

Factors influencing satisfaction on the e-learning and traditional training method of students at Thai Nguyen University of Economics and Business Administration

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Abstract: The study aims to examine the factors that influence the student satisfaction on the E-learning and traditional training method at Thai Nguyen University of Economics and Business Administration (TUEBA). The analytical method used in this work is exploiting SPSS software with descriptive statistical tools, test scale with Cronbach alpha coefficient, exploratory factor analysis (EFA) and regression analysis. Independent samples, ANOVA, is also made to clarify issues related to the research hypothesis. The regression model consists of five variables (University facilities, E-learning system, traditional lecturers, learners, university organization and management) are utilized to examine the factors influencing to the student satisfaction on the Combined E-learning and Traditional Training (CETT) methods, at TUEBA. The results show that all of 5/5 variables have an specific impact on the satisfaction of the students about CETT method. In particular, the factor of traditional lecturers has the greatest influence to the student satisfaction. From the obtained results, we have tried to propose some recommendation and solution to enhance the student satisfaction about the CETT method at TUEBA.

Key Word: Satisfaction; Factors influencing; training method; combined training; student.

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I. Introduction

Viet Nam's 2011-2020 education development strategy has set a general goal: "By 2020, our country's education will be fundamentally and comprehensively renovated in the direction of standardization, modernization and socialization, democratization and international integration; The quality of education is comprehensively improved, including: ethical education, life skills, creativity skills, practice, foreign language and informatics; meet the needs of human resources ... "[1]. This shows that, for Vietnam, educational development is the top national policy. Therefore, the innovation of teaching methods to improve the quality of higher education in Vietnam is an urgent issue for universities in general, as well as TUEBA in particular.

In addition to the traditional training methods, currently, TUEBA has been applying the Combined E-Learning and Traditional Training (CETT) method in the training program. With the explosion of technology nowadays, E-Learning is increasingly appreciated by the flexibility and convenience of time and place. Many universities have used remote E-Learning method to help learners can study anytime, anywhere, and can study many times; it also helps lecturers reduce the time of teaching in class. This is thing that traditional educational methods do not have [2]. Therefore, in order to improve teaching effectiveness, improve the quality of training and increase student satisfaction with this training method, we are motivated to conduct a research "Factors influencing satisfaction on the e-learning and traditional training method of students at Thai Nguyen University of Economics and Business Administration".

The study has been conducted to determine the factors influencing to the student satisfaction about the CETT method at TUEBA. In this work, we try to analyze and assess the student satisfaction about CETT method at TUEBA, from that giving some proposal and recommendation to help managers in universities and policy-makers having appropriate solutions to enhance training method, as well as to improve the student satisfaction at TUEBA in particular, Thai Nguyen regional university in general.

II. Material And Methods

This research tries to investigate the student satisfaction about the CETT method, conducted at TUEBA with the data being surveyed in 2019, January.

Research method:

Sample size

The total of student participating the CETT method was 532 (counted to 2019, May). Therefore, referencing to the method in [3], the sample size is calculated as the following equation:

$$\left[n = \frac{NZ^2 p(1-p)}{Nd^2 + Z^2 p(1-p)} = \frac{532(1.96)^2(0.5)(1-0.5)}{532(0.05)^2 + (1.96)^2(0.5)(1-0.5)} = 223.075 \right] \quad (\sim 223 \text{ samples})$$

In order to ensure the reliability and the validation, as well as the number of investigating sheets reaching the requirements, we have sent 260 to the students. As a result, we obtained 260 sheets, wherein 225 sheets are valid.

The 5-level Likert scale is used in the questionnaire

Methods of selecting the research samples: In this research, the samples have been randomly selected.

Research objects: Students participated courses that have been applying CETT method at TUEBA.

Survey time: The survey has been conducted from 2019 January.

Methods of Information collecting and data processing: Using primary and secondary data. The primary data has been collected from survey sheets that has been investigated on students of TUABE basing on reference from research of Bich [4].

Table 1: Sample size

Order	Field name	No. of Student	Sample size
1	General Informatics	330	138
2	General Law	126	53
3	Fundamental principles of Marxism and Leninism	76	32
	Sum	532	223

Research model

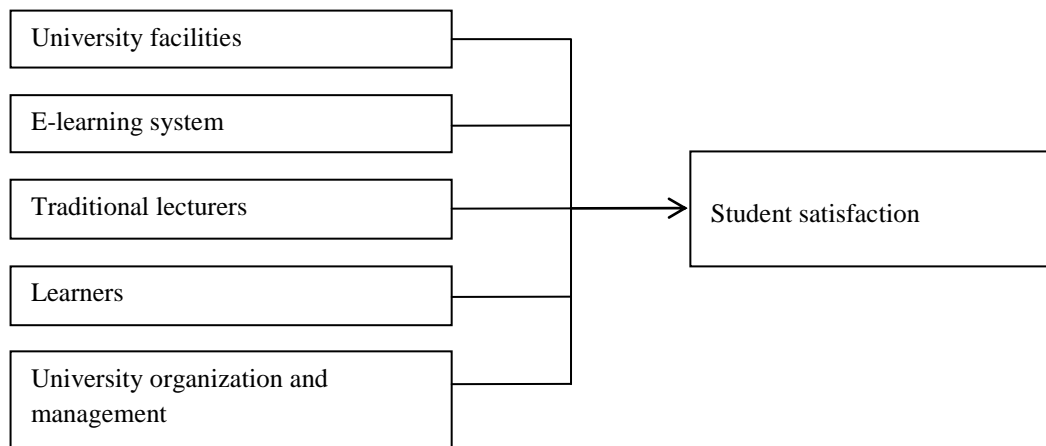


Figure 1: The proposed research model

$$Y = B_0 + B_1 X_1 + B_2 X_2 + B_3 X_3 + \dots + B_k X_k + \epsilon_i$$

Wherein:

Y is the dependent variable (student satisfaction)

X_k are the independent variables (the factors that affect to the student satisfaction)

B₀ is a constant

B_k are the regression coefficients (k > 0)

ε_i are random components or noisy factors

Independent variables: X₁ (facilities); X₂ (E-learning system); X₃ (Traditional lecturers); X₄ (Learners) và X₅ (University organization and management).

Research hypothesis

Hypothesis 1: There is a positive relationship between *facilities* and *student satisfaction* about the CETT method at TUEBA.

Hypothesis 2: There is a positive relationship between *e-learning systems* and *student satisfaction* about the CETT method at TUEBA.

Hypothesis 3: There is a positive relationship between *traditional lectures* and *student satisfaction* about the CETT method at TUEBA.

Hypothesis 4: There is a positive relationship between *learners* and *student satisfaction* about the CETT method at TUEBA.

Hypothesis 5: There is a positive relationship between *university organization and management* and *student satisfaction* about the CETT method at TUEBA.

Statistical analysis

The research was conducted with 223 respondents, randomly selected students allocated proportionately to the three subjects in TUEBA. All the data collected were processed using SPSS 20. The survey data were tested to examine its reliability by using the Cronbach’s Alpha and Exploratory Factor Analysis (EFA) was used to reduce the instrument for regression model. The initial five factors with 40 items were reduced into five factors with 40 items after the EFA. Analysis made use of descriptive statistics and Multiple Regression Analysis, T-test and Analysis of Variance (ANOVA) to test the hypotheses of the study.

III. Results

In this work, we applied SPSS software to analyze and process the collected data. The results show that the factors influencing to the student satisfaction have high reliable, with the value of Cronbach’s alpha coefficient ranging from 0.881 to 0.948.

After examining the reliability and correlation matrix, the results show that the variables are sufficiently reliable to be included in the regression model [5].

According to the results displayed in Figure 1, the response of students for the training methods is: 69.4% students prefer to participate the CETT method, 9.3% students prefer to choose the E-Learning, and 21.3% students want to learning with traditional learning method.

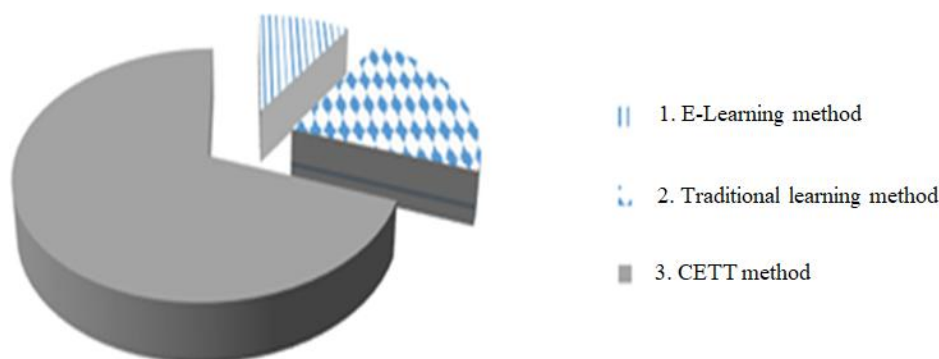


Figure 1. Survey results on the selection of student about training methods

Table 2. Statistics of satisfaction levels about university facilities at TUEBA (n=223)

Facilities	Average value	Standard deviation
Classrooms meet the learning conditions of students	3.57	1.024
Learning aids such as projectors are well equipped	3.26	1.081
Wifi learning facilities are well equipped	3.31	1.170
The practice room of the university meet the learning conditions of students	3.35	1.190
The library of the university are fullyequipped with books, documents, and computers for learning	3.43	1.109
The library of Learning Resources Center (Thai Nguyen regional University) is fully equipped with books, documents, computers for learning	4.09	0.976

The information displayed in Table 2 shows that students rate the university facilities at normal satisfaction with the average value ranging from 3.26 to 3.57. Particulaly, the shared facilities at Learning Resources Center, the students response is at high satisfaction with average value at 4.09. About the wifi system,

the satisfaction is at normal levels with average value at 3.31 and standard deviation of 1.170, showing investigated objects having very different judgments. One of the reason is at the time of survey, the wifi system for learning was weak, the network as slow. Especially in the learning area GK3 was far from wifi hotspot, lectures sometimes can not access the network to use the online learning website. Student satisfaction on projectors in learning class room was at lowest level (3.26); projector systems in the rooms are uneven, having many old projectors, ... this lead to the reason for un- high level of student satisfaction about the university facilities.

The E-learning system (the online training system at the address <http://LMS.tnu.edu.vn>)

The success of this training method (CETT) is based on the online training system at the address <http://LMS.tnu.edu.vn> of Thai Nguyen regional university. The general students' opinion was: although the online training system has much of useful and effective, it still has some certain limitations on: simple user interface, the lectures are not really lively, the interaction between lectures and students is not much, the procedure and time to create account for students is low.

Table 3. Statistics of student satisfaction about online learning website at <http://LMS.tnu.edu.vn> (n=223)

Online learning system	Average value	Standard deviation
Online learning page is easy-to-use, beautiful interface and user-friendly	3.59	1.241
The function of providing about schedule of teaching, learning and examining is clearly, convenient for users to look up and find information	3.73	1.131
Videos of lectures are provided following page, having content with hierarchical headings, clearly arranged, logical	3.78	1.132
Website is updated with content regularly	3.74	1.083
The technical department create account quickly, timely support	3.51	1.269
The online lecture videos have easy-to-understand and engaging content	3.32	1.489
Online teaching lecturers have easy-to-understand teaching method, teaching content is met the job's requirement	3.71	1.204
The content of lectures and tests is updated regularly	3.18	1.228

Table 3 shows that, almost students rate the online learning website at satisfaction level. The factor “The content of lectures and tests is updated regularly” is rated at lowest satisfaction level (3.18); the factor “The online lecture videos have easy-to-understand and engaging content” is rated at low-level satisfaction (3.32) with the standard deviation value of 1.489. This indicates that students have very different judgments on the factor. About the factor “Videos of lectures are provided following page, having content with hierarchical headings, clearly arranged, logical”, students rate with high-level of satisfaction (average value is 3.78)

Traditional lecturers

According to Table 4, students are quite satisfied with the lecturers as well as the teaching materials in traditional teaching. The average value is ranging from 3.61 to 3.83, in which the factor of *the traditional lecturers using the easy-to-understand and appropriate teaching method* reaches the highest level (3.83), this is a key factor in traditional teaching as well as guide students to learn online. Teaching staff in the school are young lecturers who are qualified, able to grasp and update information technology and enthusiasm. In addition, all lecturers have been trained to use an online learning system, which is able to communicate to help students approach and grasp the content of the course quickly and understand the core issues. This is considered a great advantage in implementing CETT method at the university

Table 4. Statistics of student satisfaction about traditional teaching

Traditional lecturers	Average value	Standard deviation
The traditional lecturers using the easy-to-understand and appropriate teaching method	3.83	1.185
Traditional lecturers enthusiastically answer learners' questions in class, as well as on the forum of the course	3.75	1.143
Traditional lecturers fully inform the learning plan (content, weekly exercises)	3.63	1.182
Having extensive knowledge of teaching expertise	3.61	1.153
Lecturers go to class on time and teach enough periods	3.80	1.173
Lecture content, reference materials are easy to understand, suitable, complete and scientific	3.81	0.960

Learners

The learning awareness of the learners plays an important role in learning outcomes. Learning using CETT method, learners will learn 50% of the knowledge in the lecture halls, the remaining time is to self-study on the online learning system. Therefore, learners must adjust and allocate their time online, do homework, etc. in a reasonable way to achieve high learning efficiency. This training method has the

advantage to promote students be self-awareness, organize and proactive in study time. As displayed in Table 5, the student satisfaction is at high level on the factor *learners*, with average value ranging from 3.91 to 4.00, and standard deviation smaller than 1.0. Table 5 also indicates that, the variable *Learners fully participate in learning theory and practice according to the study plan* achieve the highest value of student satisfaction, with average value at 4.00.

Table 5. Statistics of self-satisfaction of the learners about CETT

Learners	Average value	Standard deviation
Having positive awareness in learning	3.94	0.769
Learners equip themselves learning materials, syllabuses for learning	3.94	0.792
Learners equip themselves with equipments (computers, phones, Tablet) with internet connection for learning	3.95	0.804
Learners fully participate in learning theory and practice according to the study plan	4.00	0.771
Learners voluntarily participate in online learning fully, according to the study plan	3.93	0.805
Learners voluntarily to do exercises	3.92	0.761
Seriously in taking examinations	3.91	0.968

The issue of University organization management

The issue of University organization and management is a very important factor in the success of the training program

Table 6. Statistics of student satisfaction about University organization management at TUEBA

The teaching organization management of the university	Average value	Standard deviation
The university has a scientific plan of teaching and learning for the course	3.53	1.304
The university provides online learning accounts for learners right after starting the course	3.57	1.183
Time for theoretical learning is suitable for learners	3.61	1.138
Time for practice / group discussion is suitable for learners	3.65	1.063
Class has a reasonable number of learners	3.51	1.174
The test closely follows the content of the course	3.76	1.050

The factor *University organization and management* is rated with average value ranging from 3.51 to 3.76, meaning that students are satisfied with this variable. As displayed in Table 6, students rated the highest satisfaction on the variable "*The test closely follows the content of the course*" (3.76), whereas students rated the lowest satisfaction on the variable "Class has a reasonable number of learners" (3.51). The response of students is understandable because at the time of survey time, each class had an average number of 70 students or more. With a larger number of students like that, it will make difficult for lecturers to teach, as well as difficult for students to absorb contents of the lessons

Analysis of factors that influence to the student satisfaction

In order to identify factors influencing to the student satisfaction, the multi-variables regression model (including: facilities; E-learning system; Traditional lecturers; Learners and the University organization and management) have been tested to determine their impact to the student satisfaction on CETT method at TUEBA.

Table 7. Result of the regression model

Model	R	R ²	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.951	0.905	0.903	0.22907	1.632

a. Predictors: (Constant), University organization and management, Facilities, learners, E-learning system, Traditional lecturers

b. Dependent Variable: Satisfaction

According to the results displayed in Table 7, the value of R² = 0.905. The value of R² indicates that the independent variables in the model can explain 90.5% the variation of the dependent variable, meaning that the variables in the model can explain 90.5% of the students who are satisfied with the CETT method, The remaining is dependent on other variables not in the model [5, 6].

Table 8. ANOVA^b (Analysis of variance)

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	108.245	5	21.649	412.560	0.000 ^b
Residual	11.387	217	.052		
Total	119.632	222			

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b. Dependent Variable: Satisfaction

From the result displayed in Table 8, we can see that value of coefficient F = 412.560 and Sig =0.000 (< 0.05). This indicates that the regression model makes sense and the regression results can be used.

Table 9. Coefficients^a (Magnification coefficient of variance)

Model	Unstandardized Coefficients		Standardized Coefficients		Collinearity Statistics		
	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
(Constant)	0.475	0.105		4.544	0.000		
Facilities	0.089	0.025	0.107	3.546	0.000	0.485	2.063
E-learning system	0.194	0.030	0.271	6.422	0.000	0.247	4.052
Traditional lecturers	0.402	0.044	0.406	9.225	0.000	0.227	4.410
Learners	0.094	0.036	0.091	2.654	0.009	0.370	2.703
The university organization and management	0.123	0.029	0.173	4.259	0.000	0.265	3.773

a. Predictors: (Constant), University organization and management, Facilities , Learners, Online learning system, Traditional lecturers

b. Dependent Variable: Satisfaction

The information in Table 9 exhibits that the 5 factors in the model (Facilities, E-learning system, Traditional lecturers, Learners, University organization and management) are linearly correlated with student satisfaction (Signification value Sig. <0.05). This means that we have the basis and reason to reject the hypothesis H_0 that there is no any linear relationship between 5 factors (facilities - hypothesis 1, E-learning system - hypothesis 2, traditional lecturers- hypothesis 3, learners -hypothesis 4 and University organization and management - hypothesis 5) with student satisfaction. In other words, we must accept the hypothesis that there is a positive relationship between these 5 factors and student satisfaction about the CETT method at TUEBA.

Table 9 also reveals that values of all β coefficient are greater than 0, so according to results of multi-variable regression, we can define the multiple regression equation as follows:

$$Y = 0.089*VC + 0.194*W + 0.402*GV + 0.094*SV + 0.123*NT$$

Student satisfaction = 0.089*Facilities + 0.194*Online learning system + 0.402*Traditional lectures + 0.094*Learners + 0.123*The university organization and management.

The estimated multiple regression model shows that traditional lecturers and E-learning systems are the two factors vaing the most impact on the student satisfaction. This results will help managers and policy-makers to give out appropriate solution to improve facilities and enhance quality of lecturers, from that will increase the satisfaction of students with training method of the univeristy. As displayed in Table 9, the factor *traditional lecturers* has the highest value on Beta coefficient at 0.402, meaning that the factor student care the most is traditional lectures, then is E-learning system. These two concerns have a great impact on student satisfaction. The result is one of the results that require the unversity managers should be seriously concern to enhance the quality of traning method, as well as improve the student satisfaction.

IV. Discussion

We have conducted the survey on 223 students who participated the CETT method at TUEBA. The regression model containing five variables (facilites, online learning system, traditional lecturers, learners, the university organization and management) have been used to identify factors that influence to the student satisfaction about the CETT method. The results show that all five variables have an specific impact on student satisfaction about the CETT method.

Specifically, the CETT method at TUEBA: There is a positive relationship between facilities and student satisfaction; There is a positive relationship between the online learning system and the student satisfaction; There is a positive relationship between traditional lecturers and student satisfaction; There is a positive relationship between learners and student satisfaction; There is a positive relationship between the university organization and management and student satisfaction. In particular, the *traditional lecturers* factor has the biggest impact on student satisfaction, which has been examined with high reliability.

V. Conclusion

General Recommendation

- + Firstly, it is necessary to further improve the awareness of lecturers and students about the position and role of the subjects/courses in the training curriculum.
- + Secondly, continuously to further improve the quality of teaching staff in both expertise ability and information technology.
- + Thirdly, it is necessary to ensure the system of facilities and facilities serving for teaching: classrooms, computer rooms, libraries.
- + Fourthly, the teaching plan and the teaching time must be changed accordingly.

Specific Recommendation

About the university side:

- + Online learning requires students to have a computer connected to the internet. However, students from many northern mountainous provinces with difficult economic conditions do not have a personal computer to study; so, in our opinion, the university needs to have 1-2 computer rooms open during office hours for students to study online, practice and study in groups.
- + About the Informatics subject, the university allows lecturers directly teach on the computer room.
- + Organize many more activities, playgrounds for students.

About the e-learning system of Thai Nguyen regional university side

- + Improving the user interface of the system, unifying the use of vietnames and english; adding more reference materials on e-learning system; innovating and renewing lecture videos with more interaction between lecturers and learners.
- + Granting account for learners on schedule.
- + Technically: staffs of the university, who is in charge of IT, in the university need to be given administrative rights to timely support lecturers and students when operating the e-learning system (add new accounts, fix the login errors, re-new password, ...)

About student side:

- + Prepare fully computer, textbooks and documents; Go to class on time, complete all the homework; voluntarily self-study according to the assignment of lecturers weekly on the online learning system; Actively participate in playgrounds organized by lecturers and the university; positive and proactive in learning: Preparing the lesson in advance, self-designing the lesson content, presenting in class, learning how to make videos, designing powerpoint to illustrate lesson content.

About traditional lecturers: Traditional lecturers always play an important role in teaching and guiding students to study, so that they need to keep doing the followings:

- + Always keep follow the course outline during teaching process in the classroom, as well as deliver requirements for students to self-study on the online system.
- + Need to review the content of the course outline made during the school year to check if it is really suitable for students and teaching quality requirements. If it is not appropriate, it should be promptly adjusted.
- + Provide additional assignments, requirements on to the online learning system weekly; then giving grade and review students.
- + Often cultivate the professional knowledge, proficiency in using information technology, and use a proficient online learning system.
- + Usually update lectures, innovate the teaching methods.
- + Maximize the use of social networks to approach, exchange and bring more lesson contents to students outside of class-time.

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