

# Face-to-Face Tutorials in ODE and Student Satisfaction in Indonesia

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#### ABSTRACT :

This article discusses relationship between five sub-variables (tutorial preparation, mastery of subject, teaching ability, communication ability, and tutor's discipline) in tutor performance variable, tutorial result variable, tutorial cost variable and students' satisfaction variable in face-to-face tutorial at Universitas Terbuka, Indonesia. Totally, there are seven independent variables and one dependent variable. Three sub-variables (mastery of subject. teaching ability, communication ability) in tutor performance are interacted. 200 respondents as a sample were collected by purposive sampling. To analyze the data, factorial analysis, correlation, and regression were used. The result showed that there are significant and positive correlation between sub-variables in tutor's discipline), tutorial result, tutorial cost and customer satisfaction. In addition coefficients regression between some sub-variables and their interaction in tutor performance, tutorial result, and student's satisfaction are also significant.

#### 1. INTRODUCTION :

Tutorial - a service in teaching and learning process - is usually offered by open and distance learning (ODL) institutions. In ODL, students geographically are separated from their lecturers (Bufford, 2005). Since ODL students also need persons who can be asked and to discuss courses materials, institutions offer tutorials to its students. Tutorials can be in the forms of face-to-face or electronic (internet). Universitas Terbuka (UT) as an ODL institution offers both forms of tutorial which are face-to-face tutorials and online tutorials.

It is possible to base the two-way communication in distance education between students and tutors by tutorials. However, it is also more helpful to provide printed materials for the courses. These printed materials should be as selfinstructional as possible and argumentative in style, causing the students to identify any problems and either follow the problemsolving paths of leading scholars or do their own problem-solving (Nigam & Kaushik, 1996).

Effective communication between students and tutors is usually in tutorial process. Learning in tutorial refers to learning with highly skilled tutor and students in a group. The focus is on individual students on learning rather than teaching. The student should be fully active in learning (Bork & Gunnarsdottir, 2001).

For some courses, face-to-face tutorials at UT are usually provided only if the number of participants is at least 20. These tutorials are fees-based and provided according to demand. The targets of face-to-face tutorials are students who live in urban area and those who have access to the closest locations of face-to-face tutorials (Belawati, 2001). The students who are taking certain courses need to ask regional center if they want to be in face-to-face tutorials. Since the face-to-face tutorials are fees based, these activities are in the form of selling services. UT's students as customers have to receive at least good services that can fulfill their needs.

According to marketing theory, every customer has "customer-value" which consists of product quality, service quality, and price of product. In addition, customer value even though not directly, has relationship with customer satisfaction (Nauman & Giel, 1995). In this article, service quality is tutor performance; product quality is tutorial result; and product price is tutorial price. Tutor performance consisted of five sub-variables which are tutorial preparation, mastery of subject matter. teaching ability, communication ability and tutor discipline. Each of tutorial result and tutorial price is a single variable. They are all latent variables.

This study concerns the tutor performance, tutorial result, tutorial cost and their impact to the students' satisfaction. To be more detail the following two research questions guide this study ;-

Q1. Do the sub-variables in tutorial performance (tutorial preparation, mastery of subject matter, teaching ability, communication ability and tutor discipline), tutorial result variable, tutorial cost variable and customer satisfaction variable relate to each other?

Q2. How does each independent variable (tutorial preparation, mastery of subject matter, teaching ability, communication ability, tutor discipline, tutorial result, tutorial cost, and interacted variables) influence the students' satisfaction in face to face tutorial?

# 2. Methods :

This article is based on a survey research where students' perception on tutor performance, tutorial result, tutorial cost and students' satisfaction were measured by using scale. Statements were developed to measure those variables in 6 scales. Since all variables are construct variables (latent variables), factor analysis is used to form those latent variables.

### 2.1 Measuring Latent Variables

Goods quality can be measured objectively by indicators such as durability and number of defects (Crosby 1979 ; Garvin 1983).

However, services are performances rather than objects. They cannot be seen, felt, tested or touched in the same manner in which goods can be sensed (Zeithaml et al., 1985).

Therefore, service quality is an abstract and elusive construct. From theories, there are three features unique to services: intangibility, heterogeneity, and inseparability of production and consumption. When objective measures do not exist, an appropriate approach for assessing the quality of a service is by measuring consumers' perceptions of quality (Parasuraman et al., 1985). According to those researchers, no quantitative yardstick is available for measuring these perceptions.

Perceived quality is the consumer's judgment about an entity's overall excellence or superiority (Zeithaml, 1987). It differs from objective quality as defined by Garvin (1983) and Hjorth (1984). It is a form of attitude, related but not equivalent to satisfaction, and resulted from a comparison of expectations with perceptions of performance.

Olshavsky (1985) views quality as a form of overall evaluation of a product. It is similar in many ways to attitude. Holbrook (1985) concurs, and also suggests that quality acts as a relatively global value judgment.

Exploratory research conducted by Parasuraman, Zeithaml & Berry (1985) supports the notion that service quality is an overall evaluation similar to attitude.

To measure variables, two instruments with 6 scales were developed. One instrument is for measuring customer value and another instrument is for measuring customer satisfaction. Customer value was built by tutor performance (consisted of 5 sub-variables), tutorial result and tutorial cost. Meanwhile, customer satisfaction was built by reliability, responsiveness, assurance, empathy, and tangible.



Figure 1 : Relationship between Variables

### 2.2 Customer Value (Tutor Performance, Tutorial Result and Tutorial Cost)

Performance is a result of activities from work plan (Rivai & Basri, 2005). In teaching process, tutors/lecturers/teachers work to help students in mastering course content (Mulyasa, 2005). To give good lecture, many things need to be prepared in tutorial. Tutors need to prepare content material (Arends, 1989). Tutors need to master the course content (Cruickshank, et al, 2009). Tutors need to have good ability in explaining concepts in the course content (Arends, 1989). Tutors need to have good communication skill (Taylor, 2003). Tutors also need to have ability in evaluating students progress (Arends, 1989). Since in face to face tutorial the number of meetings is half than in regular class, tutor also needs to have discipline in implementing tutorial plan. Otherwise, the targets in tutorial will not be fulfilled. If tutors have all of these qualities, it is expected that they can give their best performance to the students.

The performance by teachers influence the students' success (Mulyasa, 2005). Therefore teachers play an important role in helping students to master the courses. The Teachers/tutors need to have an understanding that teaching and learning are a way to develop students' competencies and to improve students' behavior. It is expected that after finishing programs, the students can reach some competencies. In addition, teachers will also have some improvements year after year as their experiences developed.

Base on above theories, variable of tutors performance consist of five sub-variables which are 1) tutorial preparation, 2) mastery of subject, 3) teaching ability, 4) communication ability, and 5) tutor's discipline in running face to face tutorial. To measure each variable, some statements were developed. They were five statements for tutorial preparation, five statements for mastery of subject; 13 statements for teaching ability (divided into 3 more subvariables) seven statements : for communication ability ; and eight statements for tutor's discipline.

Having involved in tutorial process, students understanding in course materials should have been better. It is expected that learning course material will not be a big problem anymore for students. By doing a lot of exercises, students' ability in solving problems should be improved. Students' motivation in learning is also expected to be higher. At the end of semester, students will be ready to be evaluated and it is expected that they will get good result or pass the exams. To measure tutorial result, five statements were developed.

Product's price should be competitive. It means that good services and good products are guaranteed but the price is not expensive, especially if similar products are also available in the market. Products' price basically is determined by product's quality and service quality (Nauman & Giel, 1985). Hanif, Hafeez, and Riaz (2010) found that price fairness had an impact on customer Tutorial's satisfaction. price should consider students' economics background (Ratminto & Winarsih, 2005). Meanwhile, students also need to spend some money in copying handouts, problem and solving, and other written materials (handout). To measure tutorial cost related to students' perception, five statements were developed.

# 2.3 Interaction between Variables

In a research where many variables are involved, interaction between variables sometimes exists.. There are three variables which are assumed to have interaction. They are mastery of subject matter, teaching ability and communication ability. Lecturers cannot give good lecture without having enough knowledge in a subject (Shulman, 1987). They have to prepare themselves by studying the subject matters. Mastery of subject matter will influence teaching ability. In this case, mastery of subject will interact with teaching ability.

Without good communication. the discussion process and the teaching process between lecturers and students will not run well. Good communication ability at least should be owned by the lecturers. It is hard to receive what lecturers give, if the way in explaining concept is not good. Communication skilled will influence teaching ability (Neves & Sanyal, 1991). From this point of view, communication ability will interact with teaching ability. However, will interaction between mastery of subject. teaching ability and contribute communication ability to customer satisfaction? The data will answer the question.

# 2.4 Customer Satisfaction

Satisfaction is a summary psychological state resulted when the emotion surrounding disconfirmed expectations is coupled with the consumer's prior feelings about the consumption experience (Oliver, 1981). Howard and Sheth (1969), and also Hunt (1979) state that most of all measures of satisfaction relate to a specific transaction. Oliver (1981) summarizes the transactionspecific nature of satisfaction. He differentiates it from attitude, as follows: Attitude is the consumer's relatively enduring affective orientation for a product. store, or process (e.g., customer service) while satisfaction is the emotional reaction following a disconfirmation experience which acts on the base attitude level and is consumption-specific. Attitude is therefore measured in terms more general to product

or store and is less situational oriented. Consistent with the distinction between attitude and satisfaction is a distinction between service quality and satisfaction. Perceived service quality is a global judgment, or attitude, relating to the superiority of the service, whereas satisfaction is related to a specific transaction. Indeed, in the twelve focus interviews included group in the exploratory research conducted bv Parasuraman et al. (1985), respondents gave several illustrations of instances when they were satisfied with a specific service but did not feel the service firm was of high quality. In this way, the two constructs are related, in that incidents of satisfaction over time result in perceptions of service quality. In Oliver's (1981) words, "satisfaction soon decays into one's overall attitude toward purchasing products."

Perceived service quality is therefore viewed as the degree and direction of between discrepancy consumers' perceptions and expectations. Term of "expectations" as used in the service quality differs from the way it is used in the consumer satisfaction. In the satisfaction literature, expectations are viewed as predictions made by consumers about what is likely to happen during an impending transaction or exchange. For instance, according to Oliver (1981), "it is generally agreed that expectations are consumerdefined probabilities of the occurrence of positive and negative events if the consumer engages in some behavior". In the service quality literature, expectations are viewed as desires or wants of consumers, i.e., what they feel a service provider should offer rather than would offer.

Service quality is influenced by perceived service and expected service. If perceived service is less than expected service, the customer will not be satisfied. On the other hand, if perceived service is more than expected service, the customer will be satisfied. Customer satisfaction is customer's feeling of pleasure or disappointment resulting from comparing a product's received performance (or outcome) in relations to customer expectation (Rangkuti, 2002).

There are five dimensions (sub-variables) in building customer satisfaction. These dimensions are reliability, responsiveness, assurance, empathy, and tangible (Parasuraman et al., 1988). Empathy is measured by 3 statements and the rest of them are measured by 5 statements. To measure customer satisfaction, 23 statements were developed.

### 2.5 Data

The population was students in Bandung and Jakarta who were involved in face-toface tutorials. Those students were from study programs in Faculty of Economics. Faculty of Social Science, and Faculty of Education. As additional information, the courses were differed from one study program to others. 200 of participants were taken as a sample by using purposive sampling. The respondents were the students who attended the last session of face to face tutorials. These respondents were 100 from Jakarta and 100 from Bandung. They were asked to respond to all statements in the instruments at the end of the 7<sup>th</sup> or 8<sup>th</sup> session.

The scales for each statement in tutor performance (38 statements), tutorial result (5 statements) and tutorial cost (5 statements) were from 1=strongly disagree to 6=strongly agree. To measure customer satisfaction (23 statements), the scales were from 1=extremely-not-satisfied to 6=extremely-satisfied.

Test of validity for each statement showed that correlation coefficient between each statement and total score were 0.389 to 0.886 and significant at p < 0.05. Most of the correlation coefficient was greater than 0.780. This information showed that all the statements are valid. In addition, Alpha Cronbach values were between 0.759 -0,915. This information also showed that the instruments are reliable.

All variables in this article are construct variables. These variables (factors) are confirmed after running factor analysis. The factors have means of 0.00 and variances of 1.00. To prevent from the impact of different sign of + and - in multiplication, the variables which are interacted need to

be shifted to the right of 0. In this case, the data from interacted variables were shifted by +5.00. This shifting does not influence the calculation of statistics. However, they influence the calculation of variables interaction. By adding 5.0 to each data in latent variable, it is assumed that there will be no negative values anymore. As an example, before shifting the data, (-0.5 x - 0.5) is equal to (0.5 x 0.5). However, after adding 5.00 to the data, the calculation of (-0.5 x -0.5) becomes (4.5 x 4.5) and the calculation of (0.5 x 0.5) becomes (5.5 x 5.5). Therefore, the multiplication between the data is changed.

#### 3. RESULTS AND DISCUSSION :

Descriptively, students gave positive response to almost all of statements. The means value of statements were between 4.27 and 5.37 where the scores were from 1 to 6. Only one statement which was about the availability of overhead projector had mean a value = 3.47. Although it was the smallest mean value but it was still big because it was greater than 3.00. In addition, 10%-13% of them gave negative response (response scores was  $\leq 3$ ) on some statements. From descriptive information, the students did not face difficulties in following face-to-face tutorials. Moreover, they were also satisfied with the process of face-to-face tutorials.

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As discussed before, each variable/subvariable was measured by some statements. From exploratory factor analysis on each variable/sub-variable, one factor was produced for each of them. Therefore, seven factors as latent variables which were tutorial preparation ( $FL_{ST}$ ), mastery of subject ( $FL_{KM}$ ), teaching ability ( $FL_{PM}$ ), communication ability ( $FL_{KK}$ ), tutor discipline ( $FL_{DT}$ ), tutorial result ( $FL_{HT}$ ), and tutorial cost ( $FL_{BT}$ ) were formed.

Five factors (reliability, responsiveness, assurance, empathy, and tangible) were also formed. These factors formed the customer satisfaction (FL<sub>KP</sub>). The result of factor analysis is shown in Table 1. To produce tutor performance factor, the five subvariables in Tutor Performance were factorized. This process produced one factor with KMO = 0.856 where the Bartlet test was significant at p < 0.001. The factor explained 73,339% of Tutor's Performance variance.

When Tutor Performance, Tutorial Result and Tutorial Cost were factorized, it produced one factor with KMO = 0,682 and the Bartlet test was significant at p < 0,001. This factor was called Customer Value.

Customer satisfaction consists of five sub-variables which are reliability, responsiveness, assurance, empathy, and tangible. Statements in each sub-variable formed one factor as latent variable. Table 1 shows the result of factor analysis on the five sub-variables of customer satisfaction.

| Variable                 | and Sub-Variables    | КМО   | Bartlet Test at p < | % Variance<br>Explained |
|--------------------------|----------------------|-------|---------------------|-------------------------|
|                          | Tutorial Preparation | 0.729 | 0.001               | 51.334                  |
|                          | Mastery of subject   | 0.810 | 0.001               | 58.380                  |
| Tutor Performance        | Teaching Ability     | 0.833 | 0.001               | 75.747                  |
|                          | CommAbility          | 0.833 | 0.001               | 51.693                  |
|                          | Tutor's Discipline   | 0.706 | 0.001               | 71.279                  |
| Tutorial Result          |                      | 0.865 | 0.001               | 68.937                  |
| Tutorial Cost            |                      | 0.819 | 0.001               | 69.415                  |
|                          | Reliability          | 0.807 | 0.001               | 61.375                  |
| Customer<br>Satisfaction | Responsiveness       | 0.819 | 0.001               | 63.889                  |
|                          | Assurance            | 0.876 | 0.001               | 73.157                  |
|                          | Empathy              | 0.792 | 0.001               | 63.223                  |
|                          | Tangible             | 0.805 | 0.001               | 61.257                  |

Table 1 : Results from Factor Analysis on Variables

These five variables when they are factorized formed a latent variable of customer satisfaction. The statistics were: KMO = 0,805; Bartlett test = 444.465, significant at p < 0.001. Variance which was explained by the five sub-variables in customer satisfaction was 61.257%.

Tables 2a and 2b shows that every independent factor has significantly positive correlation with customer satisfaction factor. Correlations among independent factors are also significant. These significant correlations will influence coefficient in regression function between customer satisfaction and all independent variables. Generally, in a model which involves many independent variables, there will be significant correlation among them. Effect of this multi collinearity is hard to be predicted. It is depend on the data which were collected (Agung, 2006). Therefore, independent variables need to be simplified. Some variables which do not influence dependent variable should be removed in order to see the effect of variables left. The

first variables which had the biggest significant value should be removed. Next step was running the regression without including those variables. Continue this process until the rest of independent variables were significantly influence the dependent variable.

Mastery of subject and tutor's discipline had significant correlation at p < 0.01 with r = 0.586. This information shows that to master the subject, tutor needs to have discipline in studying the materials. Tutor needs to allocate some of his/her time to study learning-materials in order to master the course content.

Since independent variables were correlated each other, only two variables significantly customer contribute to satisfaction (see Tables 2a and 2b). Multi collinearity will influence the number of variables in the equation. Their shared variance will reduce the variance in each variable when they are to enter the equation. To maximize the number of variables in equation, some variables that significantly

| Table 2a. Pearson Correlations between Varia | ables (continued into Table 2b) |
|--|---------------------------------|
|--|---------------------------------|

| Variable              | Tutorial<br>Preparation | Mastery of<br>Subject | Teaching<br>Ability | Communicative<br>Ability |  |
|-----------------------|-------------------------|-----------------------|---------------------|--------------------------|--|
| Tutorial Preparation  | 1                       | .598                  | .560                | .514                     |  |
| Mastery of Subject    | .598                    | 1                     | .686                | .620                     |  |
| Communicative Ability | .560                    | .686                  | 1                   | .734                     |  |
| Mastery of Subject    | .514                    | .620                  | .734                | 1                        |  |
| Discipline            | .403                    | .586                  | .703                | .610                     |  |
| Tutorial Result       | .440                    | .525                  | .720                | .593                     |  |
| Tutorial Cost         | .271                    | .349                  | .496                | .437                     |  |
| Customer Satisfaction | .290                    | .392                  | .517                | .477                     |  |

Table 2b. Pearson Correlations between Variables (continued from Table 2a)

| Variable              | Discipline | Tutorial<br>Result | Tutorial Cost | Customer<br>Satisfaction |  |
|-----------------------|------------|--------------------|---------------|--------------------------|--|
| Tutorial Preparation  | .403       | .440               | .271          | .290                     |  |
| Mastery of Subject    | .586       | .525               | .349          | .392                     |  |
| Communicative Ability | .703       | .720               | .496          | .517                     |  |
| Mastery of Subject    | .610       | .593               | .437          | .477                     |  |
| Discipline            | 1          | .709               | .584          | .554                     |  |
| Tutorial Result       | .709       | 1                  | .546          | .593                     |  |
| Tutorial Cost         | .584       | .546               | 1             | .383                     |  |
| Customer Satisfaction | .554       | .593               | .383          | 1                        |  |

do not contribute to the dependent variable were removed from the equation (see Table 3). By removing those variables that do not significantly contribute to the dependent variable, other variable will significantly enter the equation. This trial and error process will maximize the number of independent variables in the equation. Besides that, the F value will increase. Table 4 shows the result of removing some independent variables.

In Table 4, there are four models which were resulted from regression process. The first model is when all variables are in equation without considering the level of significance. There are only two significant independent variables in the first model which are  $FL_{PM}*FL_{KK}$  and  $FL_{HT}$ .

The next step was removing  $FL_{ST}$ ,  $FL_{KM}$ and  $FL_{BT}$  from the equation. This means, those variables were not included in the regression process. It can be seen that the F value is increase. The number of independent variables is still two but intercept now become significant. By removing other variables (FL<sub>KK</sub> and FL<sub>DT</sub>) the number of significant variables in equation becomes five and F value is also increase. Finally, by removing  $FL_{KM}*FL_{KK}$ , the number of variables in equation was still five but the F value was increase. Model-4 has biggest F value among the four models

and contains five independent variables including those which were interacted. The final regression equation is:

 $FL_{KP} = 2.877 - 0.790 FL_{PM} + 0.414 FL_{HT} + 0.151 FL_{PM}*FL_{KK} + 0.083 FL_{KM}*FL_{PM} - 0.015 FL_{KM}*FL_{PM}*FL_{KK}$ 

Beside  $FL_{PM}$  (teaching ability), the variance of tutorial preparation (FL<sub>ST</sub>) was taken by the interaction between FLKM (mastery of subject),  $FL_{PM}$ , and  $FL_{KK}$ (communication ability). As mention before, FL<sub>KM</sub> is mastery of subject. To master the subject, tutor should prepare himself/herself by studying the subject matter. Tutor discipline was needed in studying the subject matter and in preparing the tutorial. Therefore, FL<sub>ST</sub>, FL<sub>KM</sub>, FL<sub>KK</sub>, and FL<sub>DT</sub> were not in equation but interactions of some variables were in equation. Even though tutorial cost  $(FL_{BT})$ had significant correlation with all other variables, but it was not in equation since the beginning. Probably the respondents feel that tutorial cost was not worth enough compare to the tutorial result. However, the tutorial cost had significant correlation with customer satisfaction.

Logically, interaction of  $FL_{KM}^* FL_{PM}^*$  $FL_{KK}$  makes sense. To give good lecture, lecturer needs to have good communication skilled and lecturer needs to master subject matter. Without mastering subject matter,

| Deremeter             | В     | Std<br>Error | t     | Signif | 95% confidence |       | Partial |
|-----------------------|-------|--------------|-------|--------|----------------|-------|---------|
| Parameter             |       |              |       |        | Lower          | Upper | Squared |
| Intercept             | 2.618 | 2.917        | .898  | .370   | -3.135         | 8.372 | .004    |
| FL_ST                 | 040   | .076         | 523   | .602   | 190            | .110  | .001    |
| FL_KM                 | .045  | 1.146        | .040  | .969   | -2.215         | 2.306 | .000    |
| FL_PM                 | 434   | .519         | 836   | .404   | -1.457         | .590  | .004    |
| FL_KK                 | 404   | .634         | 638   | .524   | -1.654         | .846  | .002    |
| FL_DT                 | .143  | .097         | 1.472 | .143   | 049            | .335  | .011    |
| FL_HT                 | .361  | .091         | 3.965 | .000   | .181           | .540  | .077    |
| FL_BT                 | 010   | .071         | 147   | .883   | 151            | .130  | .000    |
| FL_KM * FL_PM         | .016  | .176         | .093  | .926   | 330            | .363  | .000    |
| FL_PM * FL_KK         | .171  | .078         | 2.181 | .030   | .016           | .326  | .025    |
| FL_KM * FL_KK         | .074  | .228         | .322  | .747   | 377            | .524  | .001    |
| FL_KM * FL_PM * FL_KK | 020   | .031         | 633   | .528   | 080            | .041  | .002    |

Table 3. First Regression Equation between Customer Satisfaction and other Variables

|  | Model-1 |       | Model -2 |       | Model-3 |       | Model-4 |       |
|--|---------|-------|----------|-------|---------|-------|---------|-------|
|  | В       | Sig.  | В        | Sig.  | В       | Sig.  | В       | Sig.  |
| Intercept  | 2.618   | 0.370 | 2.631    | 0.001 | 3.005   | 0.001 | 2.877   | 0.001 |
| FL <sub>ST</sub>                                     | -0.040  | 0.602 |          |       |         |       |         |       |
| FL <sub>KM</sub>                                     | 0.045   | 0.969 |          |       |         |       |         |       |
| FL <sub>PM</sub>                                     | -0.434  | 0.404 | -0.478   | 0.266 | -0.833  | 0.026 | -0.790  | 0.016 |
| FL <sub>KK</sub>                                     | -0.404  | 0.524 | -0.396   | 0.314 |         |       |         |       |
| FL <sub>PM</sub> *FL <sub>KK</sub>                   | 0.171   | 0.030 | 0.171    | 0.013 | 0.155   | 0.002 | 0.151   | 0.001 |
| FL <sub>KM</sub> *FL <sub>KK</sub>                   | 0.074   | 0.747 | 0.074    | 0.369 | -0.07   | 0.813 |         |       |
| FL <sub>PM</sub> *FL <sub>KM</sub>                   | 0.016   | 0.926 | 0.026    | 0.661 | 0.087   | 0.040 | 0.083   | 0.031 |
| FL <sub>PM</sub> *FL <sub>KM</sub> *FL <sub>KK</sub> | -0.020  | 0.528 | -0.020   | 0.051 | -0.015  | 0.016 | -0.015  | 0.009 |
| FL <sub>DT</sub>                                     | 0.143   | 0.143 | 0.143    | 0.126 |         |       |         |       |
| FL <sub>HT</sub>                                     | 0.361   | 0.001 | 0.355    | 0.001 | 0.415   | 0.001 | 0.414   | 0.001 |
| FL <sub>BT</sub>                                     | -0.010  | 0.883 |          |       |         |       |         |       |

Table 4. The Effect of Removing Variables that do not Contribute to Customer Satisfaction

lecturer cannot give overall contents to his/her students. Lecturer also cannot explore the concepts properly. Without having good communication skill, lecturer will have difficulties in explaining subject matter to the students. The ability in giving a lecture is therefore influenced by mastery of subject and communication skill.

Since the beginning, interaction between mastery of subject  $(FL_{KM})$ and communication ability ( $FL_{KK}$ ) did not contribute to the customer satisfaction ( $FL_{KP}$ ). Whenever some variables were removed, FL<sub>KM</sub>\*FL<sub>KK</sub> still did not contribute to  $FL_{KP}$ . Even though  $FL_{KM}$ (mastery of subject) and FLKK (communication ability) had significant correlation, but they are separated in concepts. Therefore, these variables were not interacted to influence the dependent variable.

There is significant correlation among all variables (between all independent variables and dependent variable). In research where many independent variables are involved, the correlation between them will influence the regression process. As a consequence, there are only few variables enter the regression equation. To maximize the number of variables in the equation, some independent variables that do not influence the regression process. As additional information, some variables are interacted and influence the customer satisfaction. At first, there were only two independent variables in the equation. Removing some independent variables which did not influence dependent variable has an effect on the F value. Besides that, the number of significant independent variables in regression equation will also increase. Mostly, variances from removed variables are already accounted for in other variables.

Therefore, from all independent variables completed with interactions, five of them were left as variables which influence the dependent variable. Coefficients regression in the model-4 showed that there were significant contributions from some independent variables to the customer satisfaction. It seems that quality of service (represented by teaching ability, and interactions between teaching ability and communication ability, mastery of subject and teaching ability, and interaction between mastery of subject, teaching ability, and communication ability) and quality of product for face-to-face tutorial influence customer satisfaction. Tutorial cost did not appear in the equation but it had significant correlation with customer satisfaction. This showed that the variance of tutorial cost was taken by other variables. This means that tutorial cost still influences the customer satisfaction by using other variables that correlated with tutorial cost. This finding is still consistent with Holbrook's (1985) statement that quality acts as a relatively global value judgment.

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