

## The Influence of Formal and Informal Learning on Teacher Professional Development in Vietnam

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### Abstract

Teachers in Vietnam need professional learning in order to meet the national requirements of comprehensive educational reform. Teacher professional development encompasses all forms of continuous education for educators. Teacher professional learning is a continual process that begins with schools determining the educational outcomes that are crucial to their pupils. This study aimed to understand the status of teacher participation in the two professional learning forms (formal & informal) and the influence of these on professional development. The paper is built on the data collected from a survey conducted at high schools from four provinces in Vietnam in 2020. Responses to a paper questionnaire were provided by 355 teachers. The investigation results show, firstly, that the majority of teachers developed their expertise through informal pathways such as teachers actively participating in professional activities at school and actively learning, sharing and exchanging professional experiences with colleagues at school. In contrast, teachers did not participate much in formal forms, and the number of participants in scientific research and certificate and rank promotion courses was the least. Moreover, while formal professional

learning forms had a positive influence on the professional development of teachers, informal forms had a higher degree of influence.

*Keywords:* Formal, informal, learning, professional development, teacher.

## **Introduction**

Vietnam has traditionally prioritized education as a cornerstone of its development strategy. As one sign of this commitment, it allocates nearly 20 % of public expenditures to education, significantly above the Organization for Economic Co-operation and Development (2011) average of 12.9 %. Education is currently the top priority in socio-economic development in Vietnam. Since 2013, the policy called “Fundamental and Comprehensive Education Reform” has been driven by the government. The Ministry of Education and Training (MOET) has carried out the Enhancing Teacher Education Program for realigning teacher education to general education reform; this focuses on supporting the professional development (PD) of teachers and administrators to adapt more effectively to the changing needs reflected in the Fundamental and Comprehensive Education Reform.

Vietnamese teachers need continuous PD at school to accommodate the expected changes in teaching methods and professional responsibilities, especially in the context of the current educational reform. Different forms of training and support for teachers can help them respond to rapidly changing situations and a wide array of differing demands. Actively learning expertise can help teachers master these new methods more effectively and gain the necessary competencies.

There have been several studies on the PD and professional learning (PL) of Vietnamese teachers. Teachers’ PL occurs in both formal and informal ways. PD can be accomplished through PL in the form of courses, seminars or certificate/degree programs. Professional learning can take place through cooperation between schools or between teachers inside or outside the school in the form of coaching/counseling, collaborative planning and sharing experiences, and teaching experience (Truong et al., 2021). Similarly, as Villegas-Reimers (2003) shows, through PL Vietnamese teachers can gain professional knowledge and advanced pedagogical skills, meet the requirements of evaluating teaching and education in a systematic way.

This paper provides information pertinent to successfully implementing fundamental and comprehensive reform in education in the context of Vietnam. Given that improving the teaching quality of high school teachers is one of the priorities to successfully implement the reform of the general curricula, it is clear that the PD of high school teachers is at the centre of the reform process.

Learning for PD is an activity that teachers do regularly. This study shows the extent to which teachers participate in PL in both formal (CT) and informal (KCT) forms. In addition, it shows the professional learning forms that have a positive influence on the PD of teachers.

## **Literature Review**

**Professional development** is the set of tools, resources, and training sessions for educators to improve their teaching quality and effectiveness. These resources allow instructors to enrich their knowledge in specific subject areas and to learn new teaching techniques (Huang et al., 2024). Participation in workshops or leadership sessions helps teachers acquire and enhance specialized skills such as technical, quantitative, and analytical capabilities. PD is the process by which educators develop and improve their skills in order to fulfill the needs of their students. PD approaches include case studies, counselling coaching, mentorship, and technical support. Here, collaboration and evaluation take place so that educators can enhance students' outcomes (Yoo, 2016).

Teacher PD encompasses all forms of ongoing training for educators. It is a must for teachers to develop their skills and, as a result, improve student performance. Learning can occur in both formal and informal contexts. Conferences, courses, seminars, retreats, and workshops are examples of formal settings. Independent study or investigation, peer learning activities, or simply speaking with a colleague are instances of informal possibilities for teacher PD (Makarevičs, 2008). PD for teachers takes place on a number of different levels: district-wide, among teachers in a given school, or even on a classroom or individual basis. Teachers are ready to enhance their professional performance, always being aware of their existing knowledge about teaching and learning. Therefore, continuing professional learning is essential (Meesuk et al., 2021).

## **Professional Learning**

Teacher PL is a constant cycle that begins with schools determining the educational attainment that is essential for their students. Then teachers need to identify the knowledge and abilities necessary to help students bridge the gap between existing interpretations and desired outcomes. PL is utilized by teachers to stimulate their thoughts and professional knowledge, as well as to guarantee that their practice is critically informed and up to date. Teachers are more likely to inspire students and provide high-quality teaching and learning experiences when they engage in a diverse range of high-quality, continuous PD activities. PL must provide rich opportunities for teachers to expand and improve their professional knowledge and practice in order to advance learning and teaching quality and school

development.

Expanding on the above understandings, Day (1997) proposes a broad definition of teacher PL that includes both expected (planned) and unexpected components, as well as learning defined by moral or ethical dimensions. Learning may be extended over time and/or it may focus on a particular activity, event or outcome. Day's definition was built based on the possibility of PL outcomes that are unexpected, outcomes that may be easily measured in the short term, as well as outcomes that are measurable but may not be apparent for some time following the original PL activity. PD consists of all natural experiences and those conscious and planned activities which are intended to be of direct or indirect benefit to the individual, group or school and which, as a result, add to the excellence of education in the classroom. It is the process by which, alone and with others, teachers review, renew and extend their commitment as change agents to the moral purposes of teaching and by which they acquire and develop critically the knowledge, skills and emotional intelligence essential to good professional thinking, planning and practice with children, young people and colleagues.

In this study, teacher PL is conceptualized as embedded in the classroom context and constructed through experience and practice in sustained iterative cycles of goal setting/ planning, practising, and reflecting (Kolb, 1984; Sankaran et al., 2001). In other words, the whole social context of the classroom becomes the primary and legitimate site of teacher PL on an ongoing basis. Likewise, the Canadian research conducted by Bruce et al. (2010), this study aimed to reveal PL opportunities that were clearly grounded in classroom practice using iterative cycles of teacher planning, practice, and reflection, and also sought to find out how these opportunities impacted both teacher efficacy and student achievement.

## **Informal Professional Learning**

Informal learning is frequently referred to as a residual category to cover any type of learning that does not occur within or after a formally organized learning program or event. However, for those who assume that most human learning occurs outside of formal settings, the utility of such a catch-all name is limited. Furthermore, the term "informal" is associated with so many other aspects of a setting – attire, speech, behavior, social inequalities, etc. – that its common use as a descriptor of learning situations may have little to do with learning. To avoid such confusion, the authors of the paper prefer to use the term "non-formal learning" as the contrast to formal learning, and to make further distinctions within that heading (Eraut, 2000).

Implicit learning, according to Reber (1993), is the accumulation of knowledge

independent of conscious attempts to learn and in the lack of explicit knowledge about what was learned: there is no goal to learn and no awareness of learning at the time it occurs. The authors of the paper consider that it could be useful to include a new category between implicit and deliberate learning to reflect circumstances in which learning is explicit but occurs essentially spontaneously in reaction to recent, current, or imminent experiences, with no time set aside specifically for it. This reactive learning is unplanned and near-spontaneous; the learner is aware of it, but the level of intentionality varies and is frequently contested. Its articulation in explicit form could also be difficult without setting aside time for more reflection and, thus, becoming deliberative.

In alignment with the OECD's (2011) work, this learning continuum has formal and informal learning at its two ends, with non-formal learning situated somewhere between. Whereas formal learning is organized, intentional and has learning objectives, informal learning is not intentionally arranged and has no set objective. Although non-formal learning is the concept on which there is the least consensus in the literature, it seems clear that it is organized and can have learning objectives. Non-formal learning may occur in the workplace and through the activities of civil society organizations and groups rather than in classrooms of formal education institutions such as colleges (Pilz & Wilmshöfer 2015).

## **Formal Professional Learning**

Teachers have to be ready to improve their professional performance, challenge their existing perceptions and mindset about teaching and learning, and become learning agents for themselves and their students. Thus, the traditional way of teachers' PD, according to the principle "one size fits all" workshops, is no longer able to meet the real PD needs of teachers (Patton et al., 2015). Formal PD cannot bridge the expanding gap between the knowledge and abilities required by teachers in the actual world and those that can be learned through formal training activities (Tynjälä, 2008). Participation in formal learning activities (such as in-service training courses, seminars, lectures, and workshops) is still a frequent practice in schools for teachers' professional growth. However, the impact of formal learning experience on teachers' performance in the classroom is limited. According to researchers, teachers rarely implement the approaches and practices they have heard about in formal training sessions (Wideen et al., 1998). This is due to the fact that during formal learning activities there is no time for purposeful reflection on teachers' professional activities to make a transfer from the new information to their professional practice. The participants in this study also made five concrete suggestions to improve the PD frameworks, with entry-level and expert teachers making the most suggestions. First, Entry-level teachers, in particular, suggested that the hours per year dedicated to PD should

not be limited. Second, both entry-level and expert teachers suggested that course schedules should coincide with the work day and/or with vacations in preference to the evening. The third suggestion was that the topics taught should be updated to avoid boredom and repetition. The fourth suggestion was that PD planners should map teachers' needs to better suit course content to those needs. The final suggestion, made solely by expert teachers, was that they be allowed to choose PD courses from outside the areas they teach.

Formal learning can be described as activities that are sponsored and structured to achieve a specific educational purpose. Learning occurs in prescribed settings such as classrooms, conferences and workshops. The results of these activities often generate grades, certificates, continuing education credits, or diplomas (Dabbagh & Kitsantas, 2012). Formal PD can be planned at a variety of levels. Administrators can plan courses offered at the district level or principals and teachers can plan workshops at the school level. Schools and districts may also reach out to independent educational organizations to conduct specialty training sessions as many of these organizations serve as experts on a particular instructional strategy or teaching philosophy.

### **Theoretical Framework**

Professional development, in its broadest definition, refers to a person's advancement in his or her professional capacity. More specifically, "teacher development is the professional progress a teacher gets as a result of obtaining more experience and methodically assessing his or her teaching" (Glatthorn, 1995, p. 41). PD encompasses both official (attending seminars and professional meetings, mentoring, etc.) and informal (reading professional journals, viewing television documentaries relating to an academic topic, etc.) experiences (Ganser, 2000). This concept of PD is, therefore, broader than career development, which is defined as "the growth that occurs as the teacher moves through the professional career cycle" (Glatthorn, 1995, p. 41), and more comprehensive than staff development, which is defined as "the provision of organized in-service programs designed to support the progress of groups of teachers; it is merely one of the systematic treatments that can be utilized for teacher development" (Glatthorn, 1995, p. 41). When looking at PD, one must examine the content of the experiences, the processes by which the PD will occur, and the contexts in which it will take place (Ganser, 2000; Fielding, 1985).

Teachers can learn by engaging in a variety of courses, reflecting on their own teaching at school, and observing and reflecting on others' teaching in collaboration with colleagues. Teachers can learn through organized reflection meetings among teachers, unplanned talks with other colleagues before or after teaching, or parent-teacher meetings. Thus, learning may occur in various

ways, both formally and informally (Postholm, 2012). Based on this theoretical framework, the research was conducted to measure teachers' involvement in PL practices, both formal and informal. Next, the study evaluated the influence of PL forms on teachers' PD.

Informal learning is given as an alternate PD strategy for instructors. It involves self-initiated, voluntary learning activities at the workplace in which teachers interact with one another to develop their knowledge and skills on specific subjects. Informal learning is typically not an externally managed and structured process; rather, it is built on intensive use of previous work experience and reflection on this (Lohman, 2000).

Informal learning is distinguished by indirect, unplanned, and voluntary learning that does not emphasize the individual who teaches the new knowledge. Informal learning is implemented as a part of a daily learning process where teachers, through individual actions or collaboration, acquire the knowledge and skills they need in a concrete professional situation. The goal of such learning activities is not to learn and implement specific curriculum, and it does not take place in a learning environment specifically designed for learning purposes.

At school, informal learning takes place through individual activities (getting acquainted with professional literature and observing classrooms of other teachers) and collective activities (conversations with colleagues, students and parents, mentoring programs, participation in teacher networks and learning groups).

Teachers must be willing to enhance their professional performance, challenge their preconceived notions and mindsets about instruction and learning, and serve as learning agents for themselves as well as their learners. Thus, the traditional way of teachers' PD, according to the principle "one size fits all" workshops, is no longer able to meet the real PD needs of teachers (Patton et al., 2015). Within the framework of this research, informal forms (KCT) of PL include:

**Table 1**

*Informal Forms (KCT) of Professional Learning*

|      |           |                                                                       |
|------|-----------|-----------------------------------------------------------------------|
| KCT1 | ITEM2.1   | Self-learning, self-research                                          |
| KCT2 | ITEM2.2   | Observing colleagues' teaching sessions                               |
| KCT3 | ITEM 2.4  | Professional activities at school                                     |
| KCT4 | ITEM 2.6  | Regular professional training                                         |
| KCT5 | ITEM 2.7  | Learning in groups at school                                          |
| KCT6 | ITEM 2.12 | Sharing, exchanging professional experience with colleagues at school |

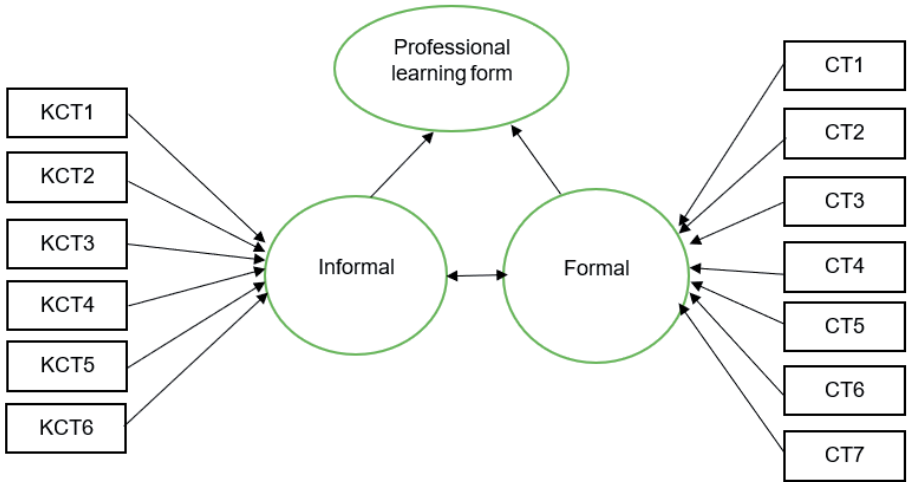


Formal PD cannot bridge the expanding gap between the knowledge and abilities required by teachers in the actual world and those that can be learned through formal training activities (Tynjälä, 2008). Involvement in formal learning activities (such as in-service training courses, seminars, lectures, and workshops) is still a frequent practice at schools for teachers' professional growth. Despite being a normalized form of professional learning, formal sessions rarely result in substantially changed practice (Wideen et al., 1998). Within the scope of this research, formal forms (CT) of PL include:

**Table 2**  
*Formal Forms (CT) of Professional Learning*

|     |           |                                                                                                    |
|-----|-----------|----------------------------------------------------------------------------------------------------|
| CT1 | ITEM 2.3  | Training by core teachers at school                                                                |
| CT2 | ITEM 2.5  | Participating in online training courses                                                           |
| CT3 | ITEM 2.8  | Participating in research activities                                                               |
| CT4 | ITEM 2.9  | Taking certificate courses, upgrading professional rank                                            |
| CT5 | ITEM 2.10 | Observing class teaching sessions of other school colleagues                                       |
| CT6 | ITEM 2.11 | Professional workshops, conferences conducted by the Ministry/Department of Education and Training |
| CT7 | ITEM 2.13 | Online learning under the supervision of core trainers and pedagogical teachers                    |

**Figure 1**  
*The Theoretical Basis and Research Model of the Teachers' Participation in PL Forms (CT & KCT)*





Taking into account the theoretical foundation and research model, this study posed the following hypotheses:

Hypothesis H1: Both formal and informal training and learning forms have a positive influence on teachers' professional development.

Hypothesis H2: Informal training and learning forms have a greater positive influence on teachers' professional development compared to formal training and learning forms.

## **Research Method**

Learning for PD is an activity that teachers do regularly. This study shows the frequency which teachers participated in PL in both formal (CT) and informal (KCT) forms. Using the structural equation analysis, this study revealed the PL forms that had a positive influence on the PD of teachers. As a result, some recommendations were made for teachers and school leaders to encourage teachers to develop professionally in order to ensure the quality of education.

## ***Research Sample***

To analyze the impact of the relationship between the PD of teachers and the PL forms (CT & KCT), the method of linear structural equation analysis (SEM) was applied. As it is based on sample distribution theory, this approach necessitates a high sample size. However, according to Hair et al. (1998), for exploratory factor analysis (EFA), the sample size must be at least 5 times the total number of observed variables in the scales. The questionnaire of the study includes 13 observed variables used in the factor analysis. Therefore, the minimum sample size to be achieved is  $13 * 5 = 65$  respondents. In this study, both EFA and SEM methods were used, so the minimum sample size was from 100 to 150. In addition, the sample size for the estimation method used in the linear structural model has three types: a small sample  $\leq 100$ , a medium sample 100–200 and a large sample  $\geq 200$ . The sample of this study included 355 observations of variables with teachers from four provinces of three regions, North, Central and South, thus meeting the requirements of the analytical method. The average tenure of teachers participating in the survey was about 14 years. Female teachers accounted for 69 % of the total number of teachers. The proportion of teachers with postgraduate qualifications was nearly 26 %.

**Table 3**

*Participating Teachers: Province, Gender, Role and Highest Qualification*

|                       |              | Number | Rate  |
|-----------------------|--------------|--------|-------|
| Province              | Hà Nội       | 129    | 36.34 |
|                       | Nghệ An      | 105    | 29.58 |
|                       | TP.HCM       | 98     | 27.61 |
|                       | Vĩnh Phúc    | 23     | 6.48  |
| Sex                   | Male         | 110    | 30.99 |
|                       | Female       | 245    | 69.01 |
| Teacher/ Core teacher | Teacher      | 350    | 98.59 |
|                       | Core Teacher | 5      | 1.41  |
| Qualification         | Bachelor     | 263    | 74.08 |
|                       | Master       | 90     | 25.35 |
|                       | Doctor       | 2      | 0.56  |

***Instrument***

The questionnaire used a 5-point Likert scale to survey the following matters: Teachers' PL forms were assessed on a frequency scale from never to more than three times; the impact of PL on PD was assessed from no impact to the strongest impact; PL needs were evaluated as being from unnecessary to very necessary. The study used descriptive statistics, evaluating the form of PL through the mean (Mean) and standard deviation (SD) to determine the level of participation, the level of impact and the need according to a 5-point Likert scale (see Table 4).

**Table 4**

*Assessment of Participation According to a 5-Point Likert Scale*

| Min  | Max  | Scale                        |                      |
|------|------|------------------------------|----------------------|
| 1.00 | 1.80 | Never participated           | Not necessary        |
| 1.81 | 2.60 | Joined once                  | Less necessary       |
| 2.61 | 3.40 | Joined twice                 | Moderately necessary |
| 3.41 | 4.20 | Joined three times           | Necessary            |
| 4.21 | 5.00 | Joined more than three times | Very necessary       |

## ***Assessing the Impact of Learning Forms on the Teacher Professional Development***

To determine the relationship among the impact of different learning forms on the PD of teachers, the study used the EFA model to determine the factors affecting the PD of teachers with the model of the formal and the informal training and learning groups.

### ***Cronbach's Alpha Testing & EFA Factor Analysis***

The results of reliability testing by Cronbach's Alpha coefficient show the components of two scales (CT and KCT). The results of testing the components of the CT group scale had Cronbach's Alpha Value = 0.83 with Corrected Item–Total Correlation value > 0.3, and the components of the KCT group scale had Cronbach's Alpha Value = 0.756 with Corrected Item–Total Correlation value > 0.4. Thus, the observed variables in the two groups were eligible to be included in the EFA exploratory factor analysis group.

After the scale of influencing factors was tested for the Cronbach's Alpha reliability coefficient with the 13 variables all meeting the requirements, the EFA exploratory factor analysis continued to be conducted. The factor extraction method used was the Principal Axis Factoring with Varimax rotation. The scale is accepted when  $0.5 \leq \text{KMO} \leq 1$ ; Sig coefficient. = 0.000 of Bartlett's test indicates that the observed variables are statistically significant. The total extracted variance has a value of  $\geq 50\%$  and the factor loading factor  $\geq 0.5$ , proving that the reliability is suitable for factor analysis.

EFA analysis results showed that the Kaiser-Meyer-Olkin (KMO) = 0.822 and Bartlett's test had statistical significance (sig Bartlett's Test = 0.000 (< 0.05), demonstrating that the observed variables were similar. Factor loading coefficients > 0.4 showed that the variables had good statistical significance.

### ***Structural Equation Modeling***

The study used linear structural equation modelling by AMOS software to test the research model. The model examines the impact of two factors: the formal and informal forms on the PD of teachers.

## Results

Participating teachers engaged differently in the two forms of PL as can be seen in Table 5.

Table 5 shows that the level of participation of teachers in the two groups of learning forms differed, showing that the majority of teachers developed their expertise through informal learning (Mean = 3.96, SD = 0.707). Informal forms of PD were attended by teachers at a level of 3 or more times (Mean=3.41) and consisted mainly of activities in which teachers participated for their own PD, such as activities observing a class of colleagues at school (Mean = 4.29, SD = 0.964); professional activities at school (Mean = 4.13, SD = 0.964) and learning, sharing and exchanging professional experiences with colleagues at school (Mean = 4.00, SD = 1.191).

The data of this research show that the trend of informal PL in Vietnam is similar to the findings of many other studies. Informal learning is the acquisition of new specialist knowledge and the development of skills outside of a structured and institutionalized learning environment. It takes place during voluntary cooperation and exchange of experiences, where employees of an organization interact and learn from each other. Informal learning does not involve the systematic, pre-planned repetition of routine activities; it is unstructured, and often does not have well-defined learning objectives (Marsick et al, 2009). Eraut (2000) also refers to informal learning as “non-formal learning” to clearly differentiate it from formal learning. Additionally, the OECD (2016) states that, whereas formal learning is organized, intentional and has learning objectives, informal learning is not intentionally arranged and has no set objective. For PL by informal means, the results of this study were similar to those of Desimone (2009). Informal learning occurred through individual activities such as acquaintance with professional material or classroom observations by other teachers; and other activities such as conversations with parents, students, and colleagues; discussions about mentoring programs; participation in teacher networks and PL groups. This result is completely consistent with the publication of Lohman (2000), which concluded that in studies to date, approximately 90 % of teachers’ real-time learning takes place informally, rather than through participation in structured learning activities.

For responses regarding formal learning, teachers reported that they did not participate much. Teachers could only participate about twice (Mean= 2.86) during a school year. Among these formal learning forms, only the regular form of PD was the most attended by teachers (Mean = 3.56), equivalent to three times per year. Formal forms in which teachers participated the least were scientific research, certification and promotion courses.

**Table 5***The Level of Participation of Teachers in the Two Forms of PL (CT & KCT)*

| Participation influence |                       | Correlation coefficient | Sig. (2-tailed) | Participation |       | Influence |       |
|-------------------------|-----------------------|-------------------------|-----------------|---------------|-------|-----------|-------|
|                         |                       |                         |                 | Mean          | SD    | Mean      | SD    |
| KCT                     | ITEM 1.1 ⇔ ITEM 2.1   | 0.452**                 | 0.000           | 4.18          | 0.946 | 3.97      | 1.074 |
|                         | ITEM 1.2 ⇔ ITEM 2.2   | 0.421**                 | 0.000           | 4.29          | 0.964 | 4.06      | 0.907 |
|                         | ITEM 1.4 ⇔ ITEM 2.4   | 0.422**                 | 0.000           | 4.13          | 0.964 | 3.74      | 0.981 |
|                         | ITEM 1.6 ⇔ ITEM 2.6   | 0.419**                 | 0.000           | 3.56          | 1.207 | 3.47      | 1.158 |
|                         | ITEM 1.7 ⇔ ITEM 2.7   | 0.330**                 | 0.000           | 3.64          | 1.313 | 3.45      | 1.137 |
|                         | ITEM 1.12 ⇔ ITEM 1.2  | 0.384**                 | 0.000           | 4.00          | 1.191 | 3.79      | 1.060 |
| CT                      | ITEM 1.3 ⇔ ITEM 2.3   | 0.529**                 | 0.000           | 2.92          | 1.470 | 3.21      | 1.359 |
|                         | ITEM 1.5 ⇔ ITEM 2.5   | 0.492**                 | 0.000           | 3.51          | 1.123 | 3.35      | 1.051 |
|                         | ITEM 1.8 ⇔ ITEM 2.8   | 0.541**                 | 0.000           | 2.61          | 1.338 | 2.83      | 1.258 |
|                         | ITEM 1.9 ⇔ ITEM 2.9   | 0.478**                 | 0.000           | 2.63          | 1.257 | 2.84      | 1.331 |
|                         | ITEM 1.10 ⇔ ITEM 2.10 | 0.506**                 | 0.000           | 2.65          | 1.313 | 2.86      | 1.271 |
|                         | ITEM 1.11 ⇔ ITEM 2.11 | 0.519**                 | 0.000           | 2.75          | 1.307 | 3.05      | 1.216 |
|                         | ITEM 1.13 ⇔ ITEM 2.13 | 0.389**                 | 0.000           | 2.92          | 1.374 | 3.00      | 1.288 |

The survey data show that, compared to PL in informal forms (about three times), teachers participated in formal learning less (about twice). The traditional vehicle for teachers' PD, according to the principle "one size fits all" workshops, is no longer able to meet the real PD needs of teachers (Patton et al., 2015). However, the results of this study show that these concentrated forms of PL for teachers are still popular in Vietnam. This survey result can be explained by Vietnamese regulations. Teachers are required to attend annual regular PL in Vietnam. The MOET has issued a regular training program for teachers with the aim to improve the quality and professional capacity of teachers to meet the requirements of job positions, and to raise the level of the response of teachers to the requirements of general education development and the requirements of the professional standards of teachers. The regular training program for teachers consists of three modules. The MOET is in charge of instructing the first module to update knowledge and skills to meet the requirements of school year tasks for all levels of general education. The Department of Education and Training (DOET) is in charge of instructing the second module to update knowledge and skills to perform general education in each period in each locality. The third module is chosen by teachers based on their own PL to develop qualities and competencies to meet job requirements (MOET, 2019). In general, the MOET's regulations on PD for teachers are appropriate for Vietnam, especially in the context of Vietnam's reform of the K12 curriculum textbooks. In order to meet the requirements of educational innovation, teachers need formal learning, including regular professional training and participation in professional certification courses. This content is similar to other research results. Formal learning can be described as activities that are sponsored and structured to achieve a specific educational purpose. Learning occurs in prescribed settings such as classrooms, conferences and workshops. The results of these activities often generate grades, certificates, continuing education credits, or diplomas (Dabbagh & Kitsantas, 2012).

### **SEM Analysis**

Through the level of teacher involvement in PL forms, teachers assess the extent to which it affects their PD. The influence on PL in the group focused mainly on informal learning has a mean of impact (Mean = 3.73), and the forms in the formal group have less impact than the other group (Mean = 3.04), in which the regular form of PL has the highest impact among the formal forms.

Spearman correlation showed positive correlation values (+) in both formal and informal PL groups. Although the correlation values are not high, this also shows that there is a positive correlation between the frequency of participating in the form of training and the influence of that form on the PD of teachers.

According to Tynjälä (2008), formal PD is not capable of eliminating the

growing gap between the knowledge and skills teachers need in the real working environment and those that can be learned through formal training activities. Again, the results of this study complement the views of Wideen et al. (1998), i.e., participation in formal learning activities (in-service training courses, seminars, lectures, workshops, etc.) is still a widespread method at schools for teacher PD. Nevertheless, the influence of formal learning experiences on teachers' classroom performance is minimal. According to researchers, teachers rarely execute the approaches and practices they have acquired in formal training sessions. This study further affirms that if teachers actively learn in informal ways, it will have a good influence on their PD. In informal forms, professional self-improvement often has the greatest impact on teachers' PD. Teachers only participate and learn actively when they realize that the learning content is suitable for their personal needs and PD requirements, and they can solve specific tasks in the teaching process. Again, this is proven through the results of empirical research (Nguyen et al., 2022) in Vietnam on developing courses according to the needs of primary teachers that are highly appreciated and have a positive impact on learning outcomes and other professional activities of primary teachers.

The present study used the EFA model to determine the factors affecting the PD of teachers. The original theoretical model includes two groups of formal and informal learning that affect teachers' PD.

The results of the reliability test by Cronbach's Alpha coefficient showing the components of the two scales are presented in Table 4. The results of testing the components of the CT group scale have Cronbach's Alpha Value = 0.83 with Corrected Item–Total Correlation value > 0.3 and the components of the KCT group scale have Cronbach's Alpha value = 0.756 with Corrected Item–Total Correlation value > 0.4, demonstrating that the impact assessment scale with variables has good values, the variables are statistically significant and give accurate results about the teachers' impact assessment opinions. Thus, the observed variables in the two groups (CT and KCT) are eligible to be included in the EFA exploratory factor analysis group.



**Table 6**  
*EFA Analysis Results of the Rotation Matrix*

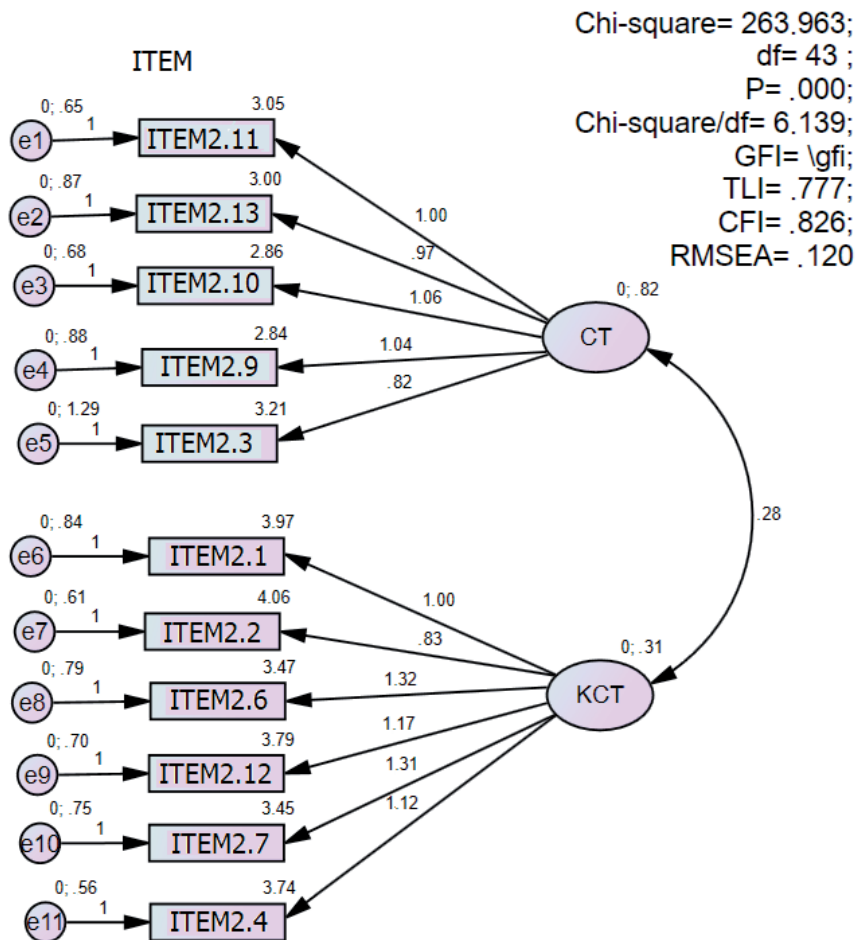
|     | Items     | Cronbach's Alpha | Corrected Item Total Correlation | Factor Loading | Influence |       |
|-----|-----------|------------------|----------------------------------|----------------|-----------|-------|
|     |           |                  |                                  |                | Mean      | SD    |
| KCT | ITEM 2.1  | KCT1             | 0.475                            | 0.667          | 3.97      | 1.074 |
|     | ITEM 2.2  | KCT2             | 0.498                            | 0.629          | 4.06      | 0.907 |
|     | ITEM 2.4  | KCT3             | 0.547                            | 0.484          | 3.74      | 0.981 |
|     | ITEM 2.6  | KCT4             | 0.536                            | 0.565          | 3.47      | 1.158 |
|     | ITEM 2.7  | KCT5             | 0.525                            | 0.554          | 3.45      | 1.137 |
|     | ITEM 2.12 | KCT6             | 0.488                            | 0.551          | 3.79      | 1.06  |
| CT  | ITEM 2.3  | CT1              | 0.468                            | 0.564          | 3.21      | 1.359 |
|     | ITEM 2.5  | CT2              | 0.410                            |                | 3.35      | 1.051 |
|     | ITEM 2.8  | CT3              | 0.604                            |                | 2.83      | 1.258 |
|     | ITEM 2.9  | CT4              | 0.690                            | 0.666          | 2.84      | 1.331 |
|     | ITEM 2.10 | CT5              | 0.639                            | 0.711          | 2.86      | 1.271 |
|     | ITEM 2.11 | CT6              | 0.679                            | 0.736          | 3.05      | 1.216 |
|     | ITEM 2.13 | CT7              | 0.579                            | 0.705          | 3.00      | 1.288 |

After the scale of influencing factors was tested for Cronbach's Alpha reliability coefficient with 13 variables all meeting the requirements, the EFA exploratory factor analysis continued to be conducted. The factor extraction method used was Principal Axis Factoring with Varimax rotation. The scale is accepted when  $0.5 \leq \text{KMO} \leq 1$ ; Sig coefficient. = 0.000 of Bartlett's test indicates that the observed variables are statistically significant. The total extracted variance has a value of  $\geq 50\%$  and the factor loading factor  $\geq 0.5$ , proving that the reliability is suitable for factor analysis.

The results of the rotation matrix show that there are 13 variables classified into three groups of factors with acceptable loading coefficients. However, the factor loading coefficients in three factors are still unclear (there are some variables with values in both factors). Moreover, since the theoretical model was built with two initial factors (KCT and CT), 13 variables were more than sufficient to normalize the model. The variables ITEM 2.5 and ITEM 2.8 with unclear factor loading were removed from the computational model. After the removal, the original three factors with 13 observed variables were adjusted to two factors with 11 observed variables. After conducting Cronbach's Alpha reliability test and exploratory factor analysis, the two new factors with 11 observed variables were confirmed. In the model after normalizing through EFA analysis, the  $\text{KMO} = 0.808$  shows that the variables are eligible for factor analysis, and Bartlett's test has statistical significance (sig Bartlett's Test  $< 0.05$ ), demonstrating that the observed variables are correlated with each other in the factor. Factor loading coefficients  $> 0.5$  show that the variables have very good statistical significance. The results of the rotation matrix reveal that there are 11 variables classified into two groups of factors with high loading coefficients. The variables in these two groups of factors are consistent with the original construction model.

The SEM model used to test the research method examines the impact of two factors – the form of curriculum and the curriculum – on the PD of teachers. Impact analysis was carried out through the SEM analysis model with confirmatory factor CFA according to a standardized model of 11 identified variables with two factors. The analysis results by the SEM model are shown in Figure 2.

**Figure 2**  
*Impact Analysis Through SEM Model*



Chi-square/df (6.139) and CFI (0.826) show that the values are consistent with the model, and the values are significant.

The regression weights (see Table 7) show that the variables with index P (sig) have the value  $< 0.05$  (\*). This means that with at a confidence level of 95 %, the variables have an impact on the PD of teachers. This result demonstrates that the theoretical model is statistically significant. The unnormalized regression coefficients (estimate) have high values.

**Table 7**  
*Regression Weights*

| Regression Weights: (Group number 1 – Default model) |      |       |          |        | Standardized Regression Weights: (Group number 1 – Default model) |        |           |      |          |
|------------------------------------------------------|------|-------|----------|--------|-------------------------------------------------------------------|--------|-----------|------|----------|
| ITEM                                                 | <--- | Items | Estimate | C.R.   | P                                                                 | Label  |           |      | Estimate |
| ITEM 2.13                                            | <--- | CT    | .974     | 11.896 | ***                                                               | Par_1  | ITEM 2.13 | <--- | .687     |
| ITEM 2.10                                            | <--- | CT    | 1.061    | 13.311 | ***                                                               | Par_2  | ITEM 2.10 | <--- | .759     |
| ITEM 2.9                                             | <--- | CT    | 1.037    | 11.784 | ***                                                               | Par_3  | ITEM 2.9  | <--- | .708     |
| ITEM 2.2                                             | <--- | KCT   | .826     | 7.290  | ***                                                               | Par_4  | ITEM 2.2  | <--- | .509     |
| ITEM 2.6                                             | <--- | KCT   | 1.323    | 7.829  | ***                                                               | Par_5  | ITEM 2.6  | <--- | .640     |
| ITEM 2.12                                            | <--- | KCT   | 1.167    | 7.817  | ***                                                               | Par_6  | ITEM 2.12 | <--- | .616     |
| ITEM 2.7                                             | <--- | KCT   | 1.312    | 7.669  | ***                                                               | Par_7  | ITEM 2.7  | <--- | .646     |
| ITEM 2.11                                            | <--- | CT    | 1.000    |        |                                                                   |        | ITEM 2.11 | <--- | .748     |
| ITEM 2.3                                             | <--- | CT    | .815     | 9.326  | ***                                                               | Par_9  | ITEM 2.3  | <--- | .545     |
| ITEM 2.1                                             | <--- | KCT   | 1.000    |        |                                                                   |        | ITEM 2.1  | <--- | .521     |
| ITEM 2.4                                             | <--- | KCT   | 1.124    | 7.637  | ***                                                               | Par_10 | ITEM 2.4  | <--- | .642     |

Table 7 includes the normalized regression coefficients. The values show that the regression values are high, indicating that the level of impact is high. The normalized regression coefficients that have high values in the group CT forms are ITEM2.9, ITEM 2.10 and ITEM 2.11. For the KCT group, the high-value forms are ITEM 2.4; ITEM 2.7 and ITEM 2.12

The R-squared value of CT is  $0.81 = 81\%$ , so that the independent variables in the formal group influence 81 % of the variation in the official group. Similarly, R-squared for CT is  $0.31 = 31\%$ , so the independent variables affect 31 % of variation in KCT.

It was hypothesized that forms of KCT would affect PD for teachers. SEM estimation results show that forms of KCT have a positive relationship and strongly correlate with the PD of teachers, especially forms such as professional activities according to the study of lessons at school; participate in group learning at school and share and exchange professional experiences with colleagues at school. With the hypothesis (H1) that the forms of CT affect the PD of teachers, the SEM estimation results show that the forms of CT have a positive relationship and are strongly correlated with the PD of teachers, especially in the form of participating in certification courses, raising ranks; observe/attend classes at other schools (interschools, school clusters) and professional conferences and seminars organized by the Ministry/Department.

Table 8 demonstrates the opinion of teachers about the need for PL forms. The results show that the need for PL is high in both formal and informal forms. In the formal group, the most needed training forms for teachers were conferences and professional seminars organized by the Ministry/Department with an average value of 3.42 and online learning with support from core teachers and pedagogical trainers with an average value of 3.86. In the informal group, all forms were assessed at the necessary level, in which the teachers' needs were the highest in the context of "attending, observing colleagues at school" (Mean = 4.10) and "sharing, exchanging professional experiences with colleagues at school" (Mean = 4.05).

It was hypothesized that formal training and learning forms have a greater positive influence on teachers' professional development compared to informal training and learning forms. The correlation between the impact of the PL forms and the teachers' need for PL shows that the informal form group has a strong and positive correlation with the P-values (Sig. 2- tailed  $< 0.05$ ). This proves that the more impactful forms of informal learning are associated with the higher training needs of teachers. In the formal group, the correlation between impact and need for training is also close and positive as shown by P values (Sig. 2-tailed  $< 0.05$ ). Therefore, the higher the teachers' need for training, the higher the impact of the teachers' training methods. The data and arguments support that Hypothesis H2 is correct.

**Table 8**  
*The Opinion of Teachers About the Need for PL Forms*

|     | Influence of Necessary | Correlation Coefficient | Sig. (2-tailed) | Influence |       | Necessary |       |
|-----|------------------------|-------------------------|-----------------|-----------|-------|-----------|-------|
|     |                        |                         |                 | Mean      | SD    | Mean      | SD    |
| KCT | ITEM 2.1 ⇔ ITEM 3.1    | 0,651**                 | 0.000           | 3.97      | 1.074 | 3.94      | 0.999 |
|     | ITEM 2.2 ⇔ ITEM 3.2    | 0,534**                 | 0.000           | 4.06      | 0.907 | 4.10      | 0.955 |
|     | ITEM 2.4 ⇔ ITEM 3.4    | 0,554**                 | 0.000           | 3.74      | 0.981 | 3.64      | 1.046 |
|     | ITEM 2.6 ⇔ ITEM 3.6    | 0,588**                 | 0.000           | 3.47      | 1.158 | 3.65      | 1.030 |
|     | ITEM 2.7 ⇔ ITEM 3.7    | 0,465**                 | 0.000           | 3.45      | 1.137 | 3.59      | 1.089 |
|     | ITEM 2.12 ⇔ ITEM 3.12  | 0,508**                 | 0.000           | 3.79      | 1.06  | 4.05      | 0.956 |
| CT  | ITEM 2.3 ⇔ ITEM 3.3    | 0,412**                 | 0.000           | 3.21      | 1.359 | 3.33      | 1.326 |
|     | ITEM 2.9 ⇔ ITEM 3.9    | 0,492**                 | 0.000           | 2.84      | 1.331 | 2.95      | 1.266 |
|     | ITEM 2.10 ⇔ ITEM 3.10  | 0,534**                 | 0.000           | 2.86      | 1.271 | 3.12      | 1.359 |
|     | ITEM 2.11 ⇔ ITEM 3.11  | 0,399**                 | 0.000           | 3.05      | 1.216 | 3.42      | 1.235 |
|     | ITEM 2.13 ⇔ ITEM 3.13  | 0,235**                 | 0.000           | 3.00      | 1.288 | 3.86      | 1.148 |
|     |                        |                         |                 |           |       |           |       |

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

## Discussion

The survey results show both formal and informal forms of PL have a positive impact on teachers' PD. Similarly, Guskey (2003) interprets PD as processes and activities arranged to improve teachers' professional knowledge, skills, and attitudes to enhance students' learning. Teachers are interested in all the activities in which teachers engage during the course of a career which are designed to enhance their work (Day & Sachs, 2004). This means that teachers' access to formal forms of learning such as seminars, workshops and professional meetings is necessary and their need for these forms of learning is high. Teachers' PD is a constant cycle of reflection, learning, and action that leads to enhanced teaching practices that have a beneficial impact on students' learning. According to Cambridge Assessment International Education (2021), teacher PD aims to improve teachers and their practice by adopting a holistic approach to developing the teacher as a professional practitioner. As such, forms of learning that support the continuous development of practice throughout the whole of a teacher's career are deemed necessary by teachers, including formal and informal forms. Based on the survey data, the needs of teachers to attend class, observe colleagues at school as well as share professional exchanges with fellow teachers are strong. The degree of influence of these forms of learning on the need to experience these forms of informal learning is directly proportional to the needs of teachers. Informal learning takes place in the process of voluntary cooperation and exchange of experience, where employees of one organization interact and learn from each other. Vietnamese teachers agree with the results of Marsick et al. (2009) that informal learning does not involve systematic, pre-planned repetition of routine activities, it is not structured and often does not have clearly defined learning goals. Similarly, defining PD as the process of accumulating skills, professional knowledge, values, and personal qualities, Mushayikwa and Lubben (2009) developed a model for self-directed PD in their research. Derri et al. (2014), for example, explored PD as part of teachers' lifelong learning, which was impacted by social constructivist and inquiry-based approaches. The results of this study show that both formal and informal forms of learning are considered necessary, and the impact of these forms on PD is positive. However, informal forms of learning have a greater impact than formal forms of learning.

## Limitations of the Study

This study has certain limitations. First, the teacher sample in the study is not fully diverse (from only four provinces), which limits the generalizability of the findings to all teachers in Vietnam. Second, the research was conducted within the context of Vietnam's educational reforms. As a result, policy factors related to

teachers' standards impact the requirement for teachers to participate in formal training courses, despite evidence showing that informal learning practices have a positive effect on teachers' professional development. Finally, because cultural and educational contexts significantly influence the process of professional development, the findings of this study may not be entirely applicable to other countries.

## Conclusions

Based on the theoretical model of informal and formal PL groups, the study shows that there is a difference in the level of teacher involvement in the two groups. The majority (about three times or more) of teachers developed their expertise through informal means; for example, teachers actively participated in professional activities at school and actively learned, shared and exchanged professional experiences with colleagues at school. For the group of formal learning, teachers did not participate much (twice during a school year), in scientific research, certificate and rank promotion courses.

PL forms (formal and informal) exerted a positive influence on the PD of teachers, but informal forms had a higher degree of influence. In addition, the form of continuing PD was the most impactful, and this was associated with a teacher's willingness to engage in lifelong learning. Thus, in order to develop professional skills for teachers, schools need to issue appropriate policies to mobilize teachers to increase their participation in scientific research to detect the shortcomings of teaching and learning so as to improve the quality of education at schools. In addition, school leaders should encourage and create favorable conditions for teachers to actively learn through continuous PD, demonstrating their commitment to the profession.

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