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Factors Affecting Students' Learning Satisfaction: Case Study in Learning Physics Courses

Van Thien NGO

Cao Thang Technical College-Ho Chi Minh-Vietnam.
Email: ngovanthien@caothang.edu.vn

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Abstract

This study aimed to explore factors affecting students' learning satisfaction. The survey questionnaire was used to gather data from 315 students through the General Physics course at Cao Thang Technical College, Ho Chí Minh City. The Exploratory Factor Analysis method and Linear Regression were used to determine factors influencing students' learning satisfaction. The research factors that were explored consist of learning outcome statement (LOS), content knowledge for teaching (CKT), knowledge building process (KBP), applying knowledge (AK), organizing and managing classroom (OMC), teaching method (TM), teacher- student relationship (TSR), learning resources materials (LRM), and assessment process (AP), in which CKT, AP, and TM are of three most important factor affecting students' satisfaction learning process.

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1. Introduction

Several factors contribute to strengthening the training quality such as training curriculum, facilities, learning environment, students' learning motivation, teacher quality. However, the key factor in improving educational quality is an effective teaching strategy. Indeed, research revealed that teaching and learning strategies affect directly students'learning satisfaction (Topala & Tomozii, 2014). Therefore, choosing a teaching model to reinforce the learning effectiveness is concerned by universities. Currently, the learning outcome model is designed, developed, and implemented in the Vietnamese higher education system, especially technical Universities. Indeed, the learning outcome implemented since 2015, the training program has been accredited by ABET (Accreditation Board for Engineering Technology) in 2018 at Cao Thang Technical College.

Implementing a learning outcome model aim to enhance students' problem-solving for the 21st century. However, most research has focused on how to assess outcomes 3a-3k and relatively little have mentioned students' perception of implementing learning outcomes (Felder & Brent, 2003). Thus, the main purpose of research is to determine factors related to the teaching and learning process in other to enhance students' learning satisfaction.

2. Literature Review

2.1. Curriculum Development

The curriculum development is designed based on student outcomes (SOs). According to the ABET accreditation system, building a curriculum has to base on program educational objectives (PEOs) referring to stakeholders such as alumni, employer, faculties, students as well as the institution's mission. The relationship between PEOs, SOs, and curriculum is depicted in the following diagram, as seen Figure 1.

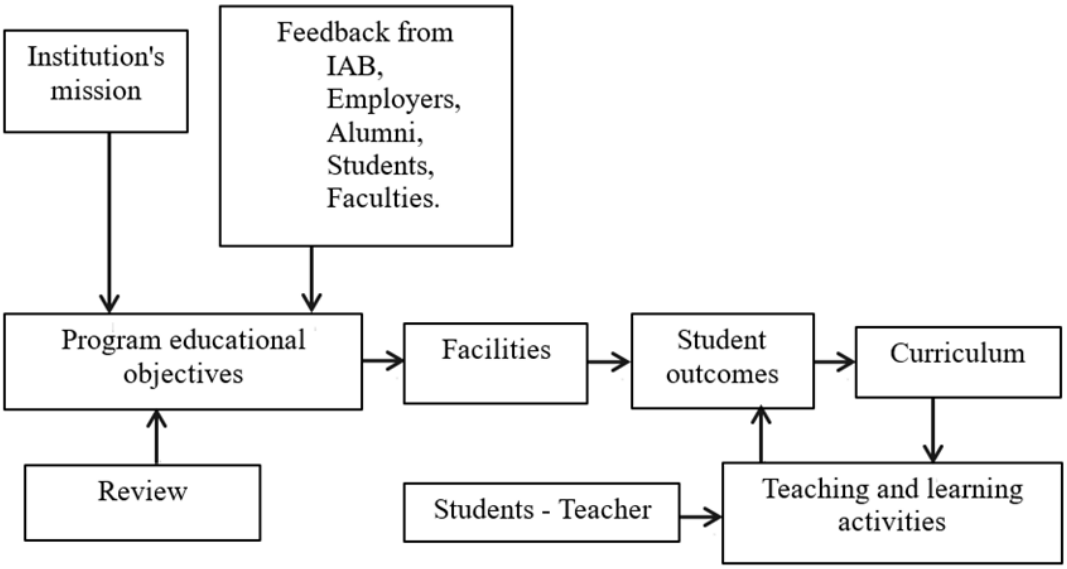

Figure-1. Curriculum development cycle.

Program educational objectives are structured student outcomes. Each student outcome is composed of some subjects which are identified measurable performances required to meet outcome, as seen Figure 2. To do so, the backward design approach is used to design, develop, and implement for learning outcome (McTighe & Thomas, 2003).

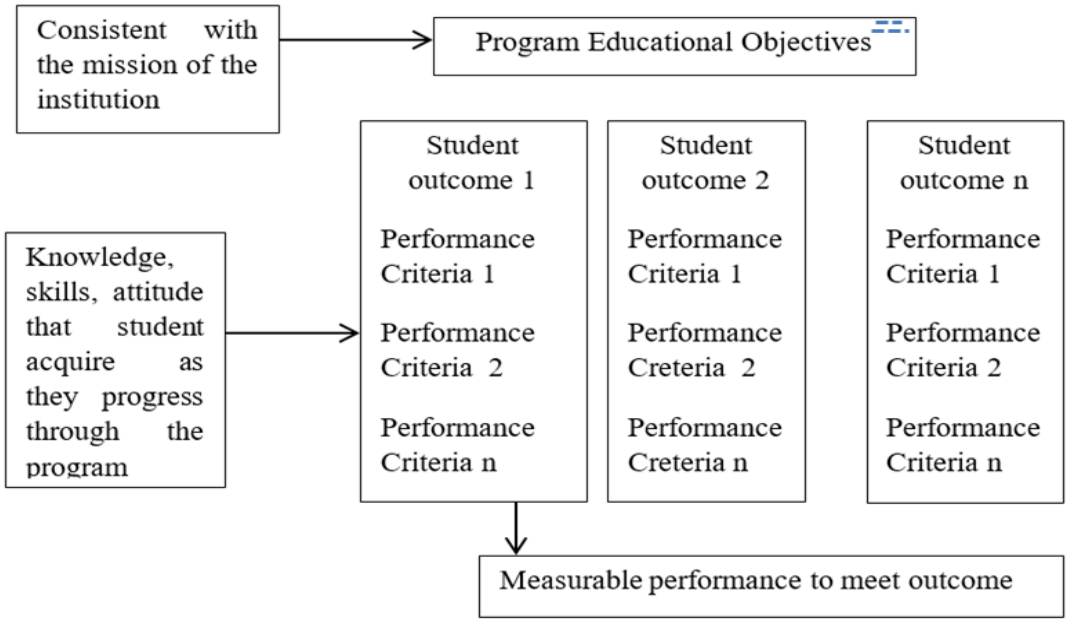

Figure-2. Assessing and evaluation of learning outcomes.

Figure 2 shows that the teaching process influences students' academic achievement. Therefore, finding key factors which contribute to enhancing student outcome is vital important. Teaching strategies are organized through a series of stages such as setting learning outcome goals, identifying core content knowledge, choosing teaching methods, supplying learning resource materials, and guiding students to build knowledge, providing a situation for students to apply practical problem-solving knowledge, and evaluate the teaching process (Skagen et al., 2009).

The students'learning satisfaction relates to the process of instructional design (ID) effectiveness. The ID should focus on the product around the students'learning needs. The six primary factors to consider in ID include learning goal setting, defining instructional objectives, designing and planning assessment strategy, identifying core knowledges, material learning, and designing teaching method and learning activities. Relating to ID, backward design course development of Wiggins and McTighe (2005) is used to plan and deliver learning course.

Based on backward design course development, the teacher organizes teaching strategies, evaluates academic achievement if students respond to the learning outcome statement. The teaching strategy is composed of some aspects in which teaching and learning activities and assessment process play a vital role. Thus, building outcome standard has to refer to assessment tools, e.g., Bloom's taxonomy (Bloom, 1956). Bloom's taxonomy could provide an indispensable roadmap for crafting effective learning outcomes that drive the whole process of course design (Sideeg, 2016).

A set of subscales has been described in the literature which measures learning satisfaction and is used to guide development of questionnaire items, as seen Table 1.

Table-1. Instructional design subscales for students' learning satisfaction.

Subscale	Description
Learning outcome statement	Learner needs to set their goal and measurable performance toward their studies (Kennedy, 2006)
Content knowledge for teaching	Lists the specific core standards required for the course (Grubbs & Strimel, 2015)
Knowledge building process	Teacher needs to establish learning strategy in order to facilitate student discovering news knowledges, integrating them into prior one, and applying them to solve real world problems. Concerning constructivism theory, prior knowledges, material learning resources are organized to support students to build new knowledges (Gauthier & Tardif, 2005)
Applying knowledge	Refer to learning to solve problems (Jonassen, 2004)
Teacher student relationship	Teacher student relationship play a vital role in the learning process (Hagenauer & Volet, 2014).
Organizing and managing classroom	Refers to effective teaching strategies for the classroom (MacSuga-Gage, Simonsen, & Briere, 2012)
Learning resource materials	Refers to conditions and methods of utilizing teaching and learning resource (Bušljeta, 2013)
Teaching methods	Refers to choosing teaching method, learning outcome and teaching method (Bourner, 1997)
Assessment process	Refers to assessment methods and tools to provide a formative feedback for students (Lile & Bran, 2014)
Learning satisfaction	Refers to the individual's feeling and attitudes towards education process and perceived level of achievement connected to the individual's desire to learn (Chang & Chang, 2012)

From the analysis and the synthesis of the prior research, we identify factors assumed as valid indicators of learning satisfaction. Thus, teaching strategies need to use these elements to enhance effective learning outcomes to meet students' learning satisfaction. Therefore, the following hypothesis is proposed:

H1: The learning outcome stament is a factor affecting students'learning satisfaction.
H2: The content knowledge for teaching is a factor affecting students'learning satisfaction.
H3: The knowledge building process is a factor affecting students' learning satisfaction.
H4: The applying knowledge is a factor affecting students'learning satisfaction.
H5: The organizing and managing classroom is a factor affecting students' learning satisfaction.
H6: The student-tearcher relationsiples is a factor affecting students'learning satisfaction.
H7: The teaching method is a factor affecting students'learning satisfaction.
H8: The learning material resource is a factor affecting students'learning satisfaction.
H9: The assessment process is a factor affecting students'learning satisfaction.

3. Research Method

3.1. Empirical Model and Scale

Based on inheriting the theories and results of an experimental study, this study proposed a model of affecting students' learning satisfaction in the learning process at Cao Thang Technical College. This study selected and proposed the model consisting of nine factors with 29 observed variables, as follows:

Learning outcome statement (3 observed variables): The training program is targeted with clear learning outcomes, the teaching course is described in detail, and the course goal includes a set of skills that are identified and clarified to students.

Content knowledge for teaching (4 observed variables): The content knowledge for teaching meet learning outcome standards, the teaching knowledge content is articulated with previous knowledge, the content knowledge for teaching is related to other knowledge in the training program, and the content knowledge is important for their major.

Knowledge building process (3 observed variables): The real-world situation is implemented to build new knowledge significantly, the role's prior knowledge in learning is used with coherence, the driving question system for building new knowledge is coherent.

Applying knowledge (3 observed variables): Applying knowledge to solve the real-world problem, applying knowledge to create a product through implementing a project, applying knowledge to solve the problem related to their future career.

Organizing and managing classroom (3 observed variables) : The teacher organized the individual learning consistency, the teacher organized the cooperative learning accordingly, the effective classroom management strategies are used effectively.

Teacher-student relationships (3 observed variables): The companion of teachers and students in building knowledge helps students learning more easily, the guidance of the teacher in the construction of knowledge for students is coherent; when students encounter difficulties in the learning process the support of teachers is always timely.

Teaching method (3 observed variables): Teaching methods create excitement for students in the learning process, teachers often combine a variety of methods to highlight important points of a lesson, teachers keep the rhythm of teaching appropriately.

Assessment process (4 observed variables): Teachers regularly monitor students' progress in the learning process, teachers comment on the extent to which students gain knowledge after finishing a very appropriate learning topic, teachers provide feedback to students to correct knowledge deficiencies for students very timely, at the end of the unit, the teacher usually assesses and confirms the level of competency the student has achieved as compared to the learning outcomes listed at the beginning of the lesson.

Learning resource materials (3 observed variables): Teachers provide perfectly appropriate learning support materials, teachers use teaching completely appropriate facilities, learning equipment is fully equipped

Learning satisfaction (4 observed variables): The content knowledge for teaching meet students' expectations, teaching organization helps students develop 21st-century skills, this course allowed them to integrate their knowledge, skills, and attitudes to develop their ability to solve practical problems; academic achievement results are very good.

The study explores the relationship among LOS, CKT, KBP, AK, OMC, TSR, TM, AP, LRM and LS, in which LS is dependent variable, the other is an independent variable.

3.2. Research Design

This study aims to investigate factors affecting students' learning satisfaction. Therefore the exploratory factor analysis was used in this research. The research process took place in two stages: In the first stage, students took part in learning outcomes. After finishing the learning process, students completed the questionnaire survey.

3.3. Sample and Sample Size

The research was carried out toward first-year student at Cao Thang Technical College. These freshmen who come from the faculty of mechanical engineering attended the General Physics course in the first semester of the academic year 2018-2019. The age of students is from 18 to 19.

According to Hair, Anderson, Babin, and Black (2010) the sample size must be 5 times larger than the observed variables. This means that if n is the sample size, m variables, then n >= 5m. In this research, theory model has 29 variable, so sample size is n> = 5.29 = 145. In this research, a total of 315 students participated in the survey, thus the sample size responds to the research.

3.4. Research Instruments

The research instrument used was a questionnaire prepared following the Likert scale. The statement consists of a choice answers with the values (1) strong disagree, (2) degree, (3) neutral, (4) agree, and (5) strongly agree.

Before being used for research, instrument each variable tested to determine its validity and reliability. The first time, this survey questionnaire was sent to an expert in measure and assessment who work in the field of science education. The second time, the trial was conducted on 30 students.

3.5. Data Collection

In the survey, the questionnaire was distributed in 9 groups of categories including Learning outcome statement (LOS), Contents knowledge for teaching (CKT), Knowledge building process (KBP), Applying knowledge (AK), Organizing and managing classroom (OMC), teacher student relationship (TSR); Teaching method (TM), Assessment process (AP), Learning resources materials (LRM), and dependent variable, namely students' learning satisfaction (LS).

3.6. Analyzing Data

The data were encoded in SPSS (Statistical Package for the Social Sciences) 22.0, after being coded, the data were analyzed by SPSS 22.0 through the following process

3.6.1. Reliability Analysis by Cronbach's Alpha

The Cronbach's alpha has been used to evaluate the reliability of the factors and to understand how far they are internally consistent. Internal consistency describes the extent to which all the items in a test measure the same concept, and Cronbach's Alpha is one way of measuring the strength of that consistency.

3.6.2. Exploratory Factors Analysis

Exploratory factor analysis is designed for a situation where the relationships between the observed and latent variables are uncertain (Yong & Pearce, 2013). Exploratory factor were used in this study because that survey questionnaire included the new items. All 29-items in the questionnaire have been analyzed to find the factor that contributes to students' learning satisfaction by using the Varimax method, which attempts to minimize the number of variables that have high loadings on each factor. According to Williams, Onsman, and Brown (2010), discovery and analysis must consider under the following 5 criteria:

- The reliability of the scale which have Crobach's Alpha coefficient greater than or equal to 0,6 will be accepted.
- The reliability of the observed variable (Factor loading > 0,5): An important part in exploratory factor analysis is interpreting factor matrixes. This research will use a Varimax rotation process to produce multiple group factors. Factor loadings which indicate correlations between the variables and the factors are required to have values greater than 0.5.
- Verification of model appropriateness: The sampling adequacy of factor analysis is based on the Kaiser-Meyer-Olkin (KMO) measure. In the case that the KMO has a value between 0,5 and 1, 0, and Sig. is smaller than 0,5, the factor analysis is accepted.
- Bartlett's test of sphericity: The Bartlett's test of sphericity tests whether a matrix is significantly different from an identity matrix. This statistical test for the presence of correlations among variable. To apply factor analysis, some relationship between variable are needed, thus, a significant Bartlett's test of sphericity is required (sig < 0,05).
- The cumulative variance: The cumulative % gives the percentage of variance accounted for by n first components. The variance explained should be greater than 50%.

3.6.3. Regression Analysis

The linear regression model was used to analyze between the dependent variable (students' learning satisfaction) and independent variables (LOS, CKT, KBP, AK, OMC, TSR, TM, AP). Then, based on the regression function, the impact of independent variables on the dependent variable is considered.

At first, it is necessary to test assumptions for regression analysis. The principal *assumption is that there is a* linear relationship between the independent and dependent variables. Due to the research model with more than one independent variables, *the correlation among independent variables (multi-collinearity) should be checked through a Variance inflation factor (VIF) (the variables which have a VIF smaller than 10 will be accepted). Besides,* the Durbin Watson statistic is a test for autocorrelation in the residual from a statistical regression analysis. *In addition, it is assumed that the error terms* ε *are independent, there are normally distributed random variables with mean value of 0, and there is constant variance*

Table-2. Cronbach's Alpha Reliability test.

Scale	Observed variable	Number of Items	Cronbach's Alpha
Learning outcome statement	LOS1, LOS2, LOS3	3	0.762
Contents knowledge for teaching	CKT1,CKT2,CKT3,CKT4	4	0.730
Knowledge building process	KBP1, KBP2, KBP3	3	0.871
Applying knowledge	AK1, AK2, AK3	3	0.783
Organizing and managing classroom	OMC1, OMC2,OMC3	3	0.967
Teacher - students relationships	TSR1, TSR2, TSR3	3	0.777
Teaching method	TM1, TM2, TM3	3	0.787
Assessment process	AP1, AP2, AP3, AP4	4	0.776
Learning resources materials	LRM1, LRM2, LRM3	3	0.801
Learning satisfaction	LS	4	0.707

4. Results

Testing the quality of scale by Cronbach Alpha's coefficient is used to evaluate the reliability of factors. The quality testing results of the scale showed in Table 1 revealed that the coefficients ranged from 0,707 to 0,967, indicating that all factors had a high rating for reliability (seen Table 2).

4.1. KMO and Bartllet Test of Sphericity

The initial analysis was run to obtain eigenvalues for each factor in the data. The Kaiser-Meyer Olkin Measure verified the sampling adequacy for analysis, KMO = 0,805 which is above Kaiser's recommended threshold of 0,6 (Kaiser, 1974). Bartlett's test of sphericity (p <, 0000) indicated that correlations between items were sufficient for EFA, as seen in Table 3.

Table-3. KMO and Bartlett's Test.

Kaiser-Meyer-Olkin measure of Sampling Adequacy.		0.805
Bartlett's Test of sphericity	Approx. Chi-Square	10782.248
	df	406
	Sig.	0.000

Table-4. Total Variances Explained.

Cumulative variance test

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Factor	Total	% variance	% cumulative	Total	% variance	% cumulative	Total	% variance	% cumulative
1	8.869	30.582	30.582	8.869	30.582	30.582	3.642	12.559	12.559
2	2.506	8.643	39.224	2.506	8.643	39.224	3.045	10.501	23.060
3	2.305	7.949	47.174	2.305	7.949	47.174	2.865	9.880	32.940
4	2.033	7.010	54.184	2.033	7.010	54.184	2.490	8.588	41.528
5	1.912	6.593	60.777	1.912	6.593	60.777	2.412	8.318	49.846
6	1.740	6.000	66.777	1.740	6.000	66.777	2.348	8.098	57.944
7	1.513	5.216	71.993	1.513	5.216	71.993	2.322	8.006	65.951
8	1.399	4.826	76.819	1.399	4.826	76.819	2.233	7.701	73.652
9	1.262	4.351	81.169	1.262	4.351	81.169	2.180	7.517	81.169
...	...	...	...						
29	0.009	0.033	100.000						

Note: Extraction method is Principale Component Analysis.

Table 4 shows that the 29-items structure was found to explain 81.16 % of the total variance in the pattern of relationships among the items. This is consist with the research of Williams et al. (2010).

4.2. Exploratory Factor Analysis Results

The study adopts Multiple Regression Analysis (MRA) to test the research framework. MRA is a symmetric test that elucidates the effect of the set of independent variables on the dependent variable. The study enters all nine variables to verify the framework, R2 is 0,783 and adjusted R2 is 0,777, standing for 81,2% variation in Y (dependent variable) explained by X (independent variables) showed in Table 5. The model is significant in the Anova analysis (sig <0,05). Due to the sig < 0, 05, the regression coefficients of the independent variables is not equal zero. Thus, the theoretical is built in accordance with the reality, as showed in Table 6. The Pearson Correlation between dependent variable and independent variable presents positive values from r = 0,496 to 0,648, as seen in Table 7. These results indicate independent variables have a positive leaner relationship with students' learning satisfaction, with statistically significant at the 95% confidence level. No multi-collinearity exists because the VIF is between 1,202 and 1,626 (the VIF is smaller than 10). In addition, no autocorrelation exists because the Durbin Watson has a value of 1,980 (the Durbin Watson has value between 1 and 3), as shown in Table 5 and 8.

Table-5. Model Summary[b].

Model	R	R-Square	Adjusted R Square	Std.Error of the Estimate	Durbin-Watson
1	0.885[a]	0.783	0.777	0.11672	1.980

Note:
a. Predictors: (Constant), TM, AK, TSR, LOS, OMC, AP, CKT, KBP, LRM.
b. Dependent Variable: LS.

Table-6. Annova.

Model		Sum of squares	df	Mean Square	F	Sig.
1	Regression	15.008	9	1.668	122.396	0.000[b]
	Residual	4.155	305	0.014		
	Total	19.163	314			

Note:
a. Dependent Variable : Learning satisfaction.
b. Predictors : (Constant), TM, AK, TSR, LOS, OMC, AP, CKT, KBP, LRM.

Table-7. Pearson correlation coefficience.

	LS	LOS	CKT	KBP	AK	TM	OMC	TSR	LRM	AP
LS	1	0.496**	0.648**	0.684**	0.526**	0.645**	0.510**	0.494**	0.537**	0.633**
LOS	0.496**	1	0.194**	0.217**	0.276**	0.327**	0.283**	0.228**	0.269**	0.305**
CKT	0.648**	0.194**	1	0.355**	0.299**	0.204**	0.331**	0.249**	0.359**	0.368**
KBP	0.684**	0.217**	0.355**	1	0.217**	0.368**	0.240**	0.225**	0.288**	0.334**
AK	0.526**	0.276**	0.299**	0.217**	1	0.226**	0.210**	0.167**	0.227**	0.318**
TM	0.645**	0.327**	0.504**	0.368**	0.226**	1	0.335**	0.279**	0.411**	0.376**
OMC	0.510**	0.283**	0.331**	0.240**	0.210**	0.335**	1	0.336**	0.311**	0.324**
TSR	0.494**	0.228**	0.249**	0.225**	0.167**	0.279**	0.336**	1	0.296**	0.356**
LRM	0.537**	0.269**	0.359**	0.288**	0.227**	0.411**	0.311**	0.296**	1	0.407**
AP	0.633**	0.305**	0.468**	0.334**	0.318**	0.376**	0.324**	0.356**	0.407**	1

Note: ** Correlation is significant at the 0.01 level (2-tailed)

Table-8. Coefficients.

Modèle		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constante)	0.912	0.122		7.460	0.000		
	TM	0.142	0.023	0.208	6.163	0.000	0.623	1.605
	LOS	0.122	0.021	0.176	5.902	0.000	0.797	1.255
	CKT	0.257	0.037	0.237	6.982	0.000	0.615	1.626
	KBP	0.062	0.018	0.106	3.540	0.000	0.787	1.270
	AK	0.069	0.020	0.103	3.513	0.001	0.832	1.202
	OMC	0.065	0.017	0.119	3.899	0.000	0.763	1.311
	TSR	0.089	0.017	0.158	5.291	0.000	0.794	1.259
	AP	0.152	0.026	0.183	5.481	0.000	0.634	1.576
	LRM	0.066	0.019	0.107	3.388	0.001	0.719	1.392

Note:
a. Dependent Variable: learning satisfaction
F value 122.396 (sig. =0.000)
R square 0.7833
Ajusted R square 0.777
Durbin-Watson 1.98

Testing for homoscedasticity (constant variance): In Table 9, the variable LOS and STR are eliminated due to the p-value less than 0,05 (sig < 0,05). As a result, the variables that remain in the model include TM, CKT, KBP, AK, OMC, AP, LRM.

In short, it can be seen that assumptions for the regression model are not seriously violated; therefore, the regression model will be established.

Table-9. Correlations.

			ABSRES	TM	LOS	CKT	KBP	AK	OMC	STR	AP	LRM
Spearmans Rho	ABSRES	Correlation Coefficient	1.000	0.087	0.149**	0.099	0.114*	0.110	0.080	0.185**	0.019	0.103
		Sig. (2-tailed)	.	0.125	0.008	0.079	0.072	0.061	0.157	0.001	0.736	0.067
		N	315	315	315	315	315	315	315	315	315	315
	TM	Correlation Coefficient	0.087	1.000	0.379**	0.427**	0.395**	0.213**	0.310**	0.314**	0.370**	0.408**
		Sig. (2-tailed)	0.125	.	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		N	315	315	315	315	315	315	315	315	315	315
	LOS	Correlation Coefficient	0.149**	0.379**	1.000	0.276**	0.253**	0.288**	0.329**	0.297**	0.346**	0.323**
		Sig. (2-tailed)	0.008	0.000	.	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		N	315	315	315	315	315	315	315	315	315	315
	CKT	Correlation Coefficient	0.099	0.427**	0.276**	1.000	.0333**	0.332**	0.357**	0.270**	0.498**	0.341**
		Sig. (2-tailed)	0.079	0.000	0.000	.	0.000	0.000	0.000	0.000	0.000	0.000
		N	315	315	315	315	315	315	315	315	315	315
	KBP	Correlation Coefficient	0.114*	0.395**	0.253**	0.333**	1.000	0.214**	0.226**	0.229**	0.346**	0.302**
		Sig. (2-tailed)	0.042	0.000	0.000	0.000	.	0.000	0.000	0.000	0.000	0.000
		N	315	315	315	315	315	315	315	315	315	315
	AK	Correlation Coefficient	0.110	0.213**	0.288**	0.332**	0.214**	1.000	0.204**	0.116*	0.319**	0.196**
		Sig. (2-tailed)	0.051	0.000	0.000	0.000	0.000	.	0.000	0.040	0.000	0.000
		N	315	315	315	315	315	315	315	315	315	315
	OMC	Correlation Coefficient	0.080	0.310**	0.329**	0.357**	0.226**	0.204**	1.000	0.315**	0.350**	0.292**
		Sig. (2-tailed)	0.157	0.000	0.000	0.000	0.000	0.000	.	0.000	0.000	0.000
		N	315	315	315	315	315	315	315	315	315	315
	STR	Correlation Coefficient	0.185**	0.314**	0.297**	0.270**	0.229**	0.116*	0.315**	1.000	0.336**	0.290**
		Sig. (2-tailed)	0.001	0.000	0.000	0.000	0.000	0.040	0.000	.	0.000	0.000
		N	315	315	315	315	315	315	315	315	315	315
	AP	Correlation Coefficient	0.019	0.370**	0.346**	0.498**	0.346**	0.319**	0.350**	0.336**	1.000	0.406**
		Sig. (2-tailed)	0.736	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.	0.000
		N	315	315	315	315	315	315	315	315	315	315
	LRM	Correlation Coefficient	0.103	0.408**	0.323**	0.341**	0.302**	0.196**	0.292**	0.290**	0.406**	1.000
		Sig. (2-tailed)	0.067	0.000	0.000	.000	.000	.000	.000	.000	.000	.
		N	315	315	315	315	315	315	315	315	315	315

Note :
**. Correlation is significant at the 0,01 level.
*. Correlation is significant at the 0,05 level.

5. Discussion

As the variable LOS and TSR are eliminated (seen in Table 9). As a result, the hypotheses retained in the model include H2, H3, H4, H5, H7, H8, and H9. The regression function which illustrates the relationship between eight factors and learning satisfaction is as follows:

LS = 0,912 + 0,1412TM + 0,257CKT + 0,062KBP + 0,069AK + 0,065OMC +0,152AP+0,066LRM, as seen from Table 8. From the question, seven factors have a positive relationship with students'learning satisfaction.

The factor has the most significant on students' learning satisfaction is content knowledge for teaching CKT with the coefficient 0,257, it means that when students evaluate this factor increasing by 1 point, students' learning satisfaction will increase by 0,257. The finding from the research was consist with those obtained by Wiggins and McTighe (2005).

The variable TM, with the coefficient 0,142, have a positive relationship with learning satisfaction variable, it means that when students evaluate this factor increasing by 1 point, students' learning satisfaction will increase by 0,142. This results were in line with Djudin (2018), who stated that using the effectiveness of teaching method enhanced students' learning satisfaction.

The variable KBP, with the coefficient 0,062, have a positive relationship with learning satisfaction variable. The knowledge building process placed students' ideas at the center of the teaching and learning process. They built knowledges from their prior experiences. The result aligned with those obtained by Teo (2012), who stated that knowledge building practice places students' ideas at the center of the classroom, with the principal challenge being enabling students to take responsibility for improvements of ideas.

The variable AK, with the coefficient 0,069, have a positive relationship with learning satisfaction variable, it means that when students evaluate this factor increasing by 1 point, students' learning satisfaction will increase by 0,069. In order to facilitate students applying knowledge learned, the teacher used a new and

complex situation problem to ask students mobilize knowledge they have learned to find a solution to the problem.

The variable OMC, with the coefficient 0,065, have a positive relationship with learning satisfaction variable. The results of this research are consistent with the work of Cangelosi (2013), who stated that the purpose of organizing management classroom is to lead students to cooperate in the learning process, and to motivate students to engage in learning activities.

The variable AP, with the coefficient 0,152, have a positive relationship with learning satisfaction variable, it means that when students evaluate this factor increasing by 1 point, students' learning satisfaction will increase by 0,152. The result aligned with those obtained by Khan (2012) who mentioned that the quality of learning is determined by the quality of the effective assessment in the classroom. The effectiveness of assessment process improve student learning, and students' learning motivation. As a result, the teaching strategy enhanced students' learning satisfaction.

The variable LRM, with the coefficient 0,066, have a positive relationship with learning satisfaction variable. The results of this research are consistent with the work of Chang and Chang (2012), who stated that learning resource materials support student learning and increase students' success.

Finding from this research is considered as a teaching model to enhance effectiveness in classroom teaching. These above mentioned factors made the classroom more interesting and created a positive ambiance of students and teacher interaction in the learning outcome and assessment methods.

6. Conclusion

In this study we conducted a regression analysis in order to determine which are the factors involved in learning outcome courses that crucially influence students' learning satisfaction with the course and students' perceived learning.The study executed a questionnaire survey, adopts MRA to test the proposed framework for students' learning satisfaction. Based on the finding, it was concluded that, of nine factors that affect students' learning satisfaction, there are 7 factors most affecting students' learning satisfaction at the Cao Thang Technical College; namely teaching method (MT), content knowledge for teaching (CKT), knowledge content process (KCP), applying knowledge (AK), Assessment process (AP), organizing and managing classroom (OMC), and learning resourse materials (LRM). These results lead us to advocate these variables in the future in order to understand more precisely their influence on satisfaction and perceived learning.

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