PRINT: ISSN 0975-1122 ONLINE: ISSN 2456-6322
Int J Edu Sci, 29(1-3): 68-75 (2020)
DOI: 10.31901/24566322.2020/29.1-3.1132

Autonomy-Supportive Teaching on Student Learning and Motivation in the Credits System

Doan Van Truong[1*], Hoang Thi Anh[2], Tieu Thi Minh Huong[3], Pham Thanh Hue[4], Nguyen Do Huong Giang[5], Nguyen Do Hong Nhung[6]and Le Thi My[7]

[1]Thanh Hoa University of Culture, Sports and Tourism, Vietnam
E-mail: dvtruongxhh@gmail.com
[2]Hop Thang commune, Trieu Son district, Thanh Hoa province, Vietnam
[3]University of Labor and Social Affairs, Vietnam
[4]Thai Nguyen University of Agriculture and Forestry, Vietnam
[5]Thai Nguyen University of Agriculture and Forestry, Vietnam
[6]Thai Nguyen University of Education, Vietnam
[7]Southern Institute of Social Siences, Vietnam

KEYWORDS Autonomy-Supportive Teaching.Learning Outcomes. Choice Based Credit System (CBCS). University Learning Environment.

ABSTRACT The objective of this study is to focus on analysing the factors affecting students' autonomy when studying under the credits system. The study used data from 185 survey samples collected at a university in Vietnam. Researchers found a number of important factors that influence students' autonomy when studying under the credits system, such as awareness, the motivation of students and students' learning methods. The study offers a number of meaningful solutions to promote student autonomy in a university learning environment.

INTRODUCTION

Credits-based training is an advanced form of training in the world. This training method was born in 1872 at Harvard University (United States). Subsequently, the credit system has been increasingly applied in universities in many countries around the world. In 2007, the Ministry of Education and Training of Vietnam issued the "Regulation on Training of Universities and Colleges in the regular system of credits system". Under this policy, 2011 is the last deadline for schools in Vietnam to transition to this new training system (Dao 2012).

Along with the overall progress of the country, the Thanh Hoa University of Culture, Sports and Tourism has applied the credits-based training method since 2012 right after upgrading to the university so far. Like many universities in the country, the school has applied thoroughly credits training for all disciplines, courses and training systems. In addition to the change in training management mechanism, the school also promotes the reduction of credits in the training program.With a flexible 4-year training program, it ranges from 120 credits to 126 credits. Through the process of implementing credits-based training, it is a question to improve the activeness of students, a central subject of the training system. This is an important basis for the researchers to choose research on this issue. The study contributes to improving the quality of credit-based training of Thanh Hoa University of Culture, Sports and Tourism in particular and the Vietnamese higher education system in general.

Aim and Objective

The paper discusses students' activeness in studying, and examines the actual situation at Thanh Hoa University of Culture, Sports and Tourism in the mode of credit-based training. On that basis, the research paper proposes solutions to enhance the activeness of students.

[*]*Address for correspondence*
Doan Van Truong
Thanh Hoa University of Culture, Sports and Tourism, Vietnam
Telephone: +84979283406
E-mail: dvtruongxhh@gmail.com

Literature Review

Research in the world shows that from the 17th century educators such as J.A. Comensky (1592-1670), G. Brousseau (1712-1778), J.H. Pestalozzi (1746-1872) and A.Disterweg (1790-1866) in their research works are very interested in developing the positive, creative intelligence of learners and emphasise encouraging readers to gain knowledge, by the way, to discover, explore and think by themselves in the learning process (Russell 2011). Learning awareness and cognitive motivation has a decisive meaning in the process of forming and improving the activeness of students in learning. If learners fail to identify their decisive role in the success of their the study, they will fail (Henri et al. 2018).

The existing knowledge of students affects the activeness of the learners, so to be effective, the learners must equip themselves with the minimum knowledge to research the issues they care about (Secundo et al. 2018). Intellectual ability and method of thinking are important factors affecting the ability of students to grasp scientific knowledge quickly or slowly (Prins 2006). People with good intellectual capacities are often able to take the initiative to study at a very high level when they have enough minimum knowledge and sometimes they can independently work alone without the guidance of teachers (Donald 1985; Punturat et al. 2004).

Autonomy in learning is an important factor to ensure success in acquiring the knowledge gained in the lecture hall. If students practice these habits, methods and skills, they will create a desire for learning, arouse the potential inherent in each person, making the learning results increase, adapting the learning process of students and teaching methods of teachers (Boud 1988).

A teacher's teaching method has an impact on students' autonomy in the credits-based curriculum. Through the teaching of teachers, students master the knowledge, skills, competence, and worldview. Thus, the initiative of students is formed (Furtak and Kunter 2012; De la Fuente et al. 2011).

In Vietnam, in the education development strategy, the system of universities and colleges in implementing the credit-based training program, the initiative is very significant for students (Vinh 2018). Since the 1960s, the initiative has been presented directly and indirectly by many authors in psychology and educational projects. Some typical authors are Nguyen CanhToan, Tran Kieu, Nguyen Ba Kim, Thai DuyTuyen and Bui Van Nghi.

The authors Nguyen (1997) have affirmed that the initiative of students, even though developing, is still the internal force that determines the development of the learners themselves. During the teaching process, students are also influenced by their surroundings. These are the factors of teaching conditions and socio-cultural conditions. The influence of family and social factors on the autonomy of students in studying under the credits system has a strong correlation.

The above studies have shown the factors affecting student learning. Studies have shown the causes and factors that influence this. These research results have initially evoked in-depth studies to clarify the degree and initiative of students, the main content of the problem that the authors are studying.

METHODOLOGY

Model and Research Hypothesis

The data is processed and analysed using the SPSS 22.0 software. The average, percentage, and frequency are used to analyse the factors affecting the autonomy of students taking credit. Factors affecting the activeness of students taking credits are determined by the Binary Logistic regression model and Cronbach Mart Alpha to analyse the correlation between the factors. The regression model is shown as follows:

$$Ln\,[p(x)/1\text{-}p(x)] = \beta0 + \beta1X1 + \beta2X2 + \beta3X3 + \beta4X4 + \beta5X5 + \beta6X6 + \beta7X7 + \ldots + \beta nXn + \varepsilon$$

Where,

The variable p (x) is a dependent variable that receives a value from 0 to 1 (0 = not actively learning under the credit system and 1 = actively learning under the credits system)

β0, β1, β2, β3…βn is the regression coefficient to be estimated (β0 is constant)

X1, X2, X3…Xn are independent variables included in the model explained below.

X1: Students' awareness of learning and cognitive motivation, X2: Existing knowledge

capital of students, X3: Intellectual ability and thinking, X4:

Student learning method, X5: Teaching methods of lecturers, X6:

Content and training program, X7: Curriculum, reference materials and conditions on facilities, and X8: Family and social factors.

ε: is the error measuring the impact of variables not included in the model

The hypothesis given is that:

X0: There is no relationship between variables.

X1, 2,3…Xn: There is a relationship between variables.

Based on p (p-value) it can be concluded whether to accept or reject the hypothesis X0 based on a certain level of confidence (usually $p < 0.05$).

If p-value (sig.) $\leq \alpha$ (level of significance 0.05), then reject the hypothesis X0, that is, there is a significant relationship between the variables to be tested.

If p-value (sig.) $> \alpha$ (level of significance 0.05), then accept X0, that is, there is no relationship between the variables to be tested.

The variables in the regression model are explained and mapped as follows (Table 1, Fig. 1)

Description of the Data

The main survey subjects of this study are students from the first year to the fourth year studying at the Thanh Hoa University of Culture, Sports and Tourism.

For the sampling method, the authors chose a non-probability sampling method, which is considered to be an effective, inexpensive and time-consuming method of collecting information in a timely manner the fastest. Departments and disciplines must be a part of the overall sample structure. The number of samples is randomly selected based on the list of classes at the school, ensuring enough target groups from year 1 to year 4.

To achieve the purpose of the study, 185 representative samples, corresponding to 185 students were interviewed. When analysing the elements and regressing the binary logit, the sample scale must be multiplied at least 5 times multiplied by the number of questions. The study was designed with a total of 15 questions, corresponding to a sample size of at least 75 samples. However, the research content also served many other research contents, so the authors conducted a survey for all 185 students to study.

After data collection, SPSS 22.0 is used to analyse the factors affecting the autonomy of students taking credit. In particular, Cronbach Mart Alpha is used to evaluate the reliability of variables, and the variance inflation factor and tolerance is used to check the validity of the research model.

Table 1: Interpret independent variables in the model of multivariate feedback

Xj	*Variable name*	*Explain*
X1	Students'awareness of learning and cognitive motivation	Very agree= 5, agree = 4, normal = 3, disagree = 2, protest = 1 (control variable)
X2	Existing knowledge capital of students	Very agree = 5, agree = 4, normal = 3, disagree = 2, protest = 1 (control variable)
X3	Intellectual ability and thinking	Very agree = 5, agree = 4, normal = 3, disagree = 2, protest = 1 (control variable)
X4	Student learning method	Very agree = 5, agree = 4, normal = 3, disagree = 2, protest = 1 (control variable)
X5	Teaching methods of lecturers	Very agree = 5, agree = 4, normal = 3, disagree = 2, protest = 1 (control variable)
X6	Content and training program	Very agree = 5, agree = 4, normal = 3, disagree = 2, protest = 1 (control variable)
X7	Curriculum, reference materials and conditions on facilities	Very agree = 5, agree = 4, normal = 3, disagree = 2, protest = 1 (control variable)
X8	Family and social factors	Very agree = 5, agree = 4, normal = 3, disagree = 2, protest = 1 (control variable)

Source: The survey data of the study

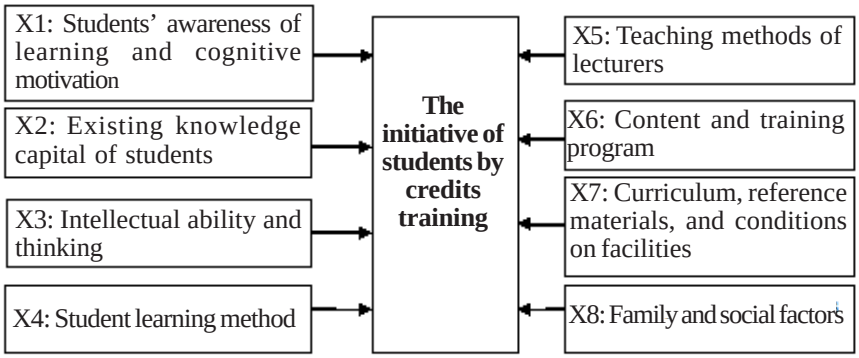

Fig. 1. Research model
Source: Synthesis of authors

RESULTS

Sample Description Statistics

In the study using a 5-level Likert scale, a score of 3 is intermediate. If biased toward 3-5, it means to agree with the views of the given variable. Conversely, a 1-3 bias means that the respondent does not agree with the variable's point of view. The data illustrates that respondents agreeing with the dependent variable is the initiative in credit-based learning, with an average of 3.95 points compared to the highest of the 5 Likert scales. All 5 properties are rated on an average from 3.68 and up to 3.72 (Table 2).

Testing Cronbach's Alpha

Factors affecting the activeness of students studying for credit are measured by Cronbach's Alpha with a coefficient of 0.827. No Cronbach's Alpha was measured if Item Deleted exceeds the reliability requirement (Table 3).

Table 3: Results of Cronbach's Alpha testing of attributes

	Scale mean if item deleted	*Scale variance if item deleted*	*Corrected item-total correlation*	*Cronbach's alpha if ttem deleted*
X1	7.64	.794	.467	.799
X2	7.67	.851	.316	.727
X3	7.68	.879	.383	.743
X4	7.67	.831	.442	.793
X5	7.69	.888	.376	.745
X6	7.68	.816	.396	.785
X7	7.69	.932	.308	.783
X8	7.66	.724	.343	.764

Source: The survey data of the study

Table 2: Statistics describe independent variables for students' autonomy in credits-based learning

Variable name	*Describe*	*Descriptive statistics*			
		Mean	*Min.*	*Max.*	*Std. deviation*
X1	Students' awareness of learning and cognitive motivation	3.72	1	5	.930
X2	Existing knowledge capital of students	3.69	1	5	.897
X3	Intellectual ability and thinking	3.69	1	5	.881
X4	Student learning method	3.70	1	5	.904
X5	Teaching methods of lecturers	3.68	1	5	.873
X6	Content and training program	3.69	1	5	.889
X7	Curriculum, reference materials, and conditions on facilities	3.68	1	5	.873
X8	Family and social factors	3.70	1	5	.811
	Valid N (listwise)	3.69			

Source: The survey data of the study

On the other hand, the test results show that the attributes of the dependent variables have an Alpha coefficient of Cronbach's greater than 0.6 and smaller than the general Alpha coefficient of Cronbach. The correlation coefficient of all attributes is greater than 0.3, so all properties of the dependent variables are statistically significant (Truong et al. 2020).

Exploratory Factor Analysis (EFA)

The author conducted exploratory factor analysis (EFA), Varimax analysis of 8 observed independent variables. As can be seen, the result of the EFA is 0.5 <KMO = 0.6669 < 1. Significance = 0.000 <0.05, which means that all variables are related to each other (Table 4).

Table 4: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.669
Bartlett's Test of Sphericity	Approx. Chi-square	72.808
	Df	28
	Sig.	0.000

Source: The survey data of the study

The results of KMO and Bartlett's Test tables show that the variables reached values greater than 0.5, which proves that the factor analysis of the research data is appropriate. Through the EFA model, a number of factors that have a strong impact on students' autonomy when studying under the credits system have been identified, namely, awareness, motivation and learning of students, and learning methodology of students.

DISCUSSION

With the collected data, the author used the Binary Logistic regression model to analyse the correlation between the independent and dependent variables. One of the necessary conditions for the analysis of the next steps of multivariate regression is that the independent variable must be correlated with the dependent variable. If not correlated, this type of independent variable is out of the regression analysis (Table 5). Therefore, before performing a regression analysis, the author checked Pearson's correlation coefficient to check the linear relationship between the independent and dependent variables.

The analysis results show that the VIF of 8 independent variables included in the model is much smaller than 10. Therefore, there is no phenomenon of collinearity in the model, so the model has statistical significance (Table 6).

The data presents the results of the logistic regression model with the dependent variable being the students' autonomy in learn-

Table 5: Correlative matrix between variables

Variable	*X1*	*X2*	*X3*	*X4*	*X5*	*X6*	*X7*	*X8*	*p(x)*
X1	1	-.068	.059	.142	-.052	.050	.068	.291**	.058
		.355	.426	.053	.483	.497	.357	.000	.001
X2	-.068	1	.029	.129	.103	.148*	-.031	.062	.006
	.355		.698	.080	.163	.044	.678	.402	.002
X3	.059	.029	1	.104	.120	.035	.050	.079	.025
	.426	.698		.159	.104	.634	.503	.287	.003
X4	.142	.129	-.104	1	-.100	.139	-.100	.284**	-.022
	.053	.080	.159		.173	.059	.173	.000	.002
X5	-.052	.103	.120	-.100	1	.043	.129	.024	-.075
	.483	.163	.104	.173		.565	.079	.744	.003
X6	.050	.148*	.035	.139	.043	1	-.094	.251**	-.047
	.497	.044	.634	.059	.565		.201	.001	.005
X7	.068	-.031	.050	-.100	.129	-.094	1	-.040	-.031
	.357	.678	.503	.173	.079	.201		.592	.007
X8	.291**	.062	.079	.284**	.024	.251**	-.040	1	.105
	.000	.402	.287	.000	.744	.001	.592		.005
p(x)	.058	.006	.025	-.022	-.075	-.047	-.031	.105	1
	.001	.002	.003	.002	.003	.005	.007	.005	

*Statistical significance level: *p<0.1 **p<0.05 ***p<0.01*
Source: The survey data of the study

Table 6: Multicollinearity test results

Coefficients	*t*	*Collinearity statistics*	
		Tolerance	*VIF*
(Constant)	5.845	-	-
X1	.397	.890	1.123
X2	.352	.945	1.058
X3	.250	.961	1.041
X4	-.823	.866	1.155
X5	-1.053	.945	1.059
X6	-.979	.908	1.101
X7	-.411	.958	1.044
X8	1.585	.804	1.243

Source: The survey data of the study

ing. The model has statistical significance with $p < 0.05$. R^2 = 35.7 percent said the independent variables in the model can explain 35.7 percent of the change of the dependent variable according to the variation of the independent variable in the model (Table 7).

Explaining the Correlation Model

The results show that students' awareness and motivation are 1.145 times more likely to agree to consent than the rest of the effects of other factors in the model remain unchanged. The above difference is statistically significant with p <0.05 with ninety-five percent confidence interval (OR = 1.145, 95% CI = 3.20-8.23). Thus, the polarity in students' learning is influenced by the awareness of students in their awareness and motivation of self-awareness in improving the autonomy in learning by institutions credits.

Similarly, the other variables also gave similar results. The students' existing knowledge capital is statistically significant p <0.05 corresponding to ninety-five percent confidence interval (OR = 2.267, 95% CI = 1.28-3.30). Intellectual ability and thinking and student learning method have statistical significance p <0.05 corresponding to ninety-five percent of confidence interval (OR = 0.230, 95% CI = 3.54-13.22). Student learning method has statistical significance with p <0.05 corresponding to ninety-five percent of confidence interval (OR = 1.225, 95% CI = 4.22-56.0). Teachers' teaching method has statistical significance p <0.05 corresponding to ninety-five percent of confidence interval (OR = 1.639, 95% CI = 2.87-13.1). Content and training programs have statistical significance p <0.05 corresponding to ninety-five percent of confidence interval (OR = 1.527, 95% CI = 1.29-5.36). Curriculum, reference materials and conditions of facilities have statistical significance p <0.05 corresponding to ninety-five percent of confidence interval (OR = 1,260, 95% CI = 3.64-5.44). The family and social factors have statistical significance p <0.05 corresponding to ninety-five percent of confidence interval (OR = 2.954, 95% CI = 4.55-9.13).

The results of this study show that the learning method of learners and teachers has a positive influence on learners' ability to learn. This is a conclusion consistent with previous studies (Tung et al. 2020). Studying under the credit system requires students to always be active in learning. If the learner is not active, it is very difficult to have access to a creative learning environment, which

Table 7: Results for a binary logistic regression model

Variables in the equation	*B*	*S.E.*	*Wald*	*df*	*Sig.*	*Exp(B)*
X1	1.145	.570	.146	1	.018	1.243
X2	2.267	.585	.126	1	,.044	1.230
X3	0.230	.631	.074	1	.005	1.187
X4	1.225	.576	.765	1	.034	.604
X5	1.639	.585	1.127	1	.022	.537
X6	1.527	.580	1.049	1	.026	.552
X7	1.260	.593	.197	1	.027	.769
X8	2.954	.726	2.442	1	.029	3.108
Constant	1.194	1.533	.607	1	.001	3.299

Statistical significance level: $^{*}p<0.1$ $^{**}p<0.05$ $^{***}p<0.01$
Number of observations
N 185
Prob> Chi^2 0.017

greatly affects the individual's academic results. The same research by Blazar David has shown that teachers have a significant impact on the quality of student learning in accessing the subject. The impacts are expressed through students' attitudes and learning behaviours in acquiring knowledge learned in the classroom (Maulana et al. 2013).

Thus, the polarity in students' learning is influenced by many factors. The significance level is p <0.05 in all independent variables, showing that the model has a high significance for the statistical level.

Table 8: Forecasting logistic model results on independent factors to students' activeness in learning

Observe	*Guess*		*Proportion of attendance guess right*
	The initiative of students		
	1.00	0.00	
1.00	145	5	96.7
The initiative of students 0.00	15	20	57.1
The proportion of attendance guess right			89.2

Source: The survey data of the study

The observation column gives the results of two values of this variable, that is, 0 and 1. The predictive column gives the predictive value of the student's proactive variable in learning on the model. This table gives the correct predictive value of the model compared to observed reality. In this case, the model correctly predicted 145 cases for the identity agreed by 1 and incorrectly predicted 11 cases. Therefore, the correct predictive result is $145/150^{*}100 = 96.7$ percent. Similarly, the model correctly predicted 20 cases, which did not agree with zero and predicted incorrectly 15 cases, the correct prediction result was $20/35^{*}100 = 57.1$ percent (Table 8). From that the researchers calculate the correct prediction rate of the whole model as $(145 + 20)/(145 + 20 + 5 + 15)^{*}100 = 165/185^{*}100 = 89.2$ percent. The overall prediction percentage indicates the correct prediction of the model, in this case 89.2 percent. Compared with the results of Block 0, the results showed that the model predicted better (from 79.4% to 89.2%).

CONCLUSION

The initiative in learning has a great influence on the academic results of students in the higher education environment, especially for students of Thanh Hoa University of Culture, Sports and Tourism. Currently, most students of Thanh Hoa University of Culture, Sports and Tourism are fully aware of the importance of being aware of learning. However, in reality, it is only cognitive adjustment, many students have not been active in learning, lack of reference sources, have not spent much time searching for documents, and improved their mastery activities in the study. Student autonomy is influenced by many factors, so it is necessary to adjust and apply them appropriately to enhance students' initiative in a flexible and specific way.

RECOMMENDATIONS

Based on the regression results, the researchers make some recommendations to contribute to promote the initiative of students studying credit as follows. The University should pay more attention to the facilities for studying for students after class time. It should launch and ask teachers to innovate teaching methods with a learner-centered motto. It should organise seminars, seminars, forums, exchanges between lecturers and students, between cadres, entrepreneurs, successful former students with current students, especially first-year students, between first-year students and upperclass students, between students of different faculties. It should also organise exchanges or integrate with competitions to promote the sense of responsibility of students in improving the autonomy in learning, introducing typical self-study examples, and also change the traditional method of learning to apply "learning with practice". Lastly, it should improve and apply soft skills to learning and teaching activities.

REFERENCES

Boud David 1988.*Developing Student Autonomy in Learning*. New York, United States of America: Kogan Press.

Dao Ngoc Canh HV 2012. Improving student autonomy - an important solution to improve the quality of credit-based training. *Can Tho University Journal of Science,* 22b: 71-79.

De la Fuente J, Cardelle-Elawar M, Peralta FJ, Sánchez MD, Martínez-Vicente JM, Zapata L 2011. Students' factors affecting undergraduates' perceptions of their teaching and learning process within ECTS experience. *Front Psychology,* 2: 28. DOI: 10.3389/fpsyg. 2011.00028.

Donald JG 1985. Intellectual skills in higher education. *The Canadian Journal of Higher Education,* XV-1: 54-68.

Furtak Erin Marie, Kunter Mareike 2012. Effects of autonomy-supportive teaching on student learning and motivation. *The Journal of Experimental Education,* 80(3): 284-316. DOI: 10.1080/00220973. 2011.573019.

Giustina Secundo, Rosa Lombardi, John Dumay 2018. Intellectual capital in education, *Journal of Intellectual Capital,* 19(1): 2-9. https://doi.org/10.1108/JIC-10-2017-0140.

Henri DC, Morrell LJ, Scott GW 2018. Student perceptions of their autonomy at University. *High Educ,* 75: 507-516. https://doi.org/10.1007/s10734-017-0152-y.

Maulana Ridwan, Opdenakker Marie-Christine, Stroet Kim, Bosker Roel 2013. Changes in teachers' involvement versus rejection and links with academic motivation during the first year of secondary education: A multilevel growth curve analysis. *Journal of Youth and Adolescence,* 42(9): 1348-1371. DOI: 10.1007/s10964-013-9921-9.

Nguyen Canh Toan, Nguyen Ki, Vu Van Tao, Bui-Tuong 1997. *Teaching - Self-Study Process*. Hanoi: Education Publishing House.

PrinsFrans J, VeenmanMarcel VJ, ElshoutJan J 2006. The impact of intellectual ability and metacognition on learning: New support for the threshold of problematic theory. *Learning and Instruction,*16(4):374-387. DOI: 10.1016/j.learninstruc. 2006.07.008.

Punturat Sompong, Suwannoi Paisan, Ketchatturat Jatuphum 2014. Intellectual skills assessment for the teacher students at the Faculty of Education, Khon Kaen University. *Procedia - Social and Behavioral Sciences,* 116(2014): 1704-1708. https://doi.org/10.1016/j.sbspro .2014.01.459.

Russell B, Slater Gloria RL 2011. Factors that encourage student engagement: Insights from a case study of 'first time' students in a New Zealand University. *Journal of University Teaching & Learning Practice,* 8(1): 1-15.

Truong D, Giao N, Ly L 2020. Factors affecting the role of women in the economic development of rural household families in Vietnam: A case study in Trieu Son district ThanhHoa province. *Accounting,* 6(3): 267-272.

Tung N, Ly L 2020. Factors affecting literature learning behavior of secondary high school students: Evidence in Vietnam. *Management Science Letters,* 10(14): 3265-3270.

Vinh PT 2018. Some Measures Enhance the Self-study Ability of Credits-Based Training Students to Improve the Quality of Teacher Training at Nghe An Pedagogy College. Education Journal, 434 (Term 2): 18-21. From <http: file:///C:/Users/Admin/Downloads/04pham-thanh-vinh.pdf> (Retrieved on 10 March 2020).

Paper received for publication in July, 2020
Paper accepted for publication in August, 2020