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Determinants of Students Participating in Online Examination

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Abstract

The purpose of the study is to discover determinant of students' participation in online examination based on expectancy-value theory. The method used was group comparison between the groups of participating and no participating students. The results showed that the following factors differentiated the two groups, i.e.: (1) self efficacy in using computers ($t=12.81$, $p<0.01$), (2) perceived of easiness in operating an online examination ($t=9.51$, $p<0.01$), (3) perceived of the importance of online examination ($t=5.58$, $t<0.01$), (4) intrinsic value of online examination ($t=10.58$, $p<0.01$), and (5) cost of online examination ($t=-2.05$, $p=0.029$). In addition, the following students' personal factors were also compared and the results were (1) age ($t=-2.01$, $p=0.46$), (2) grade point average ($t=-5.546$, $0<0.01$), (3) sex ($\chi^2=28.51$, $p<0.01$), and (4) marital status ($\chi^2=6.50$, $p=0.011$). The results concluded that the expectancy and value theory was useful for explaining and predicting students' participation in online examinations.

Keywords: *Expectancy-value theory, online examination, determinant factors*

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Introduction

The success of students in open and distance learning (ODL) environments is centered around their own self-directed learning readiness. Therefore, the success of ODL institutions was highlighted in facilitating and disseminating the flexible and open learning resources to the students such that they, as the self-directed learners, could utilize easily the resources. The online examination is considered as a learning resource which is more open and flexible for students to use than conventional examination using paper and pencil. In order to maintain openness, ODL institutions are urged to provide the online examination services, as explained by Khare and Lam (2008) that the issue of online examination for distant learners can no longer be ignored or indefinitely postponed. In line with that requirement, Universitas Terbuka (UT) has launched the online examination in 2010, by increasing participants from 332 the first semester of 2010 to 2293 in the second semester of 2012 (Sapriati & Pardede, 2015). Bengkulu Regional Office of UT has begun to run the online examination in 2012. In the first semester of 2015, the number of students participating in the online examination was 1239 students or about 30% of the total number of students in the educational program for non-teacher in Bengkulu Province. One of the duties of Regional Office of UT is to promote learning resources, including the online examination, to the students. To promote the available learning resources, it is necessary to recognize all aspects related to students' barriers and opportunities to adopt the online examination.

The objective of the study was to analyse some factors contributing to students' participation in online examination. The factors analysed in the study were deducted from expectancy-value theory, i.e.: easiness, self-confidence, importance, intrinsic value, and cost. In addition, personal factors such as age, sex, marital status, work status, and grade point average were also analysed to reveal the roles in students' participation in the online examination. To achieve the above study objectives, the following research questions were formulated:

- 1) Do the factors of easiness, self-confidence, importance, intrinsic value, and cost attributed to the online examination have differentiated the participating and non participating students in the online examination?
- 2) Do the students personal factors of age, sex, marital status, and GPA have discriminated the participating and no participating students in the online examination?

Expectancy Value Theory

The expectancy-value theory of motivation is grounded in the claim that individuals choose behaviors based on the outcomes they expect and the values they ascribe to those expected outcomes (Panchal, Adesope, & Malak, 2012). In other words, the expectancy value theory hypothesizes that students' motivation for participating in online examination depends on perceptions about the odds of success and the value of completing that learning resources. In general, the expectancy-value theory could be put in this mathematical formula: $\text{Motivation (M)} = \text{Expectancy for Success in a Task} \times \text{Subjective Task Value}$. The degree of expectancy for success and value of online examination will contribute to the degree of motivation in participating in the online examination.

Expectancy for success depends on the confidence of the individuals have in their abilities and on the individual estimations of the difficulty of the task (Eccles, 2005). In the online examination, the individual self-confidence is associated with conviction in using computers for the online examination. Therefore, the first factor reported in this study was student self-confidence in using computers for the online examination. In most of the situations, self-confidence is not related directly with the easiness. Self-confidence is linked to personal abilities, while easiness is much more connected to the efforts needed to accomplish the task. If a task is considered as an easy one, then it means that the task does not need much work. Hence, the second factor in this study was the easiness in doing the online examination. In conclusion, expectancy for success in this study was focused on two factors, i.e. self-confidence in using computers and easiness in doing the online examination.

According to Panchal, Adesope, & Malak (2012), value has four components: (1) attainment value, (2) intrinsic value, (3) utility value, and (4) cost. The attainment value is related to a personal importance of doing well on the task. The intrinsic value is associated with an enjoyment that an individual derives from performing the activity. The utility value is tied with how well a task relates to current and future goals. The cost is linked to the negative aspects of engaging in a task.

The students surely expect a good grade in examination results, whether it is an online or a paper and pencil examination. The students know certainly that the examination results are not relying on the mode of examination, but it depends on the learning process before they do an examination. Therefore the attainment value used in this study is not related to how well the students achieve on the examination. It is almost the same with the utility value which should have related to the students' future goals, but doing an online examination is no different to paper-and-pencil examination. In this study,

however, attainment value and utility value were combined in importance factor of the online examination. The importance of online examination could be related to wider opportunity for the students to have more frequent and time flexibility. Therefore, in this study, the component of values was measured by three factors, i.e.: (1) importance, (2) intrinsic value, and (3) cost. In conclusion, this study was based on expectancy-value theory to identify the determining factor for students to participate or not in online examination and the hypothesized factors were (1) self-confidence in using computers, (2) perceived easiness in doing online examination, (3) importance of online examination, (4) intrinsic value of online examination, and (5) cost.

Method

The population was students of Universitas Terbuka registered in the Bengkulu Regional Office and the sample was 187 students consisting of 99 participating and 88 no participating students. The underlying hypotheses were that the participating student group scored higher than the no participating group in variables of self confidence, perceived easiness, importance, intrinsic value, and cost of the online examination. The instrument for measuring those variables was the Likert scale with a reliability of alpha Cronbach equal to 0.897. The data were taken in first semester of 2015 in Bengkulu Province. The data analysis used t-test for group comparison between participant and non participant students in those variables as well as data of age and GPA. The additional data by sex and marital status was compared by chi-square test.

Results and Discussion

The Individual Characteristic Factors

The characteristics of the sample were described in Table 1. The number of students in the participating group was 99 and in the no participating group was 88. Participating group was slightly dominated by male (57%) in contrast to no participating group which was dominated by female (63.8%). The number of married students in the participating group (43.5%) was less than the number of married students in the no participating group (56.5%). The participating group students tended to be younger than the no participating students, i.e. 28.12 and 30.75 on average. Surprisingly, the GPA average of the participating group students (2.67) was considerably less than the no participating group students (3.03).

Table 1. Description of sample characteristics

Characteristics	Participating Group	No participating Group	Total
Number of students	99	88	197
Sex:			
• Female	42 (37.2%)	71 (63.8%)	113 (100.0%)
• Male	57 (77.0%)	17 (23.0%)	74 (100.0%)
Marital Status:			
• Married	40 (43.5%)	52 (56.5%)	92 (100.0%)
• Unmarried	59 (62.1%)	36 (37.9%)	95 (100.0%)
Age:			
• Mean	28.12	30.75	29.36
• Std. Dev.	7.504	10.015	8.850
GPA:			
• Mean	2.67	3.03	2.85
• Std. Dev.	0.55	0.25	0.47

Difference in student personal characteristics, i.e. sex, marital status, age, and GPA, between the participant group and the nonparticipant group was shown in Table 1. These differences should be tested statistically to conclude whether the differences were related to the chance of fluctuating sample or because of sample coming from different populations. The statistical tests were shown in Table 2.

Table 2. Students' Characteristics

Variables	Statistical Tests	Statistic Values
Sex	Chi-Square test	6.509*
Marital Status	Chi-Square test	28.516**
Age	t-test	.905
GPA	t-test	5.546**

*) level of significance = 0.05

**) level of significance = 0.01

It was shown in the Table 2 that only age was not significantly different between the participant and nonparticipant groups. In other words, the difference in age showed in the Table 1 was not attributed to the differences in the population but it was because of the fluctuating samples. On the other hand, sex, marital status, and GPA were differentiated between the participant and nonparticipant groups. This means that sex, marital status, and GPA is related to students' behavior to participate or not in online examination. In the Table 1, male students, compared to female students, tended to participate more in online examination. Furthermore, unmarried students have a higher tendency to participate in online examination compared to married students. The students with lower GPAs tended astonishingly to participate in online examination. The explanation for this last finding was that one of the reasons for the students participating in the online examination was because they had experience with unsatisfied results in paper-and-pencil test. They needed more frequent examinations and tried to get a new expectation and luck with the online examination. In general, it could be concluded that student personal characteristics, i.e. male, unmarried, and low GPA tend to participate in the online examination. In other words, sex, marital status, and GPA were the determinant factor for student participating in the online examination.

The Expectancy-Value Factors

Score description of the five factors deduced from expectancy-value theory consisted of easiness, self-confidence; importance, intrinsic value, and cost were shown in the Table 3. The mean and median was calculated from the score, which was valued between 1 to 5 on a rating scale. The comparison of factor variable between the participating and no participating student groups was appeared in Figure 2.

Table 3. Description of Factor Variables

Factor Variables	No participating (n=88)		Participating (n=99)		Total (n=187)	
	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
Easiness	2.290	1.0303	4.020	.7822	3.206	1.2526
Self-confidence	2.830	.8274	3.929	.7427	3.412	.9559
Importance	2.943	.4576	3.419	.6951	3.195	.6397
Intrinsic Value	2.767	.8406	3.990	.7353	3.414	.9950
Cost	2.960	1.1173	3.303	.9944	3.142	1.0651

The easiness factor was the student perception of the relatively effortless situation in participating on the online examination. The easiness here was not related to examination substances, but it was related to technical matters during the online examination. The no participating group had a mean of 2.290 less than 4,020 for the participating group. In the Table 4, it was revealed that the difference was significant at level 0.01. The effect size of Cohen's d was 1.92 indicating that the effect of easiness factor for participation in online examination was very strong. It could be concluded that the easiness factor differed between participant and nonparticipant group. In other words, student perception of easiness in doing the online examination was the determinant factor of students participating in online examination.

Self-confidence was the factor for rating their ability in using the computer in the online examination. The self-confidence factor was not directly related to easiness. Students that felt difficulty in using the computer in the online examination would be self-confidence if they had known that the UT's staff would give technical assistance in operating the computer in the online examination. The mean for the self-confidence of no participating group was 2.830 and it was less than mean for the participating group (3.929). The mean difference in the two groups was significant at the level of 0.01,

as could be seen on the Table 4. An effect size of self-confidence to participate in online examination was 1.40 indicating there was a very strong effect. This means that the self-confidence was a differing factor between participating students and no participating students in the online examination. Therefore, the self-confidence was the determinant factor of students participating in online examination.

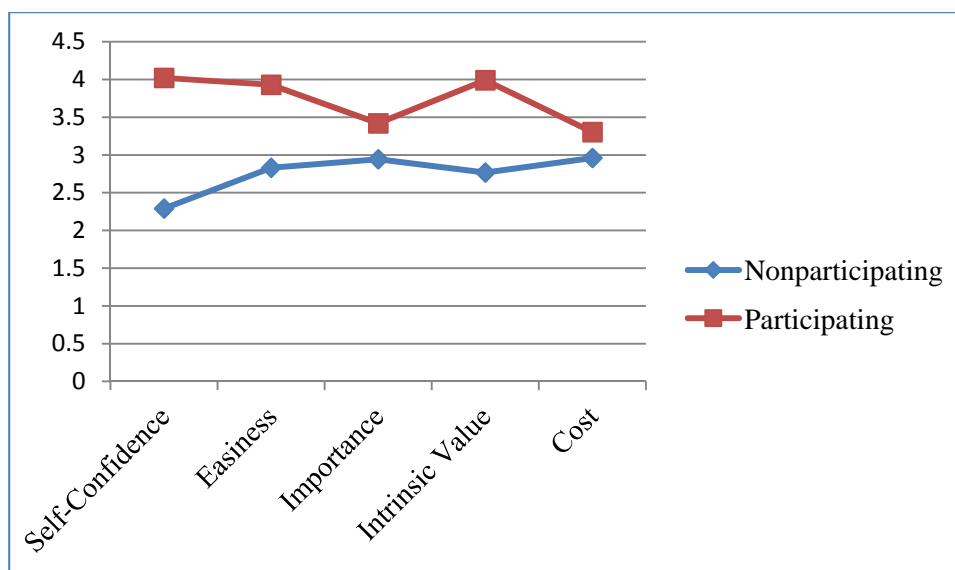


Figure 1. Comparison between Participating and No participating Student Groups

The importance factor was referred to the worth of the online examination to the students. The importance of the online examination could be linked to the online examination as an alternative to the conventional paper-and-pencil examination. In this case, the importance of the online examination was attributed to the frequency of times the examination was taken and the quick time in which the students received their results. In UT's conventional examination, the results of the examination are known after about 40 days from the last day of the examination period, therefore, the quick results of the examination shows the importance of the online examination so the students can plan their courses for the following semesters. As could be predicted, the no participating student group had a mean score less than the mean score of the participating student group, i.e. 2.943 and 3.419. This mean difference was significant at level 0.01. The effect size of importance factor to participate in online examination was very strong indicated by effect size 0.82. This mean score of the factor of importance was discriminating between participant and nonparticipant group. In other words, the factor of importance was the determinant factor of students participating in online examination.

Table 4. Comparison between Nonparticipants (n=88) and Participants (n=99)

Variables	t-values	Effect Size (Cohen's d)
Easiness	-12.811**	1.92
Self-confidence	-9.518**	1.40
Importance	-5.587**	0.82
Intrinsic Value	-10.528**	1.56
Cost	-2.205*	0.33

*) level of significance = 0.05

**) level of significance = 0.01

Intrinsic value was a student's value toward the online examination, regardless the importance and ease of the online examination. The intrinsic value could be attributed to a novelty. The novelty effects of computer and information technology to the online examination could be a drive for the students to try it. The example of how a student interested in trying the online examination because of the novelty effect can be read in a blog written by a student (Natin Bali, 2013) who stated that she

wanted to get a new experience by registering for an online examination. The attraction to the online examination like Natin Bali (2013) was owned mainly by the participating student group which was indicated by the mean score of 3.990 compared to 2.767 for the no participating student group, as could see in Table 3. In Table 4, the mean difference between the two groups was significant at the significance level of 0.01. The Cohen's d or effect size of the intrinsic value factor was 1.56 indicating that there was a very strong effect of intrinsic value factor to students' participation in online examination. Therefore, it could be concluded that student perception of the intrinsic value of the online examination was the determinant factor of the students choosing to participate or not in the online examination.

Cost was including all student efforts, financial or nonfinancial, to carry out the online examination, which included time, money, and opportunity. At this time, the online examination is only held in the regional office of UT which is located in the capital city of the province. The Bengkulu City is the capital of the Bengkulu province. For example, the students come from Muko-Muko regency has to drive seven hours to reach the capital city of Bengkulu province. The score to the cost factor was a rating scale of 1 to 5. For the calculation in Table 3, the score was converted to the opposite to get positive values, so that the score of 1 become 5, 2 to 4, 4 to 2, 5 to 1. Therefore, the highest score on the cost factor was indicated that the students have fewer problems regarding the cost factor. Table 3 showed the mean score of cost factor for participating student group was 3.303 compared to 2.960 for the student no participating group. The difference was not quite considerable, but it was still significant for the significance level 0.05. The effect size of cost factor was 0.33 indicating a moderate effect. Therefore, it could be concluded that the cost factor was a determinant factor, though moderately, for differing the student participating and no participating in the online examination.

Discussions

The study results had shown that expectancy-value paradigm described accurately about students' participation in online examination in the Bengkulu Regional Office of Universitas Terbuka. In this study, all factors deducted from expectancy-value theory had been verified as determinant factors for students participating in online examination in Bengkulu Regional Office of Universitas Terbuka. The study results were in line with other studies applying expectancy-value theory. For example, Panchal, Adesope, & Malak (2012) have succeeded in applying the expectancy-value theory for developing an e-learning project and the students were motivated to use it. Andrusik (2011) studied the contribution of the expectancy-value theory to reading achievement of African American Adolescent and concluded that all motivation constructs inferred from expectancy-value theory were the significant predictors of reading achievement of African American adolescents.

Conclusion and Recommendation

The factors derived from the expectancy-value theory in this study, i.e. easiness, self-confidence, importance, intrinsic value, and cost were the determinant factor of the students registered in the Bengkulu Regional Office of Universitas Terbuka to participate in the online examination. In addition, sex, marital status, and GPA were also contributing to the student for participating or not in the online examination.

It is recommended to developer of learning resources for the students of ODL that all the learning resources should be developed and evaluated with students' expectancy-value in mind. The following factors should be noticed, i.e. easiness, students' ability, importance in the students' view, possible students' intrinsic values, and cost. It is also recommended to encourage the students of ODL to have the feeling of easiness, self-confidence, and importance of using online examination. It can be achieved by the students' trying out of online examination by guidance from regional office staffs in the new student orientation study activities.

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