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ABSTRACT

In the era of massive change in educational content and pedagogies, it is worth noting that teachers' professional development (PD) plays a crucial role in determining the quality of educational system. Enhancing teacher quality through professional development activities should be a priority for any schools. This study examines factors that influence high school teachers' participation in professional development (PD). 966 high school teachers took part in the survey. Results show that there are a number of factors influencing high school teachers's participation in professional learning activities, namely (1) Content of PD, (2) Learning community, (3) Management and Leadership, (4) PD's advantages, (5) teachers' perception, (6) time and (7) finance. Exploratory Factor Analysis (EFA) was applied to figure out factors and their level of impact on high school teachers' learning. Results can be used as foundation to propose solutions to encourage teachers participating in PD activities, with the aims at improving teacher quality in educational system.

Keyword: teachers' professional development, participation, teacher quality, educational innovation

1. INTRODUCTION

It is generally known that social context is characterized by the massive development of science, technology and rapid growth of population (Mulford B., 2003; OECD, 2009b). The innovation of educational reform, therefore, is required to suit the needs of 21st-century learners. That is to say teachers should always improve and enhance their professional skills and expertise (Marks D., 2013). Teachers' professional learning can be seen as key factor in terms of policy to enhance the quality of teaching and learning in any schools (Ingvarson L., Meiers M., & Beavis A., 2005). This may result in the fact that many research related to professional development have been carried out recent years.

Researchers in the field have put forward the idea that teaching practices may be changed positively with the help of PD learning (Borko H., 2004). To put it another way, taking part in PD activities may enhance teachers' competencies which can affect students' achievement and performance (Richter D., Kleinknecht M., & Groschner A., 2019). Therefore, enhancement teachers' participation is one of the key step to improve teaching and learning quality within schools.

The question that should be raised here is what issues teachers in general and Vietnamese high school teachers in details are faced up with in terms of taking part in PD activities? This paper endeavours to analyse some factors effecting high school teachers' participation in PD in Nghe An province using EFA method. These factors are mentioned both inside and outside the school context. The critique is expected to prove some useful knowledge related to factors that have effects on enhancing high school teachers' participation in the light of PD concepts and social context. This study supports the idea that good teachers would have significant impact on educational quality (Nhu, Loi, & Thao, 2016). Working to become excellent teachers is a lifelong process that requires the engagement of not only teachers themselves but teacher educators, policy-makers, educational managers and leaders as well. Fully reflecting upon and identifying factors affecting teachers' participation in PD is said to have positive impact on planning, implementing, leading and evaluating educational reform.

Section 2 describes the overview of literature. Section 3 would describes research methodology. The results and critique would be presented in section 4 before going to some discussion in section 5. Section 5 also lists some conclusions about factors affecting high school teachers' participation in PD learning.

2. LITERATURE REVIEW

The definition of professional development (PD) has evolved for a long time and has led to the confusion among people; however, it can be normally defined that PD consists of all learning activities which are designed for

teachers besides their training programs at universities (Creemers B., Kyriakides L., & Antoniou P., 2013). By taking part in PD, teachers have opportunities to reflect and renew themselves as well as enhance their motivation (Yoon K. S., Duncan T., Lee S. W. Y., Scarloss B., & Shapley K., 2007) and commitment in the development of knowledge and skills needed for teaching activity (Day C., 1999; Aydogan & Mirici, 2021).

It is stated that PD activities are influenced by internal and external factors. It is clear that factors can be divided into 3 main groups including content-related factors, process factors and contextual factors (Guskey T. R., 2002). Kwakman's study provides much relevant information on model of factors that have impact on teachers' participation in professional development. According to Kwakman, there are 13 different factors including 5 personal factors (professional attitudes, appraisals of feasibility, appraisals of meaningfulness, emotional exhaustion, loss of personal accomplishment), 5 task-related factors (pressure of work, emotional demands, job variety, autonomy, participation) and 3 contextual factors (management support, collegial support, intentional learning support) (Kwakman K., 2002). Unlike Kwakman, Bayar classified factors into 3 groups: (1) internal factors, (2) external factors and (3) teachers' characteristics (Bayar A., 2013). Internal factors includes teachers' behaviors towards professional development learning and level of teachers' self-efficacy.

Elements affecting teachers' participation in professional development are listed in the table below:

	Internal factors					
	Teachers' perception on PD	Teachers' belief	Professional attitudes	Working experience	Gender	Degree
Authors	(McLaughlin M. W. & Talbert J. E., 2006; Torff & Sessions, 2009; Yamagata-Lynch L. C. & Haudenschild M. T., 2009)	(Lohman M., 2006)	(Atay D., 2004) (Iyidogan, 2011) (Kosko K. W. & Wilkins J. L. M., 2009)	(Bayindir N., 2009; Ozer N. & Beycioglu K., 2010) (Kosko K. W. & Wilkins J. L. M., 2009) (OECD, 2009b) (OECD, 2018)	(Ozer N. & Beycioglu K., 2010)	(Oyedele V. & Chikwature W., 2016) (OECD, 2009b)

	External factors					
	Time	Finance	Leadership & Management	Colleagues & Learning communities	School culture	Content of PD
Authors	(Hodkinson H. & Hodkinson P., 2005; Lohman M., 2006; Visser T. C., Coenders F. G. M., Terlouw C., & Pieters J. M., 2010) (Darling-Hammond L., Hyler M. E., & Gardner M., 2017; Kwakman K., 2003; Scribner J., 1999; Van Veen K., Zwart R., Meirink J., & Verloop N., 2010)	(Postholm M. B., 2011) (Easton L. B., 2008; Leonard L. & Leonard P., 2003; OECD, 2009a; Shafer F. K., 2009; Villegas-Reimers E., 2003)	(McLaughlin M. W. & Talbert J. E., 2006; Meister D. M., 2010; Postholm M. B., 2011; Sandholtz J. H. & Scribner S., 2006) (Carrington Suzanne B. & MacArthur J., 2012) (Baker, 2014)	(Meister D. M., 2010)	(McLaughlin M. W. & Talbert J. E., 2006; Opfer V. D. & Pedder D., 2011; Pedder D., James M., & MacBeath J., 2005; Sandholtz J. H. & Scribner S., 2006)	(Ingvarson L. et al., 2005) (Ninlawan G., 2015) (Clarke D. & Hollingsworth H., 2002) (Zein S., 2015) (A., 2012) (Powell E., Terrell I., Furey S., & Scott-Evans A., 2003)

With the aims of exploring factors having impact on high school teachers' participation in PD learning, the authors proposed a research model as shown in Figure 1.

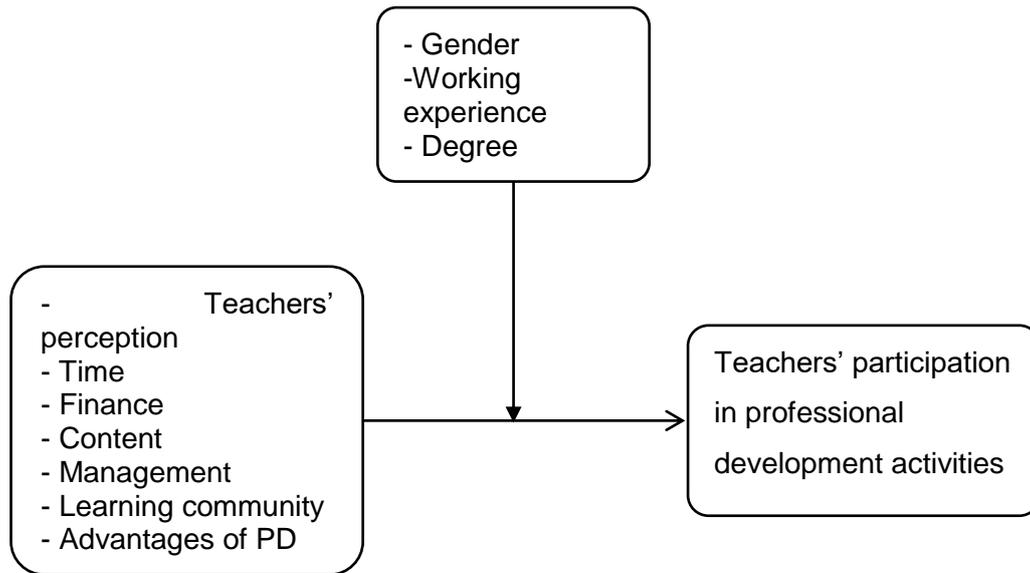


Figure 1. Proposed research model

3. METHODOLOGY

The purpose of this article was to examine the impact of certain factors on high school teachers' participation in PD activities in Nghe An province, Viet Nam. In addition, the study explored whether teachers' gender, working experience, level of academic degree anticipate their participation in PD. This study employed a quantitative methodology to illuminate the influence of factors on teachers' participation in professional development activities.

3.1. Sampling

According to statistical data, there are 21 administration units within Nghe An province, Vietnam including 1 city, 2 towns and 17 districts. Table below demonstrates the number of high schools and high school teachers in Nghe An province. According to the database provided by Department of Education and Training in Nghe An as of the 2020-2021 academic year, there are 88 high schools with 5261 teachers in total. Therefore, school selection was carried out by employing multi-stage stratified method of sampling. Stratified sampling is often used when the researchers want to divide the total population into smaller groups which are homogenous with respect to characteristic (Mukhopadhyay P., 2008; Pirzadeh H. A., Hamou-Lhadj A., & Shanian S., 2011). In the first stage, the author uses probability ratio to choose schools. In other words, schools with larger number of teachers will have higher probability to be chosen. The author randomly selected 40 out of a total of 88 high schools. In the second stage, a number of high school teachers were chosen using systematic random sampling technique which would not take time for training at schools (Lavrakas P. J., 2008). 30 teachers per school were invited to take part in the survey.

3.2. Instrument

Data collection occurs by means of a survey for high school teachers. A questionnaire was developed since it has been widely used in educational science (Blaxter L., Hughes C., & Tight M., 2001). According to Baruch and Holtom's perspective, questionnaires elucidate insight into individual perceptions and attitudes (Baruch Y. & Holtom B. C., 2008). Denscombe puts forward the idea that a good questionnaire contains a list of simplest questions which collect the most number of necessary information for data analysis process (Denscombe M., 2010). The questionnaire employs close-ended questions and Likert-scale type answer choices for measuring the impact of factors. The instrument was developed in light of Theory of Reasoned Action (TRA) (Fishbein M. & Ajzen I., 1975), Rubenson's Recruitment Paradigm (Rubenson K., 1977) and Psychological Interaction Model (Darkenwald G. G. & Merriam S. B., 1982).

Structure of questionnaire is presented as follows:

- A. Demographic information
- Main content:
 - B. Teachers' perception on participating in PD activities
 - C. Forms of PD
 - D. Advantages of PD
 - E. Time, Finance

- F. Content of PD
- G. Management of PD
- H. Learning Community

Cronbach's Alpha of factors were analysed as follows:

Table 1. Reliability of scale assessment

No.	Variable	Code	No. of items	Cronbach Alpha
1	Teachers' perception	NT1, NT2, NT3, NT4, NT5, NT6, NT7	7	.928
2	Finance	CP1, CP2	2	.813
3	Time	TG1, TG2, TG3, TG4, TG5, TG6	6	.919
4	Content	ND1, ND2, ND3, ND4, ND5	5	.927
5	Learning community	CD1, CD2, CD3, CD4, CD5, CD6, CD7, CD8, CD9	9	.961
6	Management	QL1, QL2, QL3, QL4, QL5, QL6, QL7, QL8, QL9	9	.943
7	PD's advantages	PTNN1, PTNN2, PTNN3, PTNN4, PTNN5, PTNN6, PTNN7, PTNN8, PTNN9, PTNN10, PTNN11	11	.941
8	Teachers' participation	TGPTNN1, TGPTNN2, TGPTNN3, TGPTNN4, TGPTNN5, TGPTNN6, TGPTNN7, TGPTNN8, TGPTNN9	9	.949

As can be seen from the table 1, the values of Cronbach's Alpha for all variables are significantly high. All of Cronbach's Alpha are higher than 0.8 (>0.7) which indicates that scale is good (Hair J. F., Black W. C., Babin B. J., & Anderson R. E., 2010). It must also be noted that the Corrected Item-Total Correlation of all variables are significantly high and greater than 0.6.

3.3. Data analysis

The study employed IBM SPSS Statistics 20 to implement Exploratory Factor Analysis (EFA), a statistical technique which explores factors that influence high school teachers' participation in PD. The process of data analysis is divided into 3 steps:

- (1) Examine Cronbach's alpha coefficient:
- (2) Exploring Factor Analysis
- (3) Linear Regression Analysis.

4. RESULTS

4.1. Descriptive analysis

As mentioned above, high school teachers from 40 schools were invited to participate in the survey. There has been much discussion about the acceptable response rate of research survey. Johnson and Christensen were considered to have claim that 70% is acceptable response rate for a survey study (Johnson B. & Christensen J., 2008). Whereas Shannon argues that 65% is an appropriate response rate for research. The total number of usable returned surveys was 966 out of 1200 total questionnaires distributed during this study. That is to say, the response rate is 80.5% which is good for statistical analysis. Baruch and Holtom put forward the idea that higher response rates lead to statistical power as well as have greater credibility among key stakeholders (Baruch Y. & Holtom B. C., 2008; Rogelberg S. & Stanton J., 2007).

Table 2. Characteristics of the Sample

Variable	Number	Percent
Gender		
Female	490	50.7%
Male	476	49.3%
Total	966	100%
Level of Education		
Graduate	484	50.1%
Master	462	47.8%
Doctor	20	2.1%
Total	966	100%

Teaching experience			
	First year	21	2.2%
	1-4 years	50	5.2%
	5-10 years	219	22.7%
	11-15 years	222	23.0%
	16 - 20 years	229	23.7%
	≥ 20 years	225	23.3%
	Total	966	100%

The total number of high school teaches in the sample was 966, 50.7% of which were female teachers and 49.3% were male. There was a slight difference in the number of male and female participants. All the teachers surveyed achieved at least undergraduate professional degree which meets the requirements of teachers' level of education for high school teachers. According to Circular 04/2021/TT-BGDĐT dated February 2, 2021 of the Ministry of Education and Training prescribing codes, standards of professional levels and appointment and rating of teaching staffs in public high schools, the minimum requirement of level of education for high school teacher is bachelor's degree. The majority of participants earned master's degree (50.1% of the sample), 47.8% of teachers earned a bachelor's degree while the remaining 2.1% of teachers indicated having earned a doctor's degree. The high percentage of teachers with master's degree or higher may be due to their perception on achieving further promotion opportunities as well as keeping their jobs. On average, teachers with master's degree or higher have more PD days (37 days) than that of colleagues with bachelor's degree (21 days). Certainly, this difference can be explained by some reasons; however, an issue of inequity PD among high school teachers has been identified in Nghe An.

With regard to working experience, most of teachers have worked in the field for a long period of time. Of the 966 participant who completed the survey, 670 teachers (69.4%) have worked for 5 to 20 years which can be seen as "golden period of professional time". Working for a long time can be considered as a good foundation in terms of perceptions and experience which support teachers in giving exact answers to their participation in PD activities.

According to the data, there is a slight difference between male and female's days of PD. The average days of PD for female teachers was 37.4 days while their male counterparts participated 36.9 days. It must also be noted that these numbers are known to be higher than that of teachers from other countries. OECD data shows that countries where teachers participate in high number of PD days include Mexico (34 days), Korea (30 days), Bulgari (27.2 days)...The lowest average numbers were reported by Ireland (5.6 days), Belgium (8 days) and Slovenia (8.3 days) (OECD, 2009b).

Results of factorial analysis on PD activities is described as follows:

Table 3. Means and Standard Deviation of Factors

Descriptive Statistics					
	N	Minimum	Maximum	Mean	SD
NT	966	1.00	6.00	4.2368	1.24172
CP	966	1.00	6.00	3.5580	1.49620
TG	966	1.33	6.00	3.9984	1.17007
QL	966	1.00	6.00	2.9231	1.33937
CD	966	2.67	6.00	4.3317	1.03428
PTNN	966	1.00	6.00	3.6180	.86564
ND	966	1.00	6.00	3.6913	1.17613

Variables from NT1 to NT7 have average point from 4.0 to 4.39 based on 6 point Likert scale (1=Disagree Strongly, 2=Disagree Moderately, 3=Disagree Slightly, 4=Agree Slightly, 5=Agree Moderately, 6=Agree Strongly). This implies that participants responded between 'Agree slightly' and 'Agree Moderately' on items. Standard Deviation of observations range from 1.403 to 1.632 which means there is not much difference among values. Therefore, the level of measurement among participants on this factor is relatively equal. Teachers show positive attitudes to the participation in PD activities.

Results showed that the mean for *funding* among participants was $m = 3.55$ ($sd = 1.49$) representing an adequate response for this factor. Standard deviation values of observations show slight difference which means that the sampled teachers tended to agree that finance is another factor that affect their participation in PD.

With regard to time variable, average values of observations of *time* was $m = 3.99$ ($sd = 1.17$) representing a moderate response to the factor. Among standard deviation values of observations, variable TG4 had lowest value compared to that of the rest variable. This can be explained by the fact that teachers need more support

from their family members to accomplish their PD tasks.

The mean for *Content of PD* was $m = 3.69$ representing a moderate response to the factor among all participants. This means participants responded on average between 'neutral' and 'agree' on a 6-point Likert scale. Some teachers were satisfied; however, most of participants reported that content of PD activities needs to be improved.

Results showed that the mean for *Learning Community* was $m = 4.3$ ($sd = 1.03$). This indicates that teachers moderately agreed with statements related to *Learning community*. It was reported that teachers joined learning communities frequently to enhance their professional capabilities.

Support from school leaders/managers were found to be related to levels of teachers' participation in PD activities. The mean was $m = 2.92$ ($sd = 1.33$), meaning that on average, teachers responded neutrally to the statements. Considering standard deviation, the values showed that participants' responses are relatively the same.

It is noticeable that professional development activities bring certain benefits for high school teachers. These positive effects also have impact on teachers' participation in PD. Results on this factor showed that the mean was $m = 3.61$ ($sd = 0.86$) among all participants. This indicates that teachers agreed slightly and moderately on statements related to effects of PD activities.

4.2. Exploratory Factor Analysis

The given table presents KMO coefficient which is equal to .944 ($0.5 < KMO < 1$), representing adequate sample and the correlations among variables in the total population.

Table 4. KMO & Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.944
Bartlett's Test of Sphericity	χ^2 Approx. Chi-Square	7713.345
	df	36
	Sig.	.000

As can be seen from the table 4, Sig. = .000 < 0.05 which confirms that the data is suitable for EFA and there is a linear correlation between observations and representative factor. Seven factors with Eigenvalue > 1.162 are extracted and explains for 72.896% which indicates that 72.896% change of factors can be explained by observations. Therefore, EFA is suitable for population data. After testing measurement scale and criteria of EFA, the author identified 7 factors including:

Table 5. Mô hình sau khi kiểm định Cronbach's Alpha và phân tích nhân tố khám phá

p.	Variable	Items	Explanation
1	F1 (NT)	NT1, NT2, NT3, NT4, NT5, NT6, NT7	Perception
2	F2 (CP)	CP1, CP2	Finance
3	F3 (TG)	TG1, TG2, TG3, TG4, TG5, TG6	Time
4	F4 (QL)	QL1, QL2, QL3, QL4, QL5, QL6, QL7, QL8, QL9	Management
5	F5 (CD)	CD1, CD2, CD3, CD4, CD5, CD6, CD7, CD8, CD9	Learning community
6	F6 (PTNN)	PTNN1, PTNN2, PTNN3, PTNN4, PTNN5, PTNN6, PTNN7, PTNN8, PTNN9, PTNN10, PTNN11	Advantages of PD
7	F7 (ND)	ND1, ND2, ND3, ND4, ND5	Content
8	TGPTNN	TGPTNN1, TGPTNN2, TGPTNN3, TGPTNN4, TGPTNN5, TGPTNN6, TGPTNN7, TGPTNN8, TGPTNN9	Participation in PD activities

4.3. Multiple Linear Regression Results

The regression model of this study is:

$$TGPTNN = \beta_0 + \beta_1 NT + \beta_2 CP + \beta_3 TG + \beta_4 QL + \beta_5 CD + \beta_6 PTNN + \beta_7 ND + \epsilon$$

Table 16 gives information about goodness of fit of model through adjusted R Squared. Adjusted R Square is .728 which means the independent variable in the model can explain 72.8% of the variation of dependent variable.

Table 6. Model's Goodness of Fit

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.854^a	.730	.728	.307256987415026	1.812
a. Predictors: (Constant), ND, QL, CĐ, NT, TG, CP, PTNN					
b. Dependent Variable: TGPTNN					

Table 17 shows the appropriation of the regression model. Sig. < 0.05 means that the model is significant and fits the data.

Table 7. ANOVA analysis

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	244.370	7	34.910	369.783	.000^b
	Residual	90.442	958	.094		
	Total	334.812	965			
a. Dependent Variable: TGPTNN						
b. Predictors: (Constant), ND, QL, CĐ, NT, TG, CP, PTNN						

The table belows presents information on effects of factors related to high school teachers' participation in PD in Nghe An, Viet Nam. The result shows the determination of seven factors including teachers' perceptions on PD activities, finance, time, management, learning community, content of PD and effects of PD learning.

Table 8. Regression Analysis Result

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics		Level of importance
		B	Std. Error	Beta			Tolerance	VIF	
1	(Constant)	.801	.093		8.645	.000			
	NT	.079	.009	.166	8.706 ^{***}	.000	.774	1.293	5
	CP	-.048	.007	-.121	-6.695 ^{***}	.000	.861	1.161	7
	TG	-.031	.009	-.061	-3.297 ^{**}	.001	.834	1.200	6
	QL	.124	.008	.282	14.872 ^{***}	.000	.782	1.279	3
	CĐ	.245	.010	.430	24.146 ^{***}	.000	.890	1.124	2
	PTNN	.112	.014	.164	8.143 ^{***}	.000	.692	1.444	4
	ND	.247	.009	.493	27.226 ^{***}	.000	.861	1.162	1
Sample				966					
F				369.783 ^{***}					
R ²				.854					
Adjusted R ²				.728					
Durbin Watson				1.812					
*** p < .01, ** p < .05; * p < .10 (2 tailed)									

As can be seen from table 18, except for "Time-TG", other variables have statistical significance <0,01. To put in another way, all factors have effect on high school teachers' participation in PD with confidence of 95%. That Adjusted R² is .728 means that 72.8% of variation explained by 7 independent variables that actually affect the dependent variables. This demonstrates that linear regression model fits the data at the level of 72.8%. According to this table, the Variance Inflation Factors VIF are < 2 which proves that there is no multicollinearity. Moreover, there is no existence of autocorrelation since d coefficient (Durbin-Watson) = 1.812 which is in the range of (1,3), nearly 2 (Montgomery D. C., Peck E. A., & Vining G. G., 2013). Among these seven variables, factor "Content of PD" has the greatest effects on teachers' participation in PD activities while "Finance" has the lowest effects. The level of importance of "Learning community", "Management", "Advantages of PD", "teachers' perception" and "time" are 2, 3, 4, 5, 6 respectively.

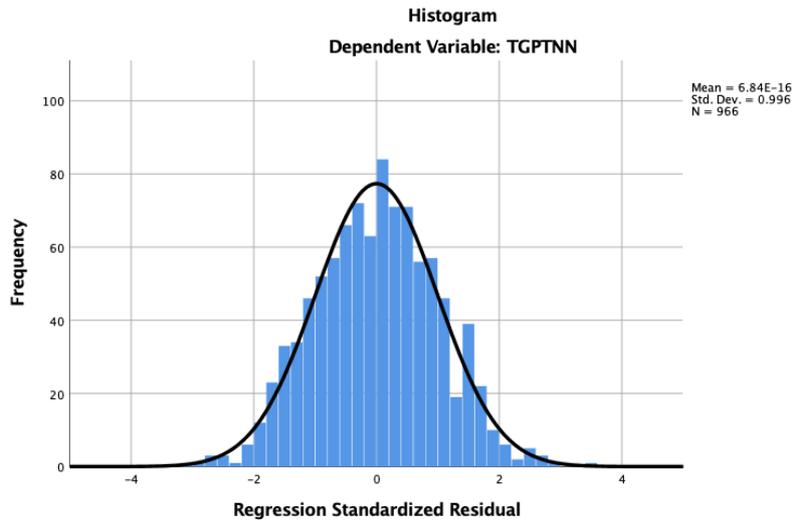


Figure 2. Histogram of regression standardized residuals

The author also use a histogram to graph sample data. The fitted distribution line can demonstrate the probability distribution function for the population. As can be seen from the chart, the bell-shaped curve illustrated the normal distribution of the dataset. Mean equals to 6,84E-16 and standard deviation equals to .996 confirm that standardized residual fit the normal distribution.

The unstandardized regression model is presented as follows:

$$TGPTNN = .801 + .079NT - .048CP - .031TG + .124QL + .245CD + .112PTNN + .247ND + .093$$

5. DISCUSSION AND CONCLUSION

This study was conducted to examine factors that affect high school teachers' participation in PD activities in Nghe An province (Viet Nam). We found that 7 factors have significant effects on teachers' participation. Teachers' perception on PD, finance, time, leadership and management, learning community, content of PD and effects of PD are factors which were investigated to have impact at different levels. Among 7 factors, content of PD learning activities is considered to be highly correlated to Nghe An high school teachers' participation in PD. According to teachers' responses, they provided much relevant information on the design and content of PD document. Overall, the content should update the new trend and approaches related to PD learning activities. The updated documents can be a motivation for teachers to decide whether or not participate in learning activities that enhance their level of skills and knowledge. PD activity is a long journey in teachers' career path. The enthusiasm of teachers can be negatively affected due to an overlapped content of PD in any forms. It is also worth noting that participants suggested that training/forstoring documents should be updated based on their feedbacks during PD activities. Moreover, the key aspect of this argument is that more amount of time should be spent on professional issues related to enhancing teaching performance. With regard to lecturers who play key role in PD courses, it is highlighted that there is limitation of lecturer in terms of quantity and quality. Participants raised the concern that lecturers do not keep close in touch with the educational practices and issues at high schools. The content of PD should have connection with the real-life problems that high school teachers have faced up with in terms of curriculum, teaching methodology, text books, student-related issues, etc.

Due to the impact of COVID pandemic, most of PD activities in Nghe An province in details and Vietnam in general are carried out online for a certain period of time. Educational systems all over the world has recently witnessed a shift from learning with the emphasis on individual to learning as a community. Many PD activities in Nghe An province are delivered online with the participation of numerous high school teachers. As far as learning community is concerned, online groups using social tools have become useful bridge to connect teachers together. In learning groups, participants can learn with and from other colleagues with the aim at solving problems, challenges as well as conflict during their professional practices. They discussed lively on curriculum, teaching method and other educational issues. To some extent, learning communities has shifted from individual-oriented to group-oriented. The most crucial point made so far is that policy makers, educational leaders and managers should pay much attention to connect and control these groups effectively.

It is important for school and educational managers to consider and support teachers in terms of taking part in PD activities. Results indicated that teachers agree slightly with the statement showing that school managers provide teachers with finance support including materials, services or transportation related to the courses. This means that the support is not fully satisfied with teachers' requirements. Participants also addressed that high school teachers from city have higher opportunities to approach PD activities than that of district or rural

communities. For some high schools especially poorly resourced schools in rural areas, the challenges of participating in PD activities outside schools are even greater, threatening to the educational development gap in Nghe An province. According to participants' perspective, they claimed that they would highly appreciate greater support from managers when they spend time to participate in PD activities due to the fact that these commendable support and consideration are piecemeal, largely confined to small amount of expenses

It is the aim of this article to investigate factors that affect high school teachers' participation in PD learning, hence giving recommendations to educational managers and teachers themselves. First, PD is a bridge to help teachers to connect knowledge between colleges and real-life professional practices. PD is a continuing learning process and is seen as a journey of learning as a group. Teachers can find their own ways to support their students in achieving higher step in learning process. In other words, high school teachers should raise their awareness on taking part in PD learning activities. High school teachers should also pioneer and trial new teaching methods, disseminate new trends of teaching and learning within school community especially in lesson demonstrations.

Teachers who participate actively in PD activities to develop their professional capabilities may need to engage in learning group both online and offline in order to make use of advantageous experiences as well as reduce detrimental practices in teaching and learning. Building a positive learning community with respect and mind-sharing needs to be illustrated and evaluated in PD events for teachers to reflect their experiences in learning as groups. As teachers reflect on their beliefs and difficulties about teaching and learning in groups, they can learn from each other besides the lecture delivered by teacher educators or lecturers.

A second recommendation concerns the role of policy makers and educational managers including high school principals. Educational leaders and managers should consider PD as means of reducing the gap of inequity among high school teachers who come from urban and rural areas. PD should be implemented equally between advantaged and disadvantaged schools. Educational managers at all levels should expand their involvement in promoting spirit and practices of PD across all levels of schools. To put it another way, of many possible factors that are likely to enhance the implementation of educational renovation, PD can be seen as the most efficacious.

It must also be noted that only when teachers see the value of PD opportunities in terms of equipping them with the needed skills and knowledge to meet the demand of teaching and learning needs, they would participate actively. Therefore, content of PD activities should be designed and implemented in the light of new educational approaches of the 21st century. Besides, content of PD also appears to be more significant in predicting teachers' participation in PD activities. Universities and policy makers, in partnerships with high schools, can work with teachers to identify their needs and challenges during professional practices. Teachers, therefore, have opportunities to raise their voices on what problems they have faced up with and what they want school leaders as well as educational officers at all levels to support during their PD journey. Support resources should be developed that encourage the work of teachers and their continuous participation in life-long learning activities.

Thirdly, the study provides evidence for factors like finance and time that predict participation in PD activities of high school teachers. Participants argued that teacher's salary is not high compared to their living expenditures, whilst teachers are also suffered by insufficient financial support, this may result in the feeling of having to take on more responsibilities for little or not incentives or support from leaders. Moreover, there are some issues arising when participate in PD activities like class fund, babysitting...which may cause teachers' unwillingness to participate in PD. As far as time concerned, teachers suggested that PD activities outside school should be organized in summer time when school year ends. They put forward the idea that managers at all levels should ensure to organize these activities regularly and periodically.

Finally, higher education system and teacher educators should involve high school teachers as active learners through PD. They are considered to be mainly reactive rather than proactive in supporting teachers to solve their professional problems in the light of new educational approaches. Teacher educators can only see their crucial role in encouraging teachers to participate in PD when they fully understand the real-life picture of high school education. University lecturers also play an important role in instructing each school on establishing PD community both offline and online with the help of ICT. High school teachers need to be encouraged to create network and build connection with other colleagues outside their school.

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Conflicts of interest

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