

Examining Types and Duration of Teachers' Professional Development Activities and Their Relationship with Job Satisfaction

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Abstract:

Introduction: The aim of the study was to describe the teachers' views on the professional development activities, the frequency of the teachers' participation to such activities and effectiveness of these professional development (PD) activities. What's more, it was aimed to analyse the relationship between PD activities that the teachers participated and their job satisfaction (JS).

Methods: The sample of the study comprised of 357 teachers. In order to seek the answers to the research questions, correlational research models were used in addition to survey. The data was collected through implementation of two different instruments. These were Participation to PD Activities Questionnaire (survey) and Job Satisfaction (JS) Scale. These instruments were developed within the scope of the study.

Results: The findings of the study could be summarized as follows: the teachers' frequency of participation to peer coaching-based PD activities, participated PD activities, number of individualized and self-directed PD activities was at a lower level; however, the teachers restated that they experienced positive effects at higher or moderate levels from PD activities in their teaching practices. Within the scope of the existing study the hypothesis was tested that PD activities would increase the teachers' job satisfaction and the findings were supported. It was seen that there was a positive relationship between the PD activities participated by the teachers and the teachers' job satisfaction.

Discussion: In the study it was noticed that more than one third of the participant teachers did not perform PD based peer coaching and observations, but more than one third of the teachers accessed virtual platforms and watched videos and related feed on lecturing and techniques for PD. In TALIS study done at OECD countries, it was noted that almost half of the teachers participated to peer coaching-based activities.

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Limitations: Data were collected from teachers that research is limited with teachers' perceptions. Research is limited with teachers' professional development activities and their job satisfaction.

Conclusions: It was found out that very few teachers attended educational congresses to present their activities/scientific studies. Therefore, it might be recommended to improve teachers' study skills in terms of scientific studies, and they might be encouraged to present their studies at conferences.

Key words: professional development, human development, job satisfaction, teachers, path analyses.

Introduction

Education is a phenomenon which starts with birth and continues until death. By force of today's modern world, formal education institutions have been founded and become widespread. Children improve their innate potential mostly at schools under the guidance of their teachers and they try to gain the necessary skills they need to have in the 21st century. Teachers are essential for formal education system and teacher's quality has vital influence on educational outcomes. In today's world with the advance of information and communication technologies, continuous professional development (PD) activities are of indispensable elements of teachers' professional lives to provide quality educational facilities needed by their students. PD is approached so comprehensively that it is designed to improve generally teacher's (or school principal's) professional skills or knowledge and includes all the trainings even the ones experienced during teacher training process (Turkish Education Association, 2019, p. 49). Teachers' gaining knowledge, development of abilities, skills and creation of opinions, attitudes, and of the orientation of the needed value for deal with a variety of real teaching life situation (Geršicová & Barnová, 2018). PD come along with continuous improvement, gaining knowledge and mastering skills (Noga, 2016). Along with teachers faculties use open educational e-resources like Tweeter for their PD activities (Karataş et al., 2022). Teachers achieve the objectives like improving their professional skills, noticing about latest advances in their fields, adapting their competences with the organization through continuous professional development (Reese, 2010). Calvert (2016) states that professional development starts with teacher's motivation and it should be teacher centered. He claims that it would be appropriate to benefit both from their intellectual capacities and their experiences and suggested "professional learning" concept. In order to convey the teacher's role to large number of people Calvert suggests that teacher's leadership qualities

should be used both during professional development and learning process; interaction between teachers themselves and between teachers and students or other stakeholders should be supported; teachers should be given chance of making selections between professional development activities which they would like to participate in; and the activities with limited scopes should be the ones to be the initial ones to start with. Thus, the permanence of teachers' success connected with professional development activities. Teachers are supposed to have necessary skills and proficiency levels in diverse fields. However, it is essential that teachers should be provided with personal and organizational professional development facilities to equip them with the defined qualifications. Existing teachers must be equipped with the specified skills permanently and effectively through in-service training (Can, 2019). During in service training activities designed for teachers in Turkey, including like seminar, conference, distant education and training course which do not involve teachers' active participation (Zepeda, Parylo, & Ilgan, 2013). According to TALIS 2018 report (OECD, 2019), it was indicated that permanent professional development activities attended by teachers and school principals were face to face trainings/ seminars (teachers' average: 86.0%, school principals' average: 83.8%) and reviewing professional literature (teachers' average: 69.2%, school principals' average: 71.6%). Teachers in OECD countries allocate 38.8 hours of their weekly working for professional activities; 20.6 hours of this period are devoted to in-class-training. As for Turkey, teachers stated that they allocated 24.5 hours for classroom activities out of 31.6 hours of their average weekly working time. It makes approximately 78% of their total weekly working time. Within the scope of TALIS 2018, Turkey is one of the countries where the teachers allocated most of their working time for classroom activities. Besides, teachers in Turkey spent 1.9 hours of their weekly working time for teamwork with their colleagues; and it is stated that Turkish teachers are the ones who spend the least time interacting with their colleagues after Estonian teachers. Cognitive part of teaching profession consists of background knowledge, pedagogical context and general knowledge. A teacher needs to show higher productivity in the field of art and artistic skills in addition to cognitive domain to demonstrate higher performance in the profession. It is not possible to improve teachers' artistic skills during preservice period since university education weighs theoretical knowledge and gives less chance for practice. Therefore, it is vital for teachers that they have in-service-training when they start teaching in order to have professional adaptation and improvement, keep up with the professional developments and supply their own professional needs (Özen et al., 2019). It is also necessary for teachers that the school principals provide them with professional development possibilities and organize educational atmosphere accordingly. Due to not planning the teachers' weekly

schedule well and not organizing school atmosphere and facilities in a way to encourage the teachers for professional development and participation to PD facilities would cause somewhat decrease in the number of teachers showing interest to participate such facilities. In a number of studies (Can, 2019; Drage, 2010; OECD, 2019) similar results are seen describing that the most important obstacles for teachers' PD were not having sufficient time for participate in such facilities, insufficient school budget for professional development and professional development facilities being incapable of serving teachers' expectancies and needs. There are also a good number of studies on how to design efficient PD facilities. To illustrate: in a comprehensive study (Garet et al., 2001), it was pointed out that the most essential issues which must be noticed were the content of the course, the duration, active mass participation to the course, active learning and the consistency of PD facilities instead of the education model.

In the studies carried out in Turkey, generally the aspects like major topics of in-service training needed by teachers based on their branches and teachers' attitudes towards in service training were studied. It could be stated that more comprehensive studies and analyses are needed beyond teachers' branches. For instance, in a study done on 110 science teachers (Ayvaci et al., 2014), it was seen that teachers mainly needed current developments related with teaching profession and professional development based on science and technology. What is more, it was restated that regular PD activities could be organized but making these activities obligatory might cause teachers' development potential negative attitudes. In the study carried out by Kaçan (2004) on elementary school teachers, it was pointed out that most of the teachers prefer to get in service training on teaching methods and activities for students, human relationships, communication, effective time management, special education activities and shaping behaviors. The issues which were seen as problems preventing teachers' professional development could be sorted respectively as: Economic problems, heavy course loads, crowded classes, political pressures not believing in the essence of professional development. PD activities are basic for teachers to provide their students with quality education: Lots of activities are organized each academic year within this context: It could be emphasized that it is necessary to reveal the types and frequency of such activities, to show if they have positive influences on teaching process and point out their relationship between the teachers' job satisfaction. Thus, the purpose of the study could be stated as followed.

1 Purpose of the study

The purpose of this study was to analyse the relationship between the participation to PD activities of the teachers who work at preschool institutions, elementary schools, middle schools, general high schools and vocational high schools and their job satisfaction levels. In the related literature there are studies on the relationship between teachers' participation in PD activities and teaching practices (e.g. Hall, 2007; Tyagi, 2010; Whitehead, 2006); but the studies on the relationship between PD activities and their influence on teachers' job satisfaction are limited (Song et al., 2018). Hypothesis of the research could be formulated as follows: PD activities that teachers participate in increase their job satisfaction levels.

Based on the purpose of the study, research questions were formed as the following.

1.1 Research questions

- 1) What were the descriptive statistics related with the teachers' peer coaching based on PD activities, participated PD activities? The number of individualized and self-directed PD activities and quantities of engaged PD activities?
- 2) Did the teachers' participation to PD activities significantly differ in terms of the variables like gender, school types that they worked, professional seniority, educational status and the branches they teach?
- 3) What was the level of the teachers' job satisfaction?
- 4) Did the teachers' level of job satisfaction significantly differ in terms of the variables like gender, school types that they worked at, professional seniority, educational status and the branches they teach?
- 5) Were the teachers' PD activities significant predictors of their job satisfaction?

2 Method

In this part of the study scientific method of the study was explained, research model and the information was given on the population and sample of the study, data collection instruments, analyses related with validity and reliability and data analysis.

2.1 Research model

The research model of the existing study was correlational research model as it aimed to reveal the relationship between the PD activities participated by the teachers and the teachers' job satisfaction. Relational screening model is original

since it proves cause and effect relationships together with the variance of two distinct variables (Fraenkel et al., 2012).

2.2 The population and the sample

The population of the study comprised of the teachers working at public preschools, elementary schools, middle schools and high schools located in the city center of Düzce province. The sample consisted of 357 teachers who were randomly selected from 27 schools located in the city center. Schools were defined as clusters using simple random sampling method, the teachers who were willing to participate to the study were counted in the sample.

2.3 Data collection instruments

The data were collected through implementation of two different instruments. These were Participation to PD Activities Questionnaire (survey) and Job Satisfaction (JS) Scale. These instruments were developed within the scope of the study. For the pilot study (done with 44 teachers who were not involved in the main implementation of the survey and who taught diverse branches at different school levels) considerations of the experts were taken into account; then the number of the items were reduced to 31 in Participation to PD Activities Survey and to 16 in JS Scale. JS Scale was a 5-point Likert type scale: Exploratory and confirmatory factor analysis was done for structural validity to measure its validity and reliability, internal consistency coefficients were measured for reliability. Participation to PD Activities Survey was not suitable for validity and reliability analyses as it measures the frequency of realization of definite behaviours. Considerations of the experts were taken for content validity, some of the items of the survey were revised and some of them were excluded afterwards. Factor analysis was not done for Participation to PD Activities Survey, the items were categorized under four headings and titled as follows: Between 1-5 as “peer coaching based PD activities”, between 7-14 as “participated PD activities”, between 16-23 as “number of individualized and self-directed PD activities”, between 24-30 as “quantities of engaged PD activities”.

Path analysis in an attempt to predict job satisfaction of teachers based on participated PD activities of teachers’ were managed by Lisrel 8.8 statistical package. One of assumptions of path analysis is normal distribution of data. Examining to normal distribution of the data skewness and kurtosis were examined and results were given in Table 1.

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Table 1

Skewness and Kurtosis results

	<u>Professional Development</u>			<u>Instruments</u>	<u>Job Satisfaction</u>	
	<i>Peer coaching based PD activities</i>	<i>Participated PD activities</i>	<i>Number of individualized and self-directed PD activities</i>	<i>facilities provided by the school and crediting personal achievements</i>	<i>Sense of Satisfaction Provided by Teaching Profession</i>	<i>facilities related with career and personal development provided by teaching profession</i>
Skewness	.363	.372	.761	-.860	-.965	-.085
Error for Skewness	.129	.129	.129	.129	.129	.129
Kurtosis	-.960	-.827	-.114	.279	1.201	-.182
Error for Kurtosis	.257	.257	.257	.257	.257	.257

Seen in Table 1 skewness and kurtosis value ranged between -1 and +1 means that data were supposed to be normal distributed (Fraenkel et al., 2012). Regarding of path analysis since the data was normally distributed, Maximum Likelihood estimation method was used.

3 Findings

Descriptive statistics related with the teachers' participation to PD activities were given in the Table 2.

Table 2

Descriptive statistics related with the teachers' participation to PD activities in the recent year

<u>PD Constructs</u>	<u>None</u>		<u>1</u>		<u>2</u>		<u>3</u>		<u>4 and plus</u>		<u>$\bar{X}$</u>
	<u>f</u>	<u>%</u>	<u>F</u>	<u>%</u>	<u>F</u>	<u>%</u>	<u>F</u>	<u>%</u>	<u>F</u>	<u>%</u>	
Peer coaching based PD activities	143	40.4	62.2	17.4	46.8	13.1	18.2	5.1	86.8	24.3	1.56
Participated PD activities	135.1	37.8	71.9	20.1	41	11.5	21.6	6.06	87.4	24.5	1.59
Number of individualized and self-directed PD activities	156.1	43.7	63.7	17.8	51.4	14.4	21	5.9	64.9	18.1	1.4

The arithmetic mean related with "peer coaching PD activities" which is the first subscale of PD questionnaire was found out to be $\bar{X}$ =1.56. The subscale had 5

items and it was stated that mainly classroom observations and meetings upon classroom observations were “never” done. In other words most of the teachers did not join any observations or meetings intending PD. The arithmetic mean related with “participated PD activities” which is the second subscale of PD questionnaire was found out to be $\bar{x}=1.59$. Regarding general average of the activities mentioned in seven statements of the questionnaire such as the number of the books and articles read by the teachers, congress, symposium, meeting, workshop etc., it was also revealed that the teachers’ average was quite low in the recent year concerning their personal development initiatives and participation in activities aiming at PD. The arithmetic mean related with “individualized and self-directed PD activities” which is the third subscale of PD questionnaire, was found out to be $\bar{x}=1.4$. It was seen that general average of eight statements was low involving the teachers’ distinctive method and techniques, produced projects, exhibitions, teaching materials developed by them, relations with internal and external stakeholders.

Furthermore, it was determined that there were significant differences in “individualized and self-directed PD activities”, which is the third subscale of the questionnaire based on the participated teachers’ branches [$F(6,350)=4.459$; $p<.05$]; that is to say, teachers teaching vocational branches ($\bar{x}=15.75$) participated more PD activities than elementary school teachers ($\bar{x}=9.47$) and PE teachers ($\bar{x}=6.00$), art and music teachers ($\bar{x}=14.08$) participated more PD activities compared to PE teachers ($\bar{x}=6.00$). Once again, in this subscale there were significant differences based on the teachers’ seniority [$F(5,351)=4.557$; $p<.05$], the teachers with 21 years professional seniority or above ($\bar{x}=15.20$) participated more PD activities than the teachers with lower seniority levels. Furthermore there were significant differences between the teachers based on the school types that they work [$F(4,352)=4.890$; $p<.05$]; namely, the teachers working at elementary schools ($\bar{x}=9.54$) performed individualized PD activities less frequently compared to middle school ($\bar{x}=10.22$) and vocational high school teachers ($\bar{x}=13.25$). When the teachers’ PD activities were compared based on their educational status, it was noticed that there were significant differences in all the subscales of the questionnaire as peer coaching based on PD activities [$t(355)=-2.218$; $p<.05$], participated PD activities [$t(355)=-4$; $p<.05$] and quantities of engaged PD activities [$t(355)=-4.56$; $p<.05$]. Specifically, teachers with postgraduate degrees participated more PD activities than the ones with bachelor’s degrees.

Additionally, it was observed that there were significant differences in “the quantities of engaged PD activities” which is the fourth subscale of the questionnaire based on the participated teachers’ seniority [$F(5,351)=2.753$; $p<.05$]; therefore it might be stated that the teachers with 3-5 years seniority ($\bar{x}=101.61$) participated in more PD activities in terms of duration compared to

the ones with 21 years or above seniority levels ($\bar{x} = 59.50$). Descriptive statistics related with JS scale were given in the Table 3.

Table 3

Descriptive statistics related with JS scale

<u>Subscales</u>	<u>$\bar{X}$</u>	<u>S_x</u>
Facilities provided by the school and crediting personal achievements	4.49	.66
Sense of satisfaction provided by teaching profession	4.36	.76
Facilities related with career and personal development provided by teaching profession	3.72	.97

Seen in the Table 3, it was found out that descriptive statistics related with the subscales of JS scale was high. In the study, it was seen that average scores of “facilities provided by the school and crediting personal achievements” and “sense of satisfaction provided by teaching profession” subscales were quite high; as for “facilities related with career and personal development provided by teaching profession” subscale, the average score was seen to be just above the average.

3.1 Structural equation modelling related to the prediction of the teachers' job satisfaction affected by the frequency of pd activities participated by the teachers

Four diverse analyses were done on the prediction of “job satisfaction” which was the dependent variable through PD activities participated by the teachers which were the independent variable. The first three analyses were done on each subscales of job satisfaction, the last analysis was done on total scores of both dependent and independent variables. In this context: Independent variable had four diverse subscales, dependent variable had three subscales, higher scores for PD activities expressed more activities in terms of number, higher scores from JS scale expressed higher job satisfaction levels. Upon doing the analysis for the prediction of the first subscale of JS scale which was “facilities provided by the school and crediting personal achievements” through PD activities participated by the teachers: It was seen that t-values were insignificant related with peer coaching based PD activities which was the first subscale of professional development. Thus, the mentioned subscale was excluded from the model, the results were shown in the Figure 1 analysis which was redone after excluding the subscale from the model.

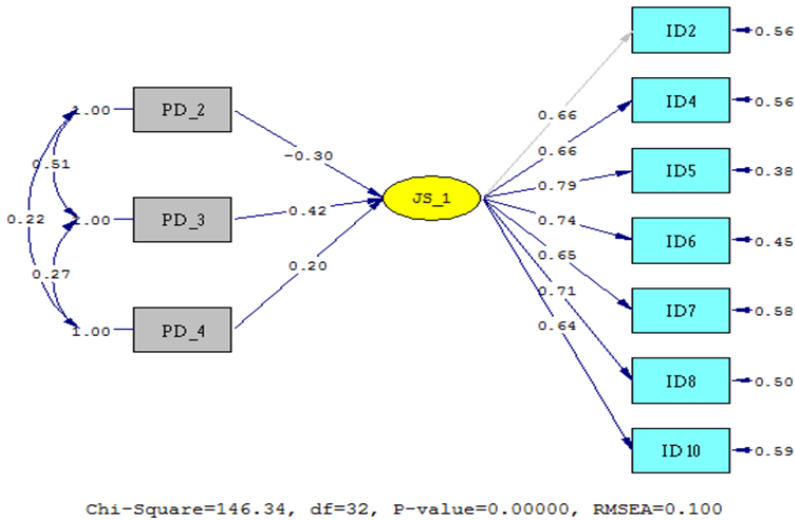


Figure 1. The results of path analysis related with the prediction of facilities provided by the school and crediting personal achievements as the first subscale of JS scale through PD activities participated by the teachers.

Seen in the Figure 1, it was found out that factor loads of the indicators in JS scale were high and varied between .64 and .79, both items from job satisfaction to related indicators as latent variable and t-values relating PD subscales to job satisfaction were all significant. Both the subscales of professional development and t-values of the items of the first subscale of JS scale were significant. Fit indices related with the model were given in the Table 4.

Table 4

Fit indices related with the prediction of facilities provided by the school and crediting personal achievements as the first subscale of JS scale through PD activities participated by the teachers

χ^2	SD	P Value	CFI	NFI	AGFI	IFI	GFI	SRMR	RMSEA
146.34	32	0.000	.95	.93	.87	.95	.92	.048	.10

Seen in the Table 4, fit coefficient was $\chi^2/sd=4.57$ and at a medium level. Besides, CFI, NFI, IFI, GFI and SRMR2 showed acceptable fit indices, but RMSEA and AGFI gave fair fit indices. Taking all the values between model

and data set into account, it could be stated that model had acceptable indices. Considering the values in the Figure 1, it was disclosed that the standardized coefficients between subscales of teachers' PD and the first subscale of JS scale were: Negative between 'participated PD activities' (PD_2) and $\lambda=-0.30$; positive and at a low level between 'individualized and self-directed PD activities' and $\lambda=0.42$ (PD_3), 'quantities of engaged PD activities' (PD_4) and $\lambda=0.20$. Regression equation regarding the model was as follows:

The first subscale of JS scale, "Facilities Provided by the School and Crediting Personal Achievements" = $-.30 * +.042$ individualized and self-directed PD activities $+ .20$ quantities of engaged PD. Error Variance = .80; $R^2 = .20$. PD activities as the independent variable explained 20% of the variance in facilities provided by the school and crediting personal achievement which was the subscale of JS scale as a dependent variable.

In the analysis done in order to predict "sense of satisfaction provided by teaching profession" subscale of JS scale through PD activities attended by the teachers, t-values related to peer coaching based PD activities which was the first subscale of professional development were seen to be insignificant. Thus, the subscale was excluded from the model. The results of the repeated analysis were given in the Figure 2.

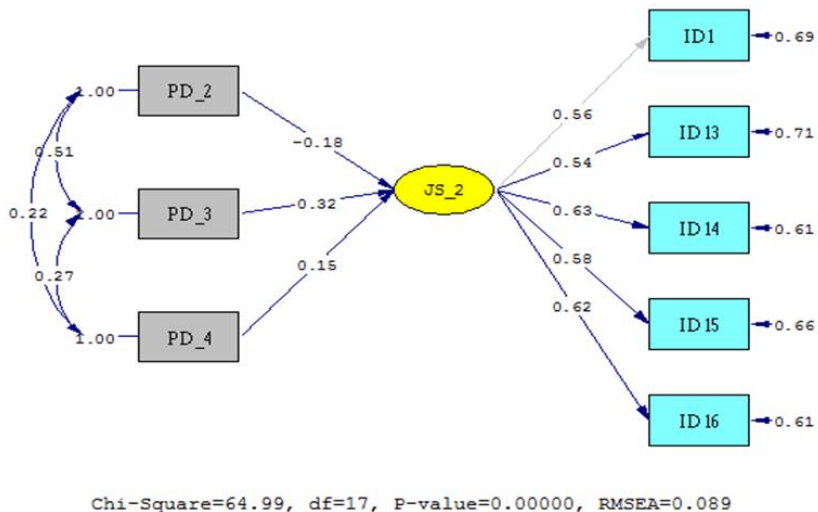


Figure 2. The results of path analysis related with the prediction of sense of satisfaction provided by teaching profession subscale of JS scale through PD activities participated by the teachers.

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Seen in the Figure 2, it was found out that factor loads of the indicators in JS scale were varied between .56 and .63 and they were at reasonable level. The items leading to the relevant indicators from job satisfaction which was the latent variable were all significant as well as the t-values for the “sense of satisfaction provided by teaching profession” which was one of the JS subscale. Fit indices related with the model were given in the Table 5.

Table 5

Fit indices related with the prediction of sense of satisfaction provided by teaching profession subscale of JS scale through PD activities participated by the teachers

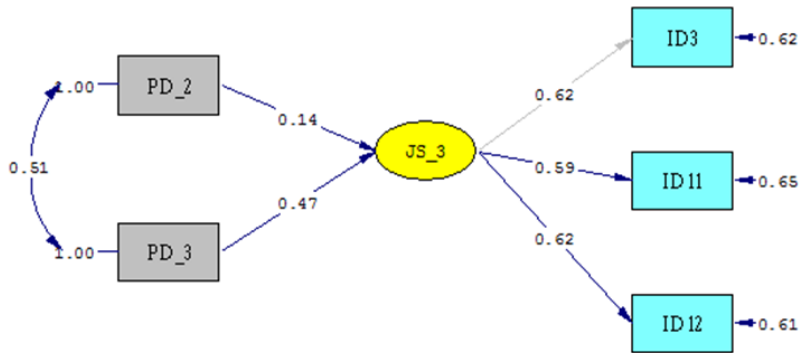
χ^2	SD	P-Value	CFI	NFI	AGFI	IFI	GFI	SRMR	RMSEA
64.99	17	0.000	.93	.90	.91	.93	.96	.060	.089

Seen in the Table 5, fit coefficient was $\chi^2/sd=3.82$ and at medium level. Besides, CFI, NFI, IFI, GFI, AGFI and SRMR2 showed acceptable fit indices, but RMSEA gave fair fit indices. Taking all the values between model and data set, it could be stated that model had acceptable indices.

Considering the values in the Figure 2, it was found out that the standardized coefficients between subscales of teachers’ PD and the second subscale of JS scale were: Negative between ‘participated PD activities’ (PD_2) and $\lambda=-0.18$ and positive and at a low level between ‘individualized and self-directed PD activities’ and $\lambda=0.32$ (PD_3), ‘quantities of engaged PD activities’ (PD_4) and $\lambda=0.15$. Regression equation regarding the model was as follows:

The second subscale of JS scale, “The Sense of Satisfaction Provided by Teaching Profession” $=-.18* +$ participated PD activities $+ .032$ individualized and self-directed PD activities $+ .15$ quantities of engaged PD. Error Variance $=.15$; $R^2=.11$. PD activities which was the independent variable, explained 11% of the variance in the sense of satisfaction provided by teaching profession which was the subscale of JS scale as a dependent variable.

In the analysis done in order to predict “facilities related to career and personal development provided by teaching profession” third subscale of JS scale through PD activities attended by the teachers, t-values related to peer coaching based PD activities, which was the first subscale of professional development, and quantities of engaged PD activities which was the fourth subscale, were seen to be insignificant. Thus, the subscales (PD_1 and PD_4) were excluded from the model. The results of the repeated analysis were given in the Figure 3.



Chi-Square=40.86, df=4, P-value=0.00000, RMSEA=0.161

Figure 3. The results of path analysis related with the prediction of facilities related with career and personal development provided by teaching profession subscale of JS scale through PD activities participated by the teachers.

Seen in the Figure 3, it was found out that factor loads of the indicators in JS scale were varied between .59 and .62, both items from job satisfaction to related indicators as latent variable and t-values relating PD subscales to job satisfaction were all significant. Both the subscales of professional development and t-values of the items of the career and personal development provided by teaching profession subscale of JS scale were significant. Fit indices related with the model were given in the Table 6.

Table 6

Fit indices related with the prediction of career and personal development provided by teaching profession subscale of JS scale through PD activities participated by the teachers

χ^2	SD	P-Value	CFI	NFI	AGFI	IFI	GFI	SRMR	RMSEA
40,86	4	0.000	.91	.90	.84	.91	.96	.058	.161

Seen in the Table 6, fit coefficient was $\chi^2/df=10.22$ and at a medium level. Besides, CFI, NFI, IFI, GFI and SRMR2 showed acceptable fit indices, but RMSEA and AGFI gave fair fit indices. Taking all the values between model and data set into account, it could be stated that model had acceptable indices. Considering the values in the Figure 3, it was found out that the standardized

coefficients between subscales of teachers' PD and the third subscale of JS scale were: Positive and at a low level between 'quantities of engaged PD activities' (PD_2) and $\lambda=0.14$ and 'individualized and self-directed PD activities' (PD_3) and $\lambda=0.47$ Regression equation regarding the model was as follows:

The third subscale of JS scale, "Career and Personal Development Provided by Teaching Profession" = $+0.014 * +$ quantities of participated PD activities $+0.047$ quantities of engaged individualized PD. Error Variance = .69; $R^2 = .31$. PD activities which are the independent variable explained 31% of the variance in the career and personal development provided by teaching profession which was the subscale of JS scale as a dependent variable. The results of path analysis related with the prediction of total score of the JS scale through PD activities participated by the teachers were given in the Figure 4.

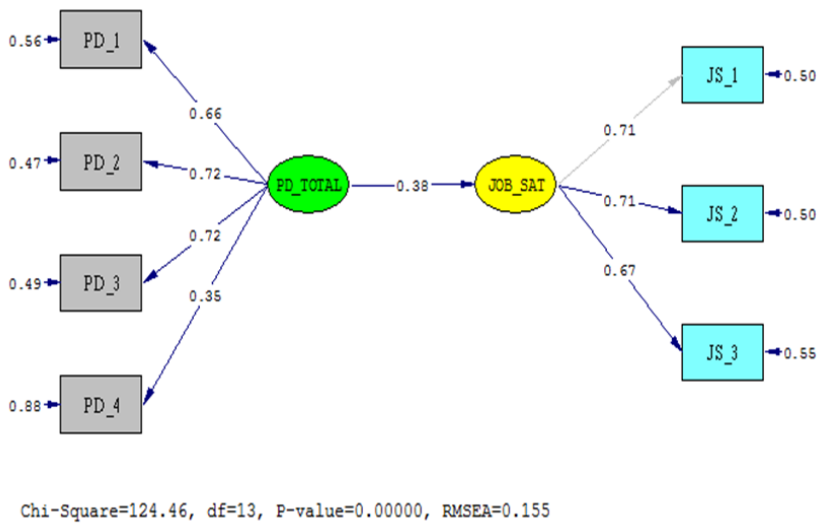


Figure 4. The results of path analysis related with the prediction of the teachers' JS through PD activities participated by the teachers.

Seen in the Figure 4, it was found out that the relationships between factor loads of the indicators (factors) in JS scale and the total score of the scale varied between $\lambda = 0.67$ and 0.71 ; the relationships between the indicators of the PD questionnaire and total score of the scale varied between $\lambda = 0.35$ and 0.72 . Both the t-values of the items from the job satisfaction as latent variable to the indicators and t-values from PD questionnaire to the related factors were all significant. Fit indices related with the model were given in the Table 7.

Table 7

Fit indices related with the prediction of the teachers' job satisfaction through PD activities participated by the teachers

χ^2	<i>SD</i>	<i>P-Value</i>	<i>CFI</i>	<i>NFI</i>	<i>AGFI</i>	<i>IFI</i>	<i>GFI</i>	<i>SRMR</i>	<i>RMSEA</i>
124,46	13	0.000	.85	.84	.80	.86	.91	.091	.155

Seen in the Table 7, fit coefficient was $\chi^2 / sd = 9.57$ and at a medium level. Besides, IFI and GFI showed acceptable fit indices, but CFI, NFI, SRMR, RMSEA and AGFI gave fair fit indices. Taking all the values between model and data set into account, it could be stated that model had acceptable indices. Considering the values in the Figure 4, it was found out that the standardized coefficients between subscales of teachers' PD and JS scale were .38; Error Variance was .86; $R^2 = .14$. PD activities attended by the teachers which was the independent variable explained 14% of the variance in job satisfaction as the dependent variable.

4 Discussion, conclusions and recommendations

In this part of the study, conclusions were reached as a result of the study, discussion and recommendations in accordance with the findings were mentioned.

4.1 Results related with PD activities

In the study it was noticed that more than one third of the participant teachers did not perform PD based peer coaching and observations, but more than one third of the teachers accessed virtual platforms and watched videos and related feed on lecturing and techniques for PD. In TALIS study done at OECD countries, it was noted that almost half of the teachers participated in peer coaching based activities. In a study which lasted two years and was carried out in South Africa (Cilliers et al., 2019), reasonable improvements were observed in the students' reading skills whose teachers participated in PD activities. Similarly, secondary school teachers participated to an education program in Brazil as a part of Ceara Program. As a result of the program, teachers reduced the time that they spent for classroom management, increased the time they allocated to instruction, they also used interactive strategies which increased student engagement more frequently. Eventually, it was monitored that the students' academic outcomes were improved at local and national level (Bruns et al., 2018). In another study done on Turkish and American teachers (Zepeda et al., 2013), it was stated that Turkish teachers paid classroom visits to their colleagues in terms of peer coaching once a year on the average, while American teachers visited their colleagues three times or more on the average.

Reviewing the related studies done in Turkey on peer coaching, the studies were seen to include teacher candidates and instructors teaching in the field of foreign language (Hatip, 2006; Şen 2008). These studies mentioned positive aspects of peer observations; for instance, in the study carried out by Şen (2008) it was asserted that peer observations were of the basic instruments for improving teaching skills. In another study done by Hatip (2006) it was indicated that peer observation helped the teachers to improve their awareness, notice their strengths and weaknesses, increase communication between colleagues, improve professional development, share experiences, improve their professional relations and keep their professional skills up-to-date.

It was stressed that Sharing and disseminating good teaching practices, within the scope of coaching, through actual dialogues between colleagues contributed to teachers' professional development, as a result of peer observation teachers' self-confidence (Bell & Mladenovic, 2008), collegiality, self-awareness and respect were all improved, and these were the aspects which would enhance the quality of education (Bell & Mladenovic, 2008). According to the results obtained from TALIS 2013 (OECD, 2014), OECD countries frequently made use of peer observation as a kind of PD activity. It was determined that 29% of the secondary school teachers participated in TALIS 2013 Questionnaire were participants of PD activities in the recent year like mentorship, peer observation or peer coaching. The results of TALIS Questionnaire were similar to the existing study in this respect. Likewise, Bozak and Demirtaş (2017) concluded in their study that peer coaching supported teachers in terms of motivation and pointing out their own strengths, increasing cooperating and helping each other.

In addition to its positive aspects, peer coaching has some restrictions. It was found out in a study (Jacobs et al., 2018) conducted on 71 teachers that individualized coaching was not considered in a positive way by all the teachers. One fifth of the participant teachers put up resistance to peer coaching approach. There are studies which stressed that peer coaching could not be generalized, sometimes it could be unclear and some problems could arise in terms of objectivity (Lomas & Nicholls, 2005). It was stated in some of these studies that having emotional changes or changes in terms of manner between colleagues (like being touchy and sensitive about critics) after observations, not treating in a constructive manner during or after observations (Hammersley-Fletcher & Orsmond, 2005; Lofthouse & Hall, 2014) influenced peer observations in negative ways.

Analysing findings of the study in terms of teachers' participation to PD activities, it was identified that the most frequently participated PD activities were group meetings, reading books or articles, organizing meetings with school managers to improve teaching activities at school and participating in service training courses respectively. Participating in congresses or symposiums as

auditors was not frequent. Presenting their own papers or scientific studies was seen to be low as an activity. It was found that 75% of the teachers of OECD countries participated in activities like courses or seminars; almost half of them participated to conferences and less than half of the teachers participated in professional networks, one third of them participated in virtual courses or seminars. Moreover, it was restated that 90% of the teachers from Australia, Latvia, Lithuania, Singapore and Slovenia who participated in courses or seminars in the recent year; 70% of the teachers from Alberta (Canada), Croatia, Latvia and Shanghai (China) participated in educational conferences and presented their papers.

Within the scope of the study, it was inferred that the teachers read a bit more than two books on the average in the recent year, one third of them read four or more books, and one fifth of them did not read any books. Whereas, it was revealed that more than 70% of the teachers from OECD (2019) countries read professional/academic books in the recent year. In the report by Ministry of National Education of Turkey (2019), on analysing teachers' reading culture working at elementary and secondary schools, it was stated that almost half of the teachers (51.3%) read between 4-12 books a year. More than half of the teachers were determined to share between 1-100TL for books in a year, most of these teachers emphasized that they considered the cost of the books as expensive, they also stated that they allocated 1 hour (half of it during weekdays and half of it during weekends) or less to readings books.

In the existing study, it was seen that the teachers with post graduate degree participated more in all of the subscales of PD activities compared to the ones with bachelor's degree. Therefore, it might be stated that post graduate education considerably contributes to teachers PD. Moreover, in the study by Toprak and Taşgün (2017) the teachers' motivation for postgraduate education was low as this process was backbreaking and excessive for them. Noga (2016) suggest that teachers should be interest to develop their own skills along with knowledge in order to influence and affect positiveley improvement of students they teach. Besides, economical costs of the education, adapting weekly schedule to post graduate courses, negative feedbacks from their colleagues, not finding the suitable program for education, difficulties of being admitted to a program, lack of information on the educational process, misconceptions about its contributions to professional development were sorted as the limitations of post graduate education.

In the study it was found out that arithmetic mean of individualized and self-directed PD activities, which was the subscale of PD, was low. It was detected that almost three third of the teachers used one or more typical methods and techniques; more than one fourth of them did not. It was also ascertained that more than one third of the teachers took part at least in a project throughout their

professional career, but the number of the teachers who took part in four or more projects was relatively low. The average of the exhibitions organized by teachers in their career concerning educational affairs per year was below one; the number of teaching materials designed by them was almost three for previous calendar year. It was seen that the average of the actions like cooperative projects, joint work or request for help from external stakeholders (like universities, nongovernmental organizations, municipalities) per years was really low, it was found to be below one for previous calendar year.

Examining TALIS 2013 report (OECD, 2014), it was highlighted that participating to courses and workshops (71%) had the highest rate among the teachers' individualized PD activities. Courses and workshops were followed respectively by teachers presenting their studies to their colleagues and making discussions on them (44%), joining special networks designed for teachers (37%), individualized or collaborative studies depending on the teachers' field of interest (31%). Mentorship/peer observations or coaching (29%), professional visits to neighbouring schools except for their own (19%), in-service training courses organized by external stakeholders (14%) (commercial, public or nongovernmental organizations), follow-up visits to public institutions, nongovernmental organizations or workplaces (13%). Teachers of OECD countries were reported to be participated individualized PD activities more frequently compared to Turkish teachers who were the participants of this study. According to the questions regarding the time spent on PD activities by teachers in the previous calendar year, the following responses were obtained: Almost 40% of the teachers spent 21 hours and 20% of the teachers spent 61 hours or more to internet based PD activities; 77% of them spent 10 hours or less for collaborative professional activities with colleagues; similarly, 77% of them spent 10 hours or less for workshops, in service training courses, conferences, symposium etc. More than 95% of the teachers spent less than 10 hours separately in the previous calendar year for i) meetings with parents ii) meetings on educational issues with upper managers iii) PD based supports for novice teachers iv) PD based activities with colleagues. It could be deduced that the mentioned period of time is not sufficient for teachers to provide quality educational services.

As it was reported by the Turkish Ministry of National Education (2019), 1.114.956 teachers participated in 35.374 in-service training activities which were organized locally or nationally in 2018 (It is possible for a teacher to attend in more than one activity). Each teacher participated 38 hours in service training activity on the average. In Turkey, 52.944 teachers (it makes 4.48% of total number of current teachers) participated in 9050 different PD activities across the country. These activities included; teachers' leadership and classroom management, competence, management of instructional affairs, measurement

and evaluation, material adaptation, communication, using technology effectively, foreign language education, professional ethics. Akçay-Kizilkaya (2012) found out in the study carried out on teachers that 74% of the teachers participated in courses and workshops, 10% attended postgraduate education programs, 21% made school visits, 44% did individual or group researches, 26% made classroom observations and mentored their colleagues.

4.2 Results related with relationship between participated pd activities and job satisfaction

As a result of the first path analysis done to analyse the relationship between job satisfaction and professional development, it was found out that there were negative significant relationships between “facilities provided by the school and crediting personal achievements” as the first subscale of JS scale and participated PD activities, and there were significant positive relationships between “facilities provided by the school and crediting personal achievements” and number of individualized and created PD activities and the quantities of engaged PD activities. It was seen that PD activities explained 20% of the variance in “facilities provided by the school and crediting personal achievements”. In the second path analysis done to analyse the relationship between job satisfaction and professional development. It was found out that there were negative significant relationships between “sense of satisfaction provided by teaching profession” and participated PD activities; and there were positive significant relationships between “sense of satisfaction provided by teaching profession” and number of individualized and created PD activities and the quantities of engaged PD activities. It was seen that PD activities explained 11% of the variance in “sense of satisfaction provided by teaching profession”. In the third path analysis done to analyse the relationship between job satisfaction and professional development; it was found out that there were negative significant relationships between “facilities related with career and personal development provided by teaching profession” and participated PD activities, and number of individualized and created PD activities. It was seen that PD activities explained 31% of the variance in “facilities related with career and personal development provided by teaching profession”. The explanation rate of the variance in the subscale was relatively higher. As a result of the forth path analysis done to analyse the prediction of total score of job satisfaction through professional development activities attended by the teachers; it was found out that the standardized coefficient between PD activities and job satisfaction was .38; as a result of the analysis it was concluded that “PD activities attended by the teachers” which was the independent variable explained 14% of the variance in “job satisfaction” which was the dependent variable.

Hypothesis of the research was given in Figure 4. In addition to the research done by OECD on teachers in a good number of countries, there are some other studies supporting the findings of the existing study. Whitehead (2006) found in the study done on 300 urban and 300 suburban elementary teachers that there were positive relationships between PD and job satisfaction. In another qualitative study done by Hall (2007), it was pointed out that collaborative PD activities positively influenced teachers' job satisfaction. Inyoung and Loadman (1994) revealed that PD activities were among the factors which highly influenced teachers' job satisfaction. In the study carried out by Akçay-Kızılkaya (2012), positive relationships were found between teachers' participation in PD activities and their job satisfaction. Furthermore, in a study, done on employees working at research and development department of a high technology company (Chen et al., 2004), it was found that job satisfaction had high influence on PD (.78 regression coefficient value); PD level was seen as a mediator variable between job satisfaction and productivity. It was also found in this study which was carried out by sampling the teachers that duration of the attended PD activities predicted the teachers' job satisfaction even if it was at a lower level. On the other hand, there are studies which were done on the workers of some other sectors, such as Acker (2004) on social workers, Rowden (2002) on employees of small sized enterprises, Meagher (2011) on teachers, stated that there were no significant relationships between duration of PD activities and job satisfaction. Similar to these studies, Bennet (2006) analysed the relationship between duration of PD activities and job satisfaction on the workers of information technology departments at higher education institutions. As the result of the analysis significant negative relationships at a lower level were found between upper managers' job satisfaction and courses attended at college. However, no significant relationships were found between all kinds of PD activities and job satisfaction. As for the analysis for the ones who did not have any managerial positions, any significant relationships were not found between all types of PD activities and job satisfaction; so, it could be emphasized within the scope of mentioned study that the relationships between PD activities and job satisfaction mainly based on the type of attended activities and professional position (having a managerial position or not), the results of the study could not be generalized to include all the participants.

4.3 Suggestions

1. Some arrangements could be recommended for the encouragement of teachers to support peer observations and peer coaching, share their experiences with their colleagues; teachers weekly schedules might be planned at the beginning of the academic year and such arrangements might be disseminated.

2. It was found out that very few teachers attended educational congresses to present their activities/scientific studies. Therefore, it might be recommended to improve teachers' study skills in terms of scientific studies, and they might be encouraged to present their studies at conferences.
3. Economical supports might be provided, and in-service training courses could be organized for teachers to improve their teaching material adaptation skills.
4. Experienced and successful teachers' weekly schedules could be arranged to give them the possibility of mentoring to novice teachers in order to improve their teaching and material adaptation skills. Moreover, novice teachers could be monitored through a PD system which might be created within the school.
5. Social and educational meetings could be organized regularly after school in order to increase communication between teachers, to enhance the exchange of information between colleagues and to evaluate educational outcomes.
6. It could be recommended that training needs analysis might be done for each branch based on teachers' considerations to provide teachers attending to PD activities. Practical trainings could be planned depending on teachers' branches.
7. In addition to traditional PD activities (course, seminar, conference), teachers' participation could be encouraged to individualized PD activities which might increase teachers' job satisfaction, and which might positively influence their professional expectations.
8. Teachers' participation in PD activities could be encouraged to increase their job satisfaction.

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