.607 | 76 |
| 11-15 | Assessment consultation by students | 4.21 | 0.649 | 81 |
| 16-19 | Assessment transparency | 4.16 | 0.685 | 81 |
| 20-24 | Students readiness in assessment | 3.81 | 0.723 | 68 |
| 25-30 | Assessment feedback | 3.73 | 0.585 | 61 |
| 31-45 | Attitudes | 3.63 | 0.634 | 73 |

Table 2. The Students’ Perception on the Classroom Assessment based on Gender

| Aspects of the Classroom Assessment | Gender | Average of Total Score | Average | SD of Total Score | N |
|------------------------------------|--------|------------------------|---------|-------------------|---|
| The suitability between the assessment and lesson plans | M | 21.29 | 4.26 | 2.623 | 31 |
| | F | 21.11 | 4.22 | 3.216 | 75 |
| Assessment authenticity | M | 20.74 | 4.15 | 2.873 | 75 |
| | F | 19.53 | 3.91 | 2.914 | 75 |
| Assessment consultation by students | M | 16.90 | 4.23 | 2.914 | 75 |
| | F | 16.81 | 4.20 | 2.475 | 75 |
| Assessment transparency | M | 20.84 | 4.17 | 3.436 | 75 |
| | F | 20.79 | 4.16 | 3.442 | 75 |
| Students readiness in assessment | M | 18.45 | 3.69 | 3.940 | 75 |
| | F | 19.27 | 3.85 | 3.473 | 75 |
| Assessment feedback | M | 22.84 | 3.81 | 4.075 | 75 |
| | F | 22.19 | 3.70 | 3.258 | 75 |

Table 3. The Students’ Perception on the Classroom Assessment based on the lecturers

| Aspects of the classroom assessment | Lecturers | Average of Total Score | Average | SD of Total Score | N |
|------------------------------------|-----------|------------------------|---------|-------------------|---|
| The suitability between the assessment and lesson plans | A | 20.93 | 4.19 | 3.323 | 67 |
| | B | 21.56 | 4.31 | 2.479 | 39 |
| Assessment authenticity | A | 19.57 | 3.91 | 3.021 | 67 |
| | B | 20.44 | 4.09 | 3.016 | 39 |
| Assessment consultation by students | A | 16.73 | 4.18 | 2.711 | 67 |
| | B | 17.03 | 4.26 | 2.411 | 39 |
| Assessment transparency | A | 20.78 | 4.16 | 3.450 | 67 |
| | B | 20.85 | 4.17 | 3.422 | 39 |
| Students readiness in assessment | A | 18.94 | 3.79 | 3.316 | 67 |
| | B | 19.18 | 3.84 | 4.122 | 39 |
| Assessment feedback | A | 21.90 | 3.65 | 3.499 | 67 |
| | B | 23.21 | 3.87 | 3.412 | 39 |

Based on the Table 1 to 3, the students’ perceptions on classroom assessment were described below.

The measurement results of the suitability between the assessment and the lesson plans revealed that 84% of the students stated that they strongly agreed and/or agreed that the classroom assessment should be suitable for Descriptive Statistics course of which average showed 4.23. Male students’ perception

4
(averaging 4.26) was little bit higher than females’ (averaging 4.22). This meant that the students’ perception was positive – 84% of the students denoted that the assessment is suitable to the lesson plan.

Statistics course is essentially closely related to the authenticity so that Descriptive Statistics learnt in the classroom is relevant and represents the real-life situation. In general, 76% of the students felt that Descriptive Statistics course was applicable for the situation of the real life. The male students’ perception (averaging 4.15) was higher than the female students’ (averaging 3.91). This meant that the students’ perception was positive – 76% of the students assumed that Descriptive Statistics they were learning was relevant and applicable for the situation of the real life. This result was contradictory to [14] finding noting that mathematic never or sometimes was applicable for the situation of the real life.

On the assessment consultation by students showed that 81% of the students assumed that they were included in the decision making for the used classroom assessment and were able to consult for the task and test, averaging 4.21, which declared that it was higher than [14] finding. The male students’ perception (averaging 4.23) was a bit higher than the female students’ (averaging 4.20). This result outlined that the male students’ perception was a bit higher and more positive on their involvement in the decision making that would be used in the classroom assessment as that of on the lecturers’ transparency in providing the students with consultation for task and test.

The transparency in the classroom assessment for Descriptive Statistics course is very important. In general, 81% of the students stated that the process of the classroom assessment in Descriptive Statistics course had already been executed transparently of which average constituted 4.16, except in Item 19, which only showed 70% of the students stating that they knew what test to be assessed. The male students’ perception (averaging 4.17) was relatively equivalent to the female students’ (averaging 4.16), which meant that the students’ perception on the transparency of the classroom assessment for Descriptive Statistics was positive and relatively the same, both for male and female students.

The students’ readiness in assessment in self-preparing themselves to join the classroom assessment should be trained. Generally, 68% of the students felt that their readiness in self-preparation to join the classroom assessment was standardly positive, averaging 3.81. The male students’ perception (averaging 3.69) was lower than the female students’ (averaging 3.85), which meant that the students’ abilities in their self-preparation for the classroom assessment were so important to be optimized. This finding was different from the other findings on the other aspects which was revealing that the female students thought that they were more capable of doing self-preparation to join the classroom assessment.

The last, the assessment feedback from the lecturers to the students constitutes an urgent factor to improve the students’ achievement and motivation during the instructional processes. In general, 61% of the students presumed that the feedback was a positive thing, averaging 3.73. The average score was lower than other scores of other aspects. The male students’ perception (averaging 3.81) was lower than female students’ (averaging 3.70). The students’ perception on the lecturers summarized that the lecturers’ keeping the assessment results untold reached 50%; while the lecturers’ appreciating and giving praise showed 30%. This finding indicated that the lecturers were to appreciate those who did their best during instruction.

3.2. The Students’ Perceptions on Classroom Assessment based on Gender and the Lecturers

The analysis results of the students’ perception on the classroom assessment based on gender are displayed in Table 4.

Table 4 below revealed p > 0.05 for each aspect in the classroom assessment. This result accepted H₀ hypothesis, which meant that there was no difference between the male and female students on the six aspects of the classroom assessment. The male and female students had the same perception that the assessment was suitable to the lesson plans, authentic, and transparent. In addition, there were assessment consultation, students’ abilities, and assessment feedback.
Table 4. The Difference of the Students’ Perception on the Classroom Assessment based on Gender

| Aspects of the Classroom Assessment | Independent sample t-test at 95% CI |
|------------------------------------|-----------------------------------|
|                                    | T   | df  | Sig (2-tailed) | Mean Difference | Std. Error Difference |
| The suitability between the assessment and the lesson plans | .281 | 104 | .779 | .184 | .653 |
| Assessment authenticity            | 1.888 | 104 | .062 | 1.209 | .640 |
| Assessment consultation by students | .161 | 104 | .872 | .090 | .557 |
| Assessment transparency            | .071 | 104 | .944 | .052 | .735 |
| Students readiness in assessment   | -1.056 | 104 | .293 | -.815 | .772 |
| Assessment feedback                | .869 | 104 | .387 | .652 | .750 |

On the aspect of the suitability between the assessment and the lesson plans, this result was in line with [14] finding stating that there was no significant difference between the male and female students in terms of the suitability between the assessment and the lesson plans. The test result on the assessment authenticity represented that between the male and female students had the same perception, revealing that the classroom assessment was relevant and applicable for the situation of the real life. However, this result was counterproductive to [14] research perceiving that the male and female students differed in assuming that the classroom assessment was relevant and applicable for the situation of the real life. This finding was reasonable due to the fact that Descriptive Statistics course, in general, is related to problem solving on some issues occurring in the real life, to be specific what the students have in their researches, such as: the students’ achievement, body weight, and so forth.

Also, on the assessment consultation by students showed that the male and female students had the same perception on their involvement in making the decisions that would be employed to give the consultation for test and task. Again, this result was in line with [14] research.

The students’ perception on the assessment transparency was not different in terms of gender. It meant that the male and female students stated that the assessment in Statistics course was transparent. This was completely different from [14] finding stating that there was a difference between the male and female students’ perception on the assessment transparency in mathematics course.

Meanwhile, the students’ perception on the students’ abilities in designing task and test and for assessment feedback was not significantly different in terms of gender. This result was in line with the research of [24] explicating that there was no difference of the students’ perception on the classroom assessment in terms of the assessment feedback.

Table 5. The Difference of the Students’ Perception on the Classroom Assessment based on Lecturers

| Aspects of the Classroom Assessment | Independent sample t-test at 95% CI |
|------------------------------------|-----------------------------------|
|                                    | t   | df  | Sig (2-tailed) | Mean Difference | Std. Error Difference |
| The suitability between the assessment and the lesson plans | -1.043 | 104 | .300 | -.639 | .613 |
| Assessment authenticity            | -1.429 | 104 | .156 | -.869 | .608 |
| Assessment consultation by students | -5.61 | 104 | .576 | -.294 | .525 |
| Assessment transparency            | -.101 | 104 | .920 | -.070 | .693 |
| Students readiness in assessment   | -.327 | 104 | .744 | -.239 | .731 |
| Assessment feedback                | -1.875 | 104 | .064 | -1.310 | .698 |

Table 5 showed $p > 0.05$ for every each of the aspects for the classroom assessment. This result accepted $H_0$, which meant that there was no difference of the students’ perception on the six aspects of the classroom assessment based on the lecturers. The students who were taught by the two lecturers had the same perception – that the instruction was suitable to the lesson plans, the assessment was authentic and transparent; the assessment consultation was provided in dealing with the assessment; and there was assessment feedback.
This result showed that the students’ perception on the two different lecturers stated that the classroom assessment was suitable to Descriptive Statistics course, two lecturers had assessed the students on the Descriptive Statistics course based on the real-life setting, two lecturers had involved the students to make decisions for the assessment and consult the result of the assessment. The same result was also yielded in the testing of the students’ perception on the assessment transparency in Mathematics class based on the lecturers. In addition, specifically on the students’ readiness in assessment and assessment feedback, it was revealed that there was no significant difference of perception of the students taught by the two different lecturers.

3.3. The Effects of the Students’ Perceptions on Classroom Assessment to their Attitudes

The analysis results of the effects of the students’ perception on the classroom assessment to students’ attitudes are displayed in Table 6.

| Model       | Unstandardized Coefficients | Standardized coefficients |
|-------------|-----------------------------|---------------------------|
|             | B  | Std. Error | Beta | t   | Sig. |
| 1 (Constant)| .301| .349      | .863 | .390|
| Stu_perceptions | .832| .087   | .686 | 9.619| .000 |

The result of linear regression on the Table 8 showed that $t = 9.619$, $p = 0.000$, and $r^2 = 0.471$. This result explicated that there was an influence that affected the students’ perception on the attitude. The influence of the students’ perception on the attitude showed 41.7%, which meant that there was another factor apart from the students’ perception on Descriptive Statistics course. The regression model formulation was $Y = 0.301 + 0.686X$, in which $X$: the students’ perception on the assessment and $Y$: the students’ attitude.

4. Conclusion

Based on the result of the data analysis and discussion, this current research summarized that (1) the students’ perception on the classroom assessment for Descriptive Statistics was positive based on the six main aspects of the classroom assessment, except on the students’ abilities in streamlining themselves to take the test or complete the task and on the feedback. The lowest students’ perception was in the item of the lecturer’s praise on the students who got good grades; (2) the students’ perception on the classroom assessment based on the gender and lecturers was not different for the whole aspects of the classroom assessment; (3) the students’ perception on the classroom assessment affected the students’ attitudes, of which determination coefficient reached 41.7%.

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