Preferences of FMIPA UNM Students to the Quality of Lecturers in Joint Learning Semester

Muhammad Kasim Aidid* & Sudarmin
Department of Statistics, UniversitasNegeri Makassar, Makassar, 90222, Indonesia

*kasimaidid@unm.ac.id

Abstract. Lecturer is an important factor in improving academic quality, so it must be able to show superiority in education and teaching, research and community service. Characteristic of lecturers is one factor that can affect the behavior of individuals who are learning. This paper examines the preference of FMIPA UniversitasNegeri Makassar (UNM) students to lecturers' quality in joint learning semester using conjoint analysis. There are four attribute variables, each consisting of two attribute levels; (1) the character of the lecturer (KD) with the attribute level of serious and relaxed; (2) lecturer's educational background (LBP) with the attribute level of master (S2) and doctorate (S3); (3) teaching method given by lecturer (MP) with the attribute level of conventional and unconventional; and (4) class interaction (IK) with attribute level of active and passive. There were 89 students who were the correspondents of the total 805 students of Faculty of Mathematics and Natural Sciences of class of 2017 which is the observed population. Profile cards are organized based on Orthogonal Array. The result of the analysis shows that the combination of the most favored lecturers' characteristics in joint learning semester at FMIPA UNM is by interaction in active class, serious character in learning, and teaching with conventional method and master's degree (S2).

1. Introduction
As a faculty that continues to clean up, FMIPA UniversitasNegeri Makassar starting in the odd semester of 2016/2017 has been doing Joint Learning Semester. All new students are given lecture material which is the founder of the faculty, namely basic mathematics (calculus), basic statistics, basic physics, basic chemistry, basic biology, and environmental education.

Lecturers are an important factor in improving academic quality, so it should be able to demonstrate excellence in education and teaching, research and community service. The characteristics of a lecturer or counselor is one that affects the behavior of individuals who are learning. According to Kottasz[1], the absence of students in lectures can be caused by low motivation in students. There are several reasons that can be caused by students who are not present in the lectures, such as students experiencing pressure, poor teaching from teachers, also due to inappropriate lecture time, and because the quality of the material presented is not qualified by lecturers or teachers.

Tyasari[2]in his research on the influence of lecturer professional competence on students' learning motivation revealed that the lecturer has an influence on students' learning motivation in teaching and learning activities.

Conjoint analysis is used to measure psychological considerations or preferences (choice) of respondents. This analysis yields estimates of the utility and relative importance of each attribute. Utility is a basic concept for measuring subjective judgments about individual preferences. The utility
is assumed at the value that each attribute has. The sum of the utility values associated with each attribute of a product or service results in an overall utility. Previous studies using this method were among others conducted by Wulandari[3] using a conjoint analysis in analyzing the preferences for the selection of powder cosmetics. Riskinandini[4] also conducts a final student preference analysis of job selection with conjoint analysis. Ary[5] determining the priority of student choice in choosing campus using conjoint analysis.

This paper examines the preference of FMIPA UNM students to lecturers' quality in the Joint Learning Semester using conjoint analysis. The characteristics of lecturers who are interested students are disclosed in accordance with student expectations so as to be able to motivate in learning activities to increase knowledge and improve his performance.

In this research, preliminary questionnaires were distributed with the aim of obtaining data on what attributes are considered important and considered by respondents in choosing the expected lecturers’ characteristics. The result of preliminary questionnaire spread shows that there are 4 attributes of lecturers' characteristics that are considered important and most selected and considered by respondents in choosing the expected lecturers' characteristics. Further attribute level is obtained from the interview with some speakers such as lecturers and students.

2. Methods
Factors used as attribute variables are four which each consist of two attribute levels; (1) lecturer's character (KD) with the attribute level of serious and relaxed; (2) lecturer's educational background (LBP) with the level of attribute of master (S2) and Doctoral (S3); (3) teaching method given by lecturer (MP), with conventional and unconventional attribute level, and (4) class interaction (IK) with active and passive attribute level. There are 805 students of FMIPA UNM class of 2017 in the semester of learning together which is the population in this study and there are 89 people who made the respondents with stratified random sampling[6]. Students' perceptions of lecturers' features can be determined from their assessment of the profile cards formed from the four attributes. The formation of the profile card is based on the orthogonal array design [7] in Table 1.

|   | KD | LBP | MP  | IK  |
|---|----|-----|-----|-----|
| 1 | 2  | 1   | 2   | 2   |
| 2 | 1  | 2   | 2   | 1   |
| 3 | 2  | 1   | 2   | 1   |
| 4 | 2  | 2   | 1   | 1   |
| 5 | 1  | 2   | 2   | 2   |
| 6 | 1  | 1   | 1   | 1   |
| 7 | 2  | 2   | 1   | 2   |
| 8 | 1  | 1   | 1   | 2   |

2.1. Conjoint Analysis
Conjoint analysis is a multivariate technique used specifically to understand how respondents develop preferences for products or services [8]. Any decompositional method that estimates the structure of a consumer’s preferences (e.g. part-worths, importance weights, ideal points) given his/her overall evaluations of a set of alternatives that are prespecified in terms of levels of different attributes [9]. Conjoint analysis is based on a simple premise that consumers evaluate the value of a product / service / idea by combining the amounts apart from the value provided by each factor. The main result of conjoint analysis is a form (design) product of goods or services, or a particular object desired by most respondents [10]. The steps of conjoint analysis can be seen in Figure 1.
3. Results and Discussion

3.1. Utility of Each Attribute Level
Utility of the attribute level is the result value of the respondent's choice to the attribute level of the result of the assessment of the given profiles. So the utility value is almost the same as the value of importance, the difference is only utility value indicates the attribute level, whereas the importance level value shows the attribute.

Utility values may be minus, which means that the attribute level is not favored by the respondent. The utility value is given in Table 2.

| No | Attribute | Levels         | Utility |
|----|-----------|----------------|---------|
| 1  | KD        | Serious        | 0.809   |
|    |           | Relaxed        | -0.809  |
| 2  | LBP       | S2             | 0.0815  |
|    |           | S3             | -0.0815 |
| 3  | MP        | Conventional   | 0.632   |
|    |           | Inconventional | -0.632  |
| 4  | IK        | Passive        | -0.9466 |
|    |           | Active         | 0.9466  |
|    |           | Intercept      | 4.5     |

3.2. Lecturer Character Attribute (KD)
There are two levels of attribute that is serious and relaxed. The utility value is 0.809 for serious attribute level and -0.809 for relaxed attribute level. A positive sign at the level of serious attributes shows that this attribute level is more considered by the respondent than the relaxed attribute level. This can be seen in Figure 2(a).
3.3. Education Background Attribute (LBP)
There are two levels of attributes namely the last education Masters (S2) and the last education Doctor (S3) with the value of the use of both attributes is 0.0815 for S2 attribute and -0.0815 for S3 attribute. The positive sign is at the attribute level for the lecturer whose last education is S2 which means that the lecturer with the graduate of S2 is more influence the respondent in his learning motivation (Figure 2(b)).

Figure 2(a). The Utility value of KD

Figure 2(b). The Utility value of LBP

Figure 3(a). The Utility value of MP
3.4. **Attribute Learning method (MP)**
The attribute level of conventional and unconventional learning methods has a usefulness value of 0.632 with a positive sign on the attribute level of conventional learning methods. This means that respondents prefer the conventional method of learning. As shown in Figure 3(a).

![Figure 3(a).](image)

3.5. **Classroom Interaction Attributes (IK)**
Two levels of attributes Interaction in the classroom is passive interaction and active interaction shown in Figure 3(b). The value of passive interaction is -0.9466 and active interaction is 0.9466. According to the positive sign, level of an active interaction attribute indicates that this attribute level is highly considered by the respondent and dislikes passive class interaction.

![Figure 3(b).](image)

3.6. **Relative Importance Level**
The result of calculating the importance of attribute in aggregate can be seen in Table 3.

| No | Attribute | Importance (%) |
|----|-----------|----------------|
| 1  | KD        | 28.75          |
| 2  | LBP       | 12.02          |
| 3  | MP        | 26.51          |
| 4  | IK        | 32.71          |

The result of the test of importance level of attribute in aggregate shows that the attribute that is considered most important by all respondents is the attribute of lecturer interaction in the classroom (IK) is 32.71%. Interaction in the classroom is very needed by the students who follow the lectures in the Joint Learning Semester. With active interaction, they can freely express their ideas and convey the difficulties encountered in the learning process. Attributes that are considered important second order lecturer character attributes (KD) with the importance value of 28.75%. It would be natural for students to idolize their lecturers and be inspired by them, in the Joint Learning Semester at FMIPA UniversitasNegeriMakassar they tend to prefer lecturers with serious character than relaxed ones. For the third order is the attribute of learning method (MP) with the importance value of 26.51%. Students are more likely to favor conventional methods compared to unconventional methods. It's possible that conventional methods are more familiar to them so they are more favorable. The least attributed attributes of the four attributes are the attributes of lecturer's educational background (LBP), with the importance of 12.02% where the lecturer with the S2 level of education is more favorable.
Figure 4. Relative Importance Atribut

From Figure 4 shows that most respondents consider lecturer interaction attributes more important in influencing student learning motivation than lecturer's educational background.

After the using conjoint analysis, it was found that the combination of lecturers' features were considered and liked by the respondents. The combination of the characteristics of the lecturers favored by the students in the joint Learning Semester at FMIPA UniversitasNegeri Makassar is a lecturer with a serious character with education level S2. In addition, the method of learning is expected by most respondents is by conventional learning methods that lecturers provide materials directly in front of the class to the students, although unconventional learning methods are expected by educators and teachers to train the independence and creativity of students. Interaction in the class that the students prefer is the active interaction in the classroom between the lecturers and the students.

References
[1] R Kottasz and others 2005 Reasons for student non-attendance at lectures and tutorials: an analysis Investig. Univ. Teach. Learn. vol. 2 no 2 pp 5–16
[2] D H Tyasari 2011 Pengaruh Kompetensi Profesionalisme Dosen terhadap Motivasi Belajar Mahasiswa Program Studi S1 Pendidikan Akuntasi Fakultas Ekonomi Universitas Negeri Malang (Studi tentang Persepsi Mahasiswa) SKRIPSI Jur. Akutansi-Fak.Ekon.UM
[3] S P Wulandari 2009 Pengembangan preferensi dalam pemilihan konsep produk kosmetik bedak berbasis analisis konjoin in Forum Statistika dan Komputasi vol 14.
[4] Riskinandini 2007 AnalisisKonjoin: Metode Full Profile dan CBC untuk Menelaah Persepsi Mahasiswa Terhadap Pilihan Pekerjaan vol. Volume 12 no 1
[5] M Ary 2016 Menentukan prioritas pilihan mahasiswa dalam memilih kampus menggunakan analisis conjoint Paradigma vol 18 no 1 pp 48–55
[6] W G Cochran 1991 Teknik Pengambilan Sampel Edisi Ketiga Universitas Indonesia Press Jakarta
[7] N Belavendram 1995 Quality By Design: Taguchi Technique for Industrial Experimentation Exp. Qual. Strateg. Approach Achieve Improve Qual. pp 47–72
[8] J F Hair W C Black B J Babin R E Anderson R L Tatham and others 1998 Multivariate data analysis vol. 5 Prentice hall Upper Saddle River NJ
[9] P E Green and V Srinivasan 1978 Conjoint analysis in consumer research: issues and outlook J Consum Res vol 5 no 2 pp 103–123
[10] S Santoso 2010 StatistikMultivariat Konsep dan Aplikasi dengan SPSS PT Gramedia