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Measuring the Relationship among Professional Development Activities, Teacher Leadership, and Life Satisfaction

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Abstract

The aim of this study was to compare the number of Professional Development (PD) activities the teachers attended, compare them by demographic variables, and investigate the relationship between these activities and teacher leadership and life satisfaction. The study sample was determined by the simple random sampling method and consisted of 821 teachers working in various provinces in Turkey. The results of the study are summarized as follows: A significant weak positive correlation was found between the teachers' beliefs regarding the function and importance of PD activities and the total number of PD activities they attended in 2020. It was found that the teachers' monthly income and the PD activities they attended per week and per year had a significant positive effect on their leadership behavior and that the leadership behaviors of teachers had a significant positive effect on their life satisfaction.

Keywords: professional development, amount of learning activities, effect of development activities, teacher leadership

Introduction

The professional development (PD) is considered a structured professional learning that results in changes in teacher practices and improvements in student

learning outcomes (Darling-Hammond et al., 2017). These PD activities include lesson preparation and planning (Coenders & Verhoef, 2019), collaborative activities with colleagues (Van-Veen et al., 2012), evaluating student work and exams (Guskey, 2003), research-development activities (Rahimi & Weisi, 2018), reading books and articles (Guerriero, 2014), participating conferences and workshops (Rimmer & Floyd, 2020), and following scholars on social media on Twitter and Facebook (LaPoe et al., 2017).

A plethora of research tells that PD of teachers incorporates active learning (Ingvarson et al., 2005; Petrie & McGee, 2012; Zawilinski et al., 2020), supports collaboration (Chai & Tan, 2009; Forte & Flores, 2014), involves models of effective practices (Darling-Hammond et al., 2017; Sims & Fletcher-Wood, 2021), provides coaching and expert support (Morgan et al., 2019; Desimone & Pak, 2017), focuses directly on teachers' individual needs (Zhang et al., 2015), and offers effective feedback and reflection to teachers on the activities they perform inside the classroom (Mathew et al., 2017; Tschannen-Moran & McMaster, 2009). Consequently, teachers increase their knowledge of the matter of teaching skills and maximize student achievement (Lu et al., 2019).

According to the Teaching and Learning International Survey (TALIS) of 2018 (Ainley & Carstens 2018), 29 % of Turkish teachers reported that they participated in collaborative professional learning at least once a month, while 78% of teachers agreed or strongly agreed that their schools provided staff with opportunities to actively participate as teacher leaders in school decisions. Talking about their well-being, only 7% of Turkish teachers found their job as stressful, while 93% teachers felt high level of life satisfaction. Overall, Turkish teachers perceived that PD activities during the last one year positively impacted their teaching practice. Lastly, 89% of the lower secondary school principals stated that their teachers performed leadership roles in school management whereas less than 20% stated that they were involved in policymaking regarding student assessment and discipline. Combining all results, we found almost 93 percent of lower secondary teachers participated in professional development activities that included Courses and/or seminars attended in person, reading professional literature, education conferences, participation in a professional network, online courses and/or seminars, Peer and/or self-observation and coaching as part of a formal arrangement, formal qualification program, and some other types of professional development activities. The mixed

results led to the idea that Turkish school teachers were provided with opportunities to lead in their schools through myriad leadership roles.

These myriad PD activities demonstrated a significant relationship with different variables, including teacher leadership and life satisfaction which were other important variables of this study. Teacher leadership refers to the set of skills demonstrated by teachers who have influence that extends beyond their classrooms to others (Danielson, 2006). Teacher leadership is the ability to lead and influence others, to encourage colleagues to change, and is a form of collective leadership in which teachers develop expertise by working collaboratively (Hunzicker, 2018). Various researchers found a significant positive relationship bewtween PD activities and teacher leadership (Frost, 2012; Hickey & Harris, 2005; Hunzicker, 2018; Nguyen et al., 2019). These studies led towards the idea that measuring and linking PD and teacher leadership has the potential to contribute to the literature.

Life satisfaction, another variable of the study, is a construct that measures the way, feelings, and emotions of people towards various aspects of their lives (Neugarten et al., 1961). Shin and Johnson (1978) stated that life satisfaction did not assess health or finances; rather, it refered to a judgmental process in which individuals assess the quality of their lives according to their own criteria. It is a cognitive component of Psychological well-being (Andrews & Withey, 1976) and includes positive and negative effects of various dimensions in one's life. Various studies have found a significant positive relationship between PD activities and life satisfaction (Vorkapić et al., 2016).

Another significant aspect of this study was to see PD with the lens of time allocated for each activity. The research in the Turkish context tells that these activities become more effective for teachers' when they allocate more time to use them. According to TALIS (2018), on average OCED teachers spent 38.8 hours per week on all the tasks related to their job or spent slightly more than half (53%) of their working time teaching classes and this share is very similar for teachers working full-time and for those working part-time hours. However, among these, the highest shares (between 72% and 78%) were found in Brazil, Chile, Georgia, Saudi Arabia, South Africa, and Turkey, and this share was more than in various countries. On average, across the OECD, teachers spend 6.5 hours a week on planning and lesson preparation, and 4.2 hours a week on marking and correcting student work, 2.97%

on general administrative work, 2.7% on teamwork and dialogue with colleagues within this school.

The literature revealed that Turkish teachers participated in various PD activities such as planning for the lesson, administrative roles, and extra-curricular activities. This study focused on comparing PD activities based on demographic variables such as teacher gender, teacher's sex, marital status, subject matter, and education level, along with the relationship between PD activities teachers participated, leadership, and life satisfaction. The hypothesis of the research is based on a positive relationship between these three variables; PD activities teachers participated in, leadership and life satisfaction.

The research aims to compare the PD activities the teachers attended by gender, marital status, subject matter, school level, and monthly income, and to investigate the relationship of these activities with teacher leadership and life satisfaction and to reveal the relationships between the specified variables. For this purpose, research questions were defined as follows:

Research Questions

1. How much time do teachers allocate on average for lesson preparation and planning, collaborative activities with colleagues, evaluating student work and exams, research-development activities, and projects? Does this time have a significant relationship with the teacher's teaching hours per week, year of seniority, and the teacher's out-of-pocket expense for PD?
2. Within the calendar year 2020, how many PD activities did they attend? Did this number differ depending on the teachers' demographic variables? What were the teachers' perceptions of the reflection/effect of these activities they attended in 2020 on their in-class teaching performance?
3. Is there a significant relationship between the PD activities that teachers attend per week (first question) and the PD activities they attend per year (second question)?
4. Are PD activities the teachers attended, the teachers' monthly income, and the year of seniority significant predictors of the teachers' leadership and life satisfaction?

The effect of PD activities the teachers attended, income level, year of seniority, on their teacher leadership, and life satisfaction was evaluated using a structural equation.

Hypotheses

According to this, the following hypotheses were examined:

H_1: The total measured duration of PD activities attended weekly has a positive effect on teacher leadership.

H_2: The total number of PD activities attended yearly has a positive effect on teacher leadership.

H_3: Teachers' monthly income has a positive effect on teacher leadership.

H_4: Year of seniority of teachers has a positive effect on teacher leadership.

H_5: Leadership behaviors of teachers have a positive effect on their life satisfaction.

Methodology

This research study was designed as a correlational study. The major purpose of correlational research is to clarify our understanding of important phenomena by identifying the relationship among variables (Fraenkel et al., 2012). In this study, besides presenting descriptive statistics of the measured variables, the relationship between the total duration of the PD activities the teachers attended and their seniority, income, perceived barriers to PD, out-of-pocket expenses for PD, and beliefs about PD were investigated. In addition, the effect of the duration of PD activities attended by teachers on teacher leadership and life satisfaction was analyzed using path analysis with latent variables.

The Population and Sample

The sample of the research consisted of 821 teachers working in various provinces of Turkey. Since the surveys were carried out online, the participants were determined using a simple random sampling technique. Of the teachers participating in the study, 337 were male, 484 were female; 655 were married, and 166 were single. Although there were participants working in pre-schools, general high schools, and vocational high schools, the majority of the participants worked in primary (n = 235) and secondary schools (n = 354), two-thirds of the participants held bachelor's degrees, and some held associate and postgraduate degrees. Besides, the mean seniority of the teachers was 14.84 years and the mean teaching hours per

week was 23.57.

Data Collection Instruments

In the survey used within the scope of the research, besides the questions on the demographic variables for the teachers, the PD activities the teachers attended were asked in two categories: per week and per year. With six questions, teachers were asked about the PD activities (activities given in Table 1) they carried out or attended per week, and with nine questions, teachers were asked about the PD activities (activities given in Table 2) they attended or carried out per year, during the 2020 calendar year. The total scores were obtained as the sum of the PD activities the teachers attended per week (sum of the activities listed in Table 1) and per year (sum of the activities listed in Table 2), and through these points, demographic comparisons were made (gender, marital status, type of school, subject matter, the latest degree obtained), and these points' relationship with the seniority and monthly income, which were the continuous variables, was investigated. Descriptive statistics were presented as mean, standard deviation, and percent; inferential statistics were presented as t-test and One-way ANOVA, Pearson, and Spearman Brown correlation test, and path analysis. The normality of the data was tested with Skewness and Kurtosis values.

The relationship between PD activities that teachers attended and their leadership and life satisfaction was examined with path analysis. After teacher leadership, life satisfaction, and related concepts were defined in detail and a few indicators were explained as examples, teachers were asked to score their leadership and life satisfaction levels between 1 (lowest) and 100 (highest). In these scales, low scores indicate low teacher leadership behaviors and life satisfaction, high scores indicate high teacher leadership behaviors and life satisfaction. Considering that the teachers have a minimum of a bachelor's degree and above-average intelligence, it was assumed that they could correctly score/measure themselves within a psychological structure whose definition and a few indicators were explained.

Results

Descriptive statistics regarding the duration of the activities (in hours) that teachers attended/carried out per week for professional development are given in Table 1.

Table 1

Descriptive Statistics regarding the Activities Teachers Attended/Carried Out per Week for Professional Development

Participated PD activities	N	Minimum	Maximum	$\overline{X}$	Sx
The time you allocate for lesson preparation and planning at school or outside of school	820	0	70	8.89	11.50
The time you allocate to evaluate student work, assignment, and exams and giving feedback	821	0	38	5.53	6.20
The time you allocate for professional development activities	820	0	40	5.21	6.62
The time you allocate for research - development and project generation activities	820	0	43	3.60	5.24
The time you allocate for school administration tasks (filling the class book, meetings, boards, guidance, clubs, etc.)	819	0	48	3.53	4.70
The time you allocate for professional activities with colleagues in the same subject matter group or peers from other subject matter groups	820	0	40	3.29	4.44
Total				30.05	

As can be seen in Table 1, it was found that the mean of the total time the teachers allocated for weekly lesson preparations and PD activities was 30 hours. It was found that on average, teachers allocated $\overline{X}$ = 8.8 hours for lesson preparation, $\overline{X}$ = 5.5 hours to evaluate student work, $\overline{X}$ = 5.2 hours for professional development activities, $\overline{X}$ = 3.6 hours for research-development and projects, $\overline{X}$ = 3.5 hours for extracurricular activities in school, and $\overline{X}$ = 3.2 hours for PD activities with colleagues in the subject matter group.

In the analysis performed based on the total scores about the mean duration of PD activities the teachers attended per week (Table 1), it was found that the PD activities they attended neither differed depending on their gender ($t_{(819)}$=.357;

p>.05), nor their marital status ($t_{(819)}$ =.685; p>.05). The mean of total time of PD activities the teachers attended per week did not differ significantly depending on the school level (pre-school, primary school, middle school, secondary education; $F_{(5-815)}$ = 2.40; p>.05); subject matter ($F_{(7-811)}$ = 1.17; p>.05) and the teachers' education level (associate degree, bachelor's degree, graduate student, postgraduate degree) ($F_{(3-817)}$ =.88; p>.05). In the Pearson correlation analysis performed to determine the relationship between the total duration of PD activities the teachers attended per week and their monthly income (r=-.011; p>.05), year of seniority (r=-.005; p>.05) and their teaching hours per week (r=-.011; p>.05), no significant correlation was found. A significant negative weak correlation was detected between the mean of the total duration of PD activities the teachers attended per week and their perception of the barriers to their attending in PD activities (a high score indicates high barrier or excuse to attending PD activities, and the barriers are as follows: PD activities are paid/expensive, not compatible with the weekly lesson plan, not compatible with the interests and needs, participation not encouraged, not useful, and not enough time) (r=-.159; p<.001). According to this result, the increase in the teachers' perception of barriers (excuses) to attending PD activities decreases their participation in the activities. Descriptive statistics on the number of activities the teachers attended for PD purposes in the last year (during 2020) are listed in Table 2 from the highest to the lowest.

Table 2

Descriptive Statistics on the Number of Activities the Teachers Attended for PD Purposes in the Last Year

	Never		1		2		3		4		5 and above		$\bar{X}$	Sx
	f	%	f	%	f	%	F	%	f	%	f	%		
The number of experts or groups you follow on social media for PD	52	6.3	55	6.7	111	13.5	98	11.9	54	6.6	451	55	3.70	1.65
The number of activities/events where you exchanged information with the teachers in the subject matter group	69	8.4	98	12	145	17.7	122	15	33	4	354	43	3.23	1.76
Number of courses/ seminars/conferences/ in-service training you attended online for PD	98	12	107	13	129	15.7	110	13.4	63	7.7	314	38.2	3.07	1.83
The number of articles you read for PD	161	19.6	79	9.6	115	14	93	11.3	38	4.6	335	40.8	2.94	1.99
The number of books you read for PD	80	9.7	132	16	152	18.5	143	17.4	59	7.2	255	31	2.89	1.73
The number of congresses/ conferences/symposia you attended face-to-face for PD	333	40.6	111	13.5	123	15	69	8.4	28	3.4	157	19	1.78	1.91
The number of your colleague's lessons you observed in order to see different approaches and model practices	413	50.3	83	10	109	13.3	55	6.7	17	2	144	17.5	1.53	1.90
The number of your lessons the school administrators attended to observe	410	50	163	20	121	14.7	43	5.2	12	1.5	72	8.8	1.15	1.54
The number of papers or posters you present at any educational congress or symposium.	687	83.7	65	8	35	4.3	12	1.5	12	1.5	10	1.2	.33	.90

One of the striking result in Table 2 was that for PD purposes in the 2020 calendar year, teachers mostly followed experts or groups on social media, nearly half of them (43%) performed collaborative activities with their colleagues, more than one-third of them (38.2%) attended online PD courses; and they read on average ($\overline{X}$ = 2.94) articles and ($\overline{X}$ = 2.89) books, and nearly one-third (31%) did relatively positive activities such as reading five or more books. In addition, it was found that, due to the Coronavirus pandemic, two-thirds of them (40.6%) did not attend face-to-face PD activities, more than half of them (50.3%) did not observe any of their colleagues' lessons, half of them did not have their lessons observed by the school administrators, and the majority (83.7%) did not present any papers or posters in an educational congress. Within the scope of activities listed in Table 2, teachers' views regarding the positive effect of the PD activities they attended within the last year on their in-class teaching performances (more qualified fulfillment of their professional duties) in Table 3.

Table 3

Teachers' Views on the Positive Effect of PD Activities on their In-Class Teaching Performance (More Qualified Fulfillment of their Professional Duties)

Variable	Frequency	Percent (%)	Cumulative Percent
It had no effect	161	19.6	19.6
It had a marginally positive effect	59	7.2	26.8
It had a slightly positive effect	230	28.0	54.8
It had a moderately positive effect	234	28.5	83.3
It had a highly positive effect	137	16.7	100
Total	821	100	

As can be seen from Table 3, while one-fifth of the teachers thought that the PD activities they attended did not have a positive effect on their in-class teaching performance; more than half of the teachers (54.8%) believed it had a slightly or higher positive effect; nearly half of the teachers (45.2%) believed that it had a moderately or highly positive effect.

In the analysis of the total scores of the PD activities the teachers attended in the last year (2020) (Table 2), when a comparison was made between gender ($t_{(819)}$ = 2.88; $p<.05$), it was found that female teachers ($\overline{X}$ =21.34) attended more PD

activities than the male teachers ($\overline{X}$ = 19.59). In comparisons made on the marital status ($t_{(819)}$ =.31; p>.05) no significant difference was found. In the comparison between the level of the schools the teachers worked ($F_{(5\text{-}815)}$ = 2.44; p<.05), it was found that preschool teachers ($\overline{X}$ = 25.21) attended more PD activities than the primary school ($\overline{X}$ = 20.47), secondary school ($\overline{X}$ = 20.33), general high school ($\overline{X}$ = 20.26) and vocational high school teachers ($\overline{X}$ = 19.85) in 2020; in the comparison between the education levels, it was found that ($F_{(3\text{-}817)}$ = 12.31; p<.01) graduate students ($\overline{X}$ = 23.72) attended more PD activities than those with bachelor's degree ($\overline{X}$ = 19.43) in 2020. In the comparison between the subject matters, no significant difference was found ($F_{(7\text{-}811)}$ = 1.53; p>.05). No significant correlation was detected between the number of PD activities the teachers attended in 2020 and their monthly income (r=.019; p>.05), year of seniority (r=-.06; p>.05) and their teaching hours per week (r=-.04, p>.05), while a significant positive weak correlation was detected between the number of PD activities attended and the amount of out-of-pocket expense the teachers made for PD activities (r=.162; p<.01).

According to the result of the Pearson correlation analysis conducted to reveal the relationship between the total number of hours of PD activities attended per week (activities in Table 1) and the total number of PD activities attended in 2020 (activities in Table 2), there was a significant positive weak correlation between the two variables (r =.22, p<.01). According to this result, it can be said that as the mean duration of PD activities the teachers attend per week increased, the number of different PD activities attended per year also increased.

Teachers' beliefs of whether their attendance to PD activities will improve their knowledge, skills, and teaching practices, increase student learning and success, were measured as a discontinuous variable, and the options were scored as follows: belief in the function / importance of PD activities; unsatisfactory (1), limited (2), positive (3) and quite positive (4). According to this, Spearman-Brown analysis was performed to demonstrate the relationship between teachers' beliefs of the function and importance of PD activities and the total duration of PD activities they attended per week (in hours) (activities listed in Table 1) and it was found that the correlation between the two variables was significant and positive, although very weak (r=.07; p<.05). Again, a significant, positive, weak correlation was found between the teachers' beliefs of the function and importance of PD activities

and the total number of PD activities they attended in 2020 (activities listed in Table 2) (r=.24; p<.01). According to this result, it is possible to state that the more teachers believe in the function/importance of PD, the more PD activities they will participate.

The path analysis and standardized weights for the model are given in Figure 1, and the parameter estimation values for the Path analysis with latent variables are given in Table 4.

Figure 1

Parameter Estimation Values for Path Analysis with Latent Variables

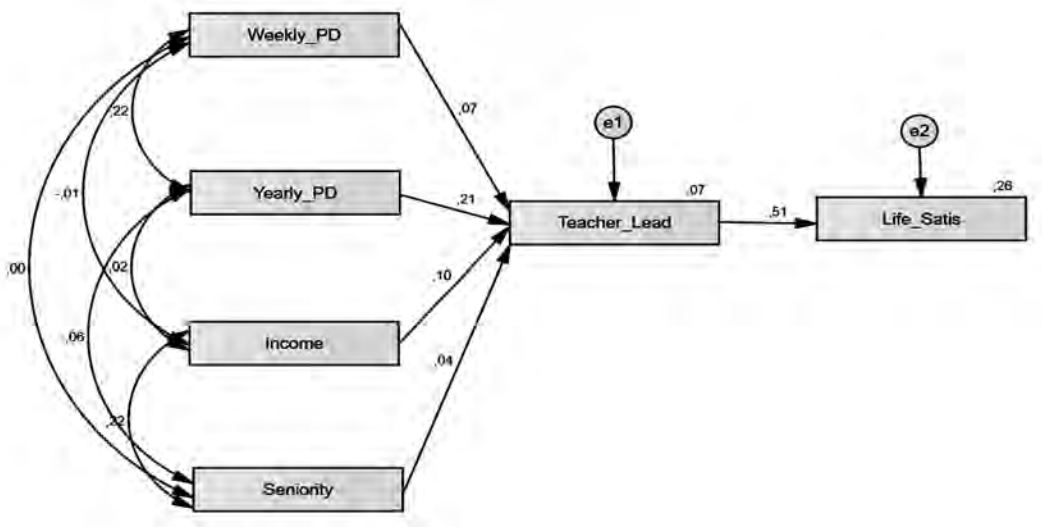

Table 4

Parameter Estimates for Path Analysis with Latent Variables

Structural Model	Standardized β	Unstandardized β	SE	p	Hypothesis	Decision
Teacher Leadership ← WeeklyPD	.071	.059*	.029	.040	H_1	Accepted
Teacher Leadership ← YearlyPD	.209	.499***	.082	***	H_2	Accepted
Teacher Leadership ← Income	.103	.001**	.000	.003	H_3	Accepted
Teacher Leadership ← Seniority	.044	.110	.087	.208	H_4	Rejected
Life Satisfaction ←Teacher Leadership	.514	.564***	.033	***	H_5	Accepted
X^2 = [4, N= 821] = 10.168; p < .05; $\chi 2$ / df = 2.542; CFI = 984; TLI = .916; NFI = .975; RMSEA = 0.43						

The research hypotheses were analyzed using IBM AMOS 24 software. Weekly PD, which is one of the exogenous variables of the study, was measured

with six questions and yearly PD with nine questions, and path analysis was performed based on the total scores of the questions. Since the other variables of the research were also measured by one question each, all variables in the analysis were defined as observed variables. Since the data was normally distributed, Maximum Likelihood estimation method was used. As can be seen in Table 4, the analysis revealed that the model had acceptable level fit indices. According to the results of the path analysis, PD activities teachers attended per week (β =.071; p<.05); PD activities they attended per year (β =.209, p <.01); their monthly income (β =.103; p<.01) had a significant and positive effect on leadership behavior, whereas year of seniority (β =.044; p =.208) did not have a significant effect. In addition, it was revealed that the leadership behaviors of teachers had a positive and significant effect on their life satisfaction (β =.514, p<.01). According to these results, H_1, H_2, H_3, and H_5 hypotheses were accepted, whereas H_4 was rejected. PD per week, PD per year, income, and seniority explained 7% of the variance in teacher leadership; and teacher leadership explained 27% of the variance in life satisfaction.

Discussion

The total time allocated by teachers for lesson preparations and PD activities was 30 hours. The most time was allocated to lesson preparations, and the least amount of time was allocated to the PD activities the teachers carried out with their colleagues in the subject matter group. Assuming that teachers take a full day of rest one day a week of seven days, a mean duration of 5 hours for 6 days can be considered a reasonable and sufficient time to allocate; although a low level of collaborative activities with colleagues, which is a very efficient approach in PD activities, can be considered as a negative situation.

In contrast to this finding in the Turkish context, we found that on average, across the OECD, teachers spend 38.8 hours per week on all the tasks related to their job, of which 20.6 hours are devoted to teaching (TALIS, 2018). It means Turkish teachers spend relatively less time on professional development activities as compared to OECD countries. Yurtseven-Yilmaz and Sever (2021) studied perceptions of Turkish language teachers about PD activities and found that a great majority of the sampled teachers (97%) stated PD activities did not meet their educational needs because they were not “practice-oriented” (p. 95) and involved less time duration; 28% of the sampled teachers stated their trainers were not well trained and expert. Further, more than 76% of teachers don’t take induction training

despite the fact that the majority of the teachers (78%) agreed or strongly agreed they were given the opportunity to participate in school decisions (TALIS, 2018). Another study found that the majority of the teachers needed PD activities to learn "new instructional approaches, methods, and techniques" (Özdemir, 2013, p. 257), which have been unaddressed by now. Further, 35% of teachers stated they were under pressure and stress, especially females, due to various reasons, including administrative responsibilities that might hindered them from being involved in PD activities (TALIS, 2018). These reasons should be addressed properly to help teachers spend more average time on PD activities.

This research revealed that PD activities the teachers attended per week did not differ depending on their demographic variables. According to this result, in addition to the demographic characteristics of teachers, their monthly income, year of seniority, and teaching hours per week have no effect on the PD activities they carried out per week. Similar results were found in the study of Gokmenoglu et al. (2016), who found that Turkish teachers did not differ in training needs and training preferences based on their gender, experience, subject, and level of education which leads to think about the reasons why novice teachers feel much qualified and trained as compared to the veteran teachers that they don't need further training. The reason of no significant difference in PD activities based on demographic variables might be their permanent employment status which was possessed by 90% of the teachers (TALIS, 2018) that shows a vast majority of the teachers get permanent job status and they perhaps don't bother to grow professionally. Additionally, less than 30% of Turkish teachers think their profession is valued, while 37% of Turkish teachers still wanted to change their school if possible (TALIS, 2018). Such findings strengthen this belief that PD has perhaps nothing to do with demographic variables until teachers feel their profession highly valued in society, and they are provided with sufficient financial support so that they quit thinking of changing schools and show loyalty to their current schools.

A significant negative weak correlation was found between the total duration of PD activities the teachers attended per week and their perceptions of the barriers to their attendance to PD activities. It seems logical that barriers to teacher attendance to PD activities negatively affect their inclination towards attending PD activities as barriers to PD activities affect teachers' sense of commitment which influence their capacities and attitude towards professional learning (Day & Gu, 2007). For

example, teachers perceived PD activities were expensive, not compatible with the weekly lesson plan, not compatible with the interests and needs, participation not encouraged, not useful, and included less time. Similar results were found in TALIS (2018) data where 55 percent teachers perceived conflict of time schedule was a barrier, 48 percent stated no incentives were involved, 45 percent were of the view that PD was too expensive, 38% believed PD activities were not relevant, almost 37% stated lack of time was a barrier to their interest in PD activities, and 32 percent teachers stated their participation was not encouraged by the employer. Combining to these findings, it becomes evident that a smaller number of barriers are personal and most from the trainers, employers, and related factors such as the nature of the training.

It was found that, in the calendar year 2020, for PD purposes, teachers mostly followed experts or groups on social media; nearly half of them performed collaborative activities with their colleagues, more than one-third of them attended online PD courses; and they read on average three articles and books, and nearly one-third did relatively positive activities such as reading five or more books. In addition, it was found that some half of the participant teachers did not observe any of their colleagues' lessons, and their lessons were not observed by the school administrators. This finding is similar to the previous findings which shows that despite of the online facility of PD during COVID, a majority of the teachers did not perform PD activities with their colleagues, attended less online activities, read a smaller number of books. The reasons for this finding may be similar such as the irrelevance of PD activities, or they were offered by less experienced trainers, expensive, or less related to classroom instruction.

The fact that in the last year more than half of the teachers participating in the study did observe their colleagues' lessons, which is associated with peer coaching that is an effective PD instrument, can be considered as a situation that has the potential to limit their professional progress (Hill et al., 2013). In addition, it can be stated that the fact that most of the teachers did not present any papers or presentations in educational conferences where current and original professional knowledge and qualified practices are shared, is a situation that limits their professional progress (Darling-Hammond et al., 2017). Although teachers present their research of the action they will use in the classroom, the projects they have carried out or the results of their joint work with their colleagues in

academic or professional meetings, experiencing good or positive experiences of their colleagues is also a highly effective PD instrument, and it can be said that the participating teachers did not make use of this instrument sufficiently.

While one-fifth of the teachers participating in the study thought that the PD activities they attended in 2020 did not have a positive effect on their in-class teaching performance, whereas the majority of them believed that it had a moderately and higher positive effect. Based on this point of view, it is possible to infer that PD activities conducted or attended by teachers were beneficial and led to relatively effective results. In addition to the discussions about the positive effect of PD activities in the relevant literature (Song et al., 2018); in the early 2000s, it was believed that there was no consensus on which characteristics of PD activities were effective on student outcomes (Garet et al., 2001; Guskey, 2003; Knapp, 2003), but the teachers in this study believed that the PD activities they attended had a positive effect on in-class teaching practices. Nevertheless, it is an admitted fact that PD activities embark teachers' knowledge of the subject matter knowledge (Davis & Krajcik, 2005), instructional planning and strategy (Santos & Miguel, 2019), assessment (Palermo & Thomson, 2019), and classroom environment (Choy & Chua, 2019); failing to participate PD activities limits teachers' knowledge in these areas that affect teacher quality that affects student achievement in the high-stake tests (Yoon et al., 2007).

It was found that in 2020, female teachers attended more PD activities than male teachers; preschool teachers than teachers working at other levels of schools; and teachers continuing their postgraduate studies than teachers with bachelor's degrees. Assuming that almost all of the work done by teachers who continue their postgraduate studies within the scope of their courses are PD studies, it can be stated that this is an expected result. It can be stated as an expected result that preschool teachers carry out more PD activities, since the physical spaces of preschools are smaller as compared to other school levels and cooperation among teachers is higher. This finding is aligned with various studies which found female teachers were more inclined to take PD activities (Li, 2016; TALIS, 2018). The small difference may be due to specific reasons, as female teachers have more career motivation (Tomšik, 2015), and are less cynic (Sak, 2018) than male teachers, that perhaps motivate them to grow professionally more than their counterparts.

No significant relationship was found between the number of PD activities teachers attended in 2020 and their monthly income, year of seniority, and teaching hours per week, but a significant positive weak correlation was found between the number of PD activities they attended in 2020 and the amount of out-of-pocket expense they made for PD activities. Such non-significant relationship was not unexpected because previous findings endorse this finding that teachers, despite of their seniority, and salary differences, did not find the PD activities interesting due to the irrelevance of these activities to teachers' professional needs, classroom teaching, and lack of high-quality training skills of trainers. Therefore, based on weak correlations, it is hard to take considerable decisions such as spending more funds to PD activities as they will bear no fruit until the above discussed factors are given considerable priority to proper solutions. Further, it can be said that as the mean duration of PD activities the teachers attend per week increases, the number of different PD activities they attend per year also increases. According to this, since both variables are PD activities, it can be stated that a positive relationship between weekly and yearly activities is an expected result.

A significant and positive but very weak correlation was found between teachers' beliefs of whether their attendance to PD activities will improve their knowledge, skills, and teaching practices, increase student learning and success, and the total duration (in hours) of PD activities they attended per week. The weak positive relationship is a significant indicator of teachers' inclination towards PD activities, as found in TALIS (2018) research as well. According to this result, it is possible to state that the more teachers believe in the function/importance of PD, the more PD activities they will participate.

Results of this research showed that the teachers' monthly income and the PD activities they attended per week and per year had a significant positive effect on their leadership behavior and that the leadership behaviors of teachers had a significant positive effect on their life satisfaction. Similar results (Green & Muñoz, 2016; Massari, 2015) were found to have a positive effect of leadership behavior on teachers' life satisfaction. Accordingly, in order to increase leadership behavior, which includes voluntary assistance to colleagues, informing colleagues about current issues, participating voluntarily in school's development activities, making new initiatives in the classroom and school, engaging in professional initiatives and partnerships with out-of-school institutions and individuals, and trying to

provide resources, more attendance in PD activities and income improvement can be ensured. Assuming that some of the PD activities are paid, it will be possible for teachers to participate in more activities they need with their increased income. Another original result of this research is that the leadership behaviors exhibited by the teacher had a moderately positive effect on teachers' life satisfaction, which includes having a life close to ideal, having strong and satisfying family and social relations, seeing him/herself and his/her personality as suitable for his/her potential. According to this result, as the life satisfaction of teachers is affected by their professional life, it is important to encourage regulations that will enable teachers to exhibit leadership behaviors.

Conclusion

The mean total time allocated by teachers for lesson preparations and PD activities was 30 hours per week. Among these activities, the most time was allocated to lesson preparations, and the least amount time was allocated to the PD activities the teachers carried out with their colleagues in the subject matter group. The PD activities the teachers attended per week did not differ depending on their gender, marital status, level of school they worked at, their subject matters and level of education; and there was no significant correlation between the PD activities they attended per week and their monthly income, year of seniority and the teaching hours per week. As a result of this research, it can be stated that as the teachers' perceptions of the barriers to their attendance to PD activities increase, the number of activities they attend will be less. In addition, it was found that more than half of teachers did not observe any of their colleagues' lessons, half of them did not have their lessons observed by the school administrators, and the majority did not present any papers or posters in an educational congress. The majority of teachers who participated in this research believed that the PD activities they attended in 2020 had a moderately and higher positive effect on their in-class teaching performance. It means that teachers had a positive perception of PD activities delivered to them. A significant positive weak correlation was detected between the teachers' beliefs regarding the function and importance of PD activities and the total number of PD activities they attended in 2020. Path analysis results showed that the teachers' monthly income and the PD activities they attended weekly and yearly had a significant positive effect on their leadership behavior and that the leadership behaviors of teachers had a significant positive effect on their life satisfaction.

Recommendations

1. It is recommended that teachers allocate more time to collaboration with colleagues and peer partnerships, which are very effective PD approaches, and regulations are made to ensure teachers make more collaborations,
2. Teachers participate in more research and development activities that are performed based on either their own school practices or as a collaboration between colleagues in the school, and encouragement and financial support are provided for the teachers to present these in the relevant workshops and educational conferences,
3. Legal arrangements are made to increase the frequency of classroom/ lesson observations of the school principal regarding whether the learning experiences in the classrooms are in line with the vision and mission of the school,
4. Peer coaching is encouraged by the school principal and substitute teachers are employed in the school to increase the frequency of teachers' behaviors related to observing each other's lessons and giving feedback, which is the core of peer coaching,
5. Reading more professional books and articles are encouraged. The number of activities that teachers can reach/access and encouraging teacher attendance is increased, considering that the majority of teachers think that PD activities have a positive effect on in-class teaching performance.
6. The policies to encourage teachers' leadership behaviors in the classroom and in the school are generated considering the positive effect of the leadership behaviors of teachers on their life satisfaction.
7. Further studies should be conducted to know whether PD activities which are innovative, need-based, related to classroom teaching, and offered through expert trainers raise teachers' satisfaction and interest towards spending more time on PD activities. They should be less burdened in performing administrative roles, and their salaries should be increased to maximize their salary satisfaction.

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