The role of module quality, learning methods, and lecturers with student learning outcomes: Model multiple regression SPSS approach

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Abstract. The improvement of learning modules Quality, learning methods, and lecturers contribute significantly to student learning outcomes. This study aims to identify the most significant factors related to module quality, learning methods, and lecturers to improve student learning outcomes and how much they influence. Our essay used combination methods (Mixed Methods) qualitative and quantitative with cross sectional approach with respondents and resource persons from lecturers and students of Bina Nusantara University 143 people from various study programs. Data analysis used model multiple regression SPSS 16.0. Overall the findings show the effect of learning system innovation and the development of learning modules, learning methods and quality of lecturers on student learning outcomes. We used the same research tool also to show that the number of students in one class also has an impact on student learning outcomes

1. Introduction
Academic achievements of students in each university have a variety of values which not a few of them have low scores, even though the Republic of Indonesia Law number 20 of 2003 concerning the Indonesian education system, Education is a conscious and planned effort to create a learning environment and learning process students who have good quality thinking and personality. Bina Nusantara University has a modern learning system in addition to the achievements of private universities which are quite significant in the last decade, students also have encouraging results, including being accepted in well-known foreign companies with high salaries and those who make their own companies. There are two elements that affect student learning achievement, according to Slameto the elements that influence learning is [1]: 1. Internal Elements: Health, psychological, intelligence, interests, motives. 2. External elements: family, relationships between family members, family economic situation, and cultural background, teaching methods, curriculum, school discipline and learning tools, community factors: student activities in society, media era, friends and community life forms. Both of these factors according to our assumptions are very important but as a student’s where the meeting is only about 12 credits, the student’s personal factors are more significant as delivered by Purwanto [2], the instructional strategies given by lecturers to students based on constructive approaches emphasize students (leaner-centered) In the course of the Character Building Binus students
apply a new model, namely the student-centered learning process, emphasizing student activity. The learning process in students is given in the form of learning to find problems, solve problems, or provide solutions to a raised case related to the topic. It could also be with group discussions, making projects outside the classroom and reports, and writing a paper or article then posted on the group's web. It can also be with learning by tutor, the lecturer appoints one person from each group to help explain the topic being taught. Then proceed with a class discussion in which each group gives a presentation that was previously discussed by the group. Thus, students will develop cognitive, psychomotor and affective elements, while lecturers will play a role as facilitators in the process of teaching and learning and as a source of discourse in discussions and taking the final conclusions.

Previous research related to the quality of education in higher education has been carried out by some researchers. Sagayadevan and Jeyaraj had found in his research that emotional engagement in enhancing learning outcomes in students [3]. A similar study was conducted by Sibanda, Iwu, and Benedict entitled “Factors Influencing Academic Performance of University Students” [4]. Jian X and Stephen W, ”The effects of lecturer commitment on student perceptions of teaching quality and student satisfaction in Chinese higher education” that research has got that lecturer commitment to students’ academic achievement and lecturer commitment to the social integration of students are both positively related to student satisfaction [5]. Allexander M entitled “Lecturers’ Competences and Students’ Academic Performance” has found that subject knowledge, teaching skills, lecturer attendance and lecturer attitude have significant positive influence on students’ academic performance [6]. Martin R. E, and Michael E. C, a study on “A study exploring the impact of lecture capture availability and lecture capture usage on student attendance and attainment” was found that capture viewing also fails to compensate for the impact that low attendance has on attainment [7].

So far, many have conducted research on the correlation of learning outcomes and learning methods. Rina Wati Research in "Relationship Between Learning Motivation, Lecturer and Employee Service Quality, and Availability of Learning Facilities with Student Achievement in Faculty of Economics” [8]. Is there a positive and significant relationship between the quality of service of lecturers and employees with learning achievement? From research conducted by Rina found results There is no positive and significant relationship between learning motivation and learning achievement of the students of the Faculty of Economics, Sanata Dharma University class 2004 to 2008 which is indicated by probability numbers of 0.950 with a significant level of 5% ie significant value> 0.05. Descriptively this research did not elaborate on the less significant findings. In the end each researcher found various kinds of findings depending on the variables and subjects used.

The purpose this study is to examine how much the dependent variable can be explained by the independent variable. Overall the temporary results show the influence of the development of course modules, learning methods and the quality of lecturers on student learning outcomes.

2. Method
This study is a population study, the research subjects were Bina Nusantara University students from various departments with Character Building subjects. The method we used the combination of qualitative and quantitative methods with a cross sectional approach with respondents and resource persons from Binus University lecturers and students 143 people from various study programs. Kitto, Chesters and Grbich support the idea of quantitative research because it explores the behaviour, processes of interaction, meanings, values and experiences of purposefully sampled individuals and groups in their natural context [9]. Data analysis using multiple regression model SPSS 16.0. With the same research tool, we reveal that the number of students in one class also has an impact on student learning outcomes.
3. Results and discussion

3.1. External factors, internal students and academic examination results
The framework of thinking if lecturers, modules and learning methods are good and quality, learning achievement will also be good. Learning achievement is the level of success of students in understanding the subject matter on campus which is expressed in the form of scores obtained from the results of examinations on a number of certain subject matter, then a strategy needs to build their understanding of learning materials [10]. In addition, the campus environment can also have an effect. The number of Bina Nusantara students in an uncertain CB course in one class is around 30 to 50 students and even more in one class consisting of two to three study programs. From semester one student has got Character Building (CB) lessons. Lecturers have different academic backgrounds and teaching styles, but in our research the lecturers are applying the same learning method that is by group discussion approach from the beginning of the lecture and since the first minute students study in class, but previously given a material assignment or cases to look for from the topic in each session. From the results of the observation while showing students more enthusiastic and happy in learning.

The previous research can help and find out that what we will write is different from the previous research writings. In addition to differences in the subject and object that are defined, the problem is formulated and the findings are also different. This study consisted of three (3) variables; 2 variables X and one variable Y, namely the variable quality of learning (x1), the quality of the learning module and the learning method (x2), while the variable Y is the result of learning. The following data description presents data information including the answers to the questionnaire questions that we shared with respondents and resource persons in detail and have been tested for validity and reliability:

| Statement | r- Table | r- Count description | Information |
|-----------|----------|----------------------|-------------|
| x1.1      | 0.176    | 0.187                | Validity    |
| x1.2      | 0.176    | 0.235                | Validity    |
| x1.3      | 0.176    | 0.021                | Validity    |
| x2.1      | 0.176    | 0.142                | Validity    |
| x2.2      | 0.176    | 0.043                | Not Validity|
| x2.3      | 0.176    | 0.171                | Validity    |
| x2.4      | 0.176    | 0.093                | Not Validity|
| y1        | 0.176    | 0.741                | Validity    |
| y2        | 0.176    | 0.782                | Validity    |

| Variabel | Alpha | r- Table | Information |
|----------|-------|----------|-------------|
| x1.1     | 0.440 | 0.176    | Reliability |
| x1.2     | 0.487 | 0.176    | Reliability |
| x1.3     | 0.434 | 0.176    | Reliability |
| x2.1     | 0.463 | 0.176    | Reliability |
| x2.2     | 0.434 | 0.176    | Reliability |
| x2.3     | 0.418 | 0.176    | Reliability |
| x2.4     | 0.454 | 0.176    | Reliability |
| y1       | 0.435 | 0.176    | Reliability |
| y2       | 0.435 | 0.176    | Reliability |

3.2. Analysis: Multiple regression SPSS 16.0, t-test and f-test
This essay uses the multiple regression analysis with the aim to find out whether there are influences of independent variables x1 and x2 on bound variables Y, while the t test aims to determine the effect of each variable X on the Y variable, while the test r aims to know the effect of all variables X on variable Y and the terminated coefficient serves to find out what percentage of the influence of variable X on Y variable.
3.3. Analysis of variabel X1
The basic assumption of research is the basis for the research hypothesis [11]. The assumption of this study is that variables x1 and x2 (lecturer quality, modules and learning methods) have an influence on variable Y. Hypothesis Testing H1, H2 and H3 with the t test as follows:

**Table 3. Test t.**

| Model  | Not Coefficients | Coefficients |
|--------|------------------|--------------|
|        | B                | Std. Error   | Beta | t       | Sig.   |
| Constant | 1.455           | .234         |      | 6.204   | .000   |
| x1.1   | -.010            | .101         | -.008| -.099   | .921   |
| x2.1   | .283             | .096         | .246 | 2.946   | .004   |
| x3.1   | -.084            | .077         | -.092| -1.099  | .274   |

Hypothesis one (H1), it is known that the significance value for the effect of x1.1 to Y variable is 0.921 > 0.05 and we as known that the value formula of t count is 0.099 < from value t formula 1.977, then conclusions can be drawn that H1 is rejected which means there is no effect of variable x1.1 against Y. Which x1.1 against Y: 0.004 <0.05 and the value of t count formula is 2.946> t value of formula 1.977, so it can be concluded that H1 is accepted which means there is an influence of variable x1.1 against Y. H3 is known that the significance value for effect x1.1 against Y is 0.274 > 0.05 and value of t count formula 1.099 <value of t table 1.977, so it can be concluded that H1 is rejected which means there is no effect of variable x1.1 against Y.

**Table 4. Test f squares.**

| Data    | Sum  | df | Mean | F     | Sig. |
|---------|------|----|------|-------|------|
| 1 Regression | 4.126 | 3  | 1.375 | 3.029 | 032  |

Based on the above tests it is known that significant values that affect variables x1, x2, x3 concurrently on Y are 0.032 < from 0.05 and F count 3.029> F table formula 2.67, then conclusions can be drawn that hipotesis is accepted which means there is an impact of variable x1, x2 and x3 against Y.

**Table 5. Table summary.**

| Data | R    | RS  | Adjusted RS | Std. Error |
|------|------|-----|-------------|------------|
| 1    | .248*| .061| .041        | .674       |

The determination coefficient of the summary model based on the output is known to be the result of 0.061, which means that the impact of the variables x1.x2 and x3 concurrently on Yvariable is 6.1%

3.4. Analysis of variabel X2
The basic formulation of the research is the research hypothesis of variables X1 and X2 giving influence to variable Y. Hypothesis Testing H4, H5, H6, and H7 with t test as follows:
Hypothesis four (H4) was known that the significance value of impact $x_1.1$ on $Y$ is $0.204 > 0.05$ and the measure of t counts is $1.276 < t$ formula $1.977$, then conclusions can be drawn that $H1$ is rejected which means there is no impact of variable $x_1.2$ against $Y$. $x_1.1$ against $Y$ is $0.666 > 0.05$ and the value of t count is $0.433 < t$ value of table $1.977$, then conclusions can be drawn that $H1$ is rejected which means there is no effect of variable $x_2.2$ against $Y$. $H6$ is known the significance value for impact $x_1.1$ against $Y$ is $0.491 > 0.05$ and the value of t arithmetic $0.691 < value of t table 1.977$, so it can be concluded that $H1$ is rejected which means there is no effect of variable $x_3.2$ against $Y$. $H7$ is known that the significance value for impact $x_1.1$ against $Y$ is $0.275 > 0.05$ and t value calculate $0.275 < value of t table 1.977$, so it can be concluded that $H1$ is rejected which means there is no effect of variable $x_4.2$ against $Y$.

Based on the above tests, it is known that significant values that influence variables $X1.2$, $x2.2$, $x3.2$ and $x4.2$ simultaneously to $Y$ are $0.470 < 0.05$ and the result $F$ value is $0.894 < F$ formula $2.44$, then conclusions can be drawn that hispotesis is not accepted which means there is no variable influence $x_1.2$, $x2.2$, $x3.2$ and $x4.2$ on $Y$.

From the calculation output above, the coefficient is terminated from the based data summary. It was result that the value of $0.025$, It means that the influence of variables $x1.2$, $x2.2$, $x3.2$ and $x4.2$ simultaneously on variable $Y$ is $2.5\%$.

**Table 6. Test t.**

| Data       | Not Coefficients | Coefficients | $t$ | Sig. |
|------------|------------------|--------------|-----|------|
| (Constant) | 1.398            | .191         | 7.339 | .000 |
| $x1.2$     | .084             | .065         | .117 | 1.276 | .204 |
| $x_1.1$    | .030             | .068         | .040 | .433  | .666 |
| $x3.2$     | .050             | .072         | .061 | .691  | .491 |
| $x4.2$     | .017             | .062         | .025 | .275  | .784 |

**Table 7. Test f Squares.**

| Data       | Sum  | df | Mean | $F$  | Sig. |
|------------|------|----|------|------|------|
| Regression | 1.698| 4  | .425 | .894 | .470 |

4. Conclusion

From the results of data analysis with multiple regression models it can be concluded that the $x1$ consisting of the level of attendance of lecturers, explanation of lecturers, mastery of material by lecturers simultaneously only gives a small effect on ($Y$) Binus University student learning outcomes of $6.1\%$. The second ($x2$) which consists of module quality and simultaneous learning methods only gives effect to the ($Y$) of Binus University student learning outcomes of $2.5\%$. The results of the conclusions do not automatically provide the truth in the field, so students may have errors in answering, however, based on surveys and interviews the factors that give the greatest influence are the internal factors of the students themselves.
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References
[1] Slamet 1998 Belajar dan faktor-faktor yang mempengaruhiya (Jakarta, Bumi aksara) 5
[2] Suwarmi Eny 2012 Hubungan Gaya Mengajar Dosen dalam Proses Pembelajaran dengan Motivasi Belajar Mahasiswa Fakultas Jurnal Al-Azhar Indonesia Seri Humaniora 1(4) 247
[3] Vathsala S and Senthu J 2012 The role of emotional engagement in lecturer-student interaction and the impact on academic outcomes of student achievement and learning Journal of the Scholarship of Teaching and Learning 12(3) 1-30
[4] Lucky S, Chux G. I, Olumide H B Factors Influencing Academic Performance of University Students, Demography and social economy 2(24) 103-115.
[5] Jian X and Stephen W 2015 The Effects Of Lecturer Commitment on Student Perceptions of Teaching Quality and Student Satisfaction in Chinese Higher Education 37(1) 98-110
[6] Allexander M 2013 Lecturers’ Competences and Students’ Academic Performance International Journal of Humanities and Social Science Invention 3(1) 06-13
[7] Martin R E and Michael E C 2019 A study exploring the impact of lecture capture availability and lecture capture usage on student attendance and attainment High Education Journal 77(3) 403–421
[8] Wati R 2009 Relationship Between Learning Motivation, Lecturer and Employee Service Quality, and Availability of Learning Facilities with Student Achievement in Faculty of Economics (Yogyakarta: Universitas Sanata Dharma)
[9] Kitto S C, Chesters J and Grbich C 2008 Quality In Qualitative Research. Criteria For Authors And Assessors In The Submission And Assessment Of Qualitative Research Medical Journal of Australia Med J 188 243–246
[10] Pintrich P R and De Groot 1990 Motivational and Self-regulated learning Component of Classroom Academic Performance Journal of Educational Psychology 82(1) 33-40
[11] Riduwan M B A 2003 Dasar-dasar statistika (Bandung: Alfabeta)