



A Needs Assessment for Academicians' Professional Development *

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Abstract

This survey research was conducted to explore academicians' professional development needs. Participants were 228 volunteer academic personnel working at a major university in Turkey. Data were collected through an online questionnaire form and analyzed by using descriptive statistics, correlation, factor analysis, and multivariate analysis of variance (MANOVA). The results indicate middle to high level of needs in teaching, research, technology use, organizational competencies, self-improvement and global competencies. Their needs were negatively correlated with age and experience, and did not change across gender, major and administrative function. On the other hand, there were significant differences in their needs based on academic title, working unit, and workplace. Participants preferred in-service training programs that were face-to-face, conducted in weekdays, and supported by constructivist methods.

Keywords

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Introduction

In the information society of today in which knowledge and technology change at an increasing speed, a man-in-demand profile involves not just possessing knowledge rather generating, processing and applying it to practical areas and problems. Undoubtedly, training individuals who have these qualifications is the main responsibility of all institutions, especially universities. Universities should keep up with societal and technological changes with regards to teaching-learning elements (teacher, student, materials, content, etc.). Fundamental changes have also taken place in academicians' role. Nowadays, academicians are expected to be able to be lifelong learners not just to know and transfer everything in contexts. They should improve themselves in order to help and guide students on how to acquire new knowledge. Thus, it has become impossible for academicians to play their new roles based on just pre-service educations and a need emerged for continuous development (Konokman and Yelken, 2014). Academic datedness, defined as academic qualifications' not meeting current needs, has turned to a prominent problem for higher education and made professional development trainings essential (Odabaşı, 2000). It is accepted that universities taking this into consideration have remained more competitive and provided more quality education (Dolance and Norris, 1995).

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In order to use their functions actively and efficiently, universities should determine interests and needs of their academic staff and meet them. Odabaşı (2007) emphasizes that higher education institutions should focus on professional development programs especially in teaching and research qualifications, student evaluations and foreign language literacy in the period of Turkey's accession to the European Union (EU). On the other hand, it is stated that academicians have difficulties in keeping up with fast changing technology and integrating it into education and this put them under growing stress (Beam and Eunsong, 2002; Cuban, 2001). Taking the benefit of newest methods and technologies efficiently cannot be achieved with just equipping classrooms by spending a great deal of money. Additionally, it is needed to motivate academicians and help them by providing suitable training and support to reach this goal (Laurillard, 1995). In fact, it was observed that academicians who have taken professional development training developed a positive attitude towards newest knowledge and technology (Gilmore, 1998).

Professional Development and Needs Analysis

The concept of professional development comprises the comprehensive and sustainable training process arranged to increase the performance of educators and accordingly students' achievement (Guskey, 1997). At the end of the training, it results in a desired change in educators' practices, beliefs and attitudes and students' learning outputs. This change is not an event, rather a complicated process (Loucks-Horsley and Roody, 1990). Educators, attending professional development programs, should not be expected to change in one night. Educators included in professional development may better realize its impacts on their beliefs and attitudes after observing changes in students' learning outputs and efficiency in their works. Professional development is not a new training model and regularly applied by many universities around the world in different formats and under different names (in-service training, career/professional development, development of human resources, etc.).

Professional development process consists of four main stages. These are setting goals, planning, doing, and reflection (Loucks-Horsley et al., 1998). In this process, goals should firstly be specified. Subjects that will be covered should be defined according to interests and needs of employees. Otherwise the training may cause loss of time, resource and labor. In the process of human resource development, detection of differences between current situation and desired situation seems to be the first step to take (Demirel, 1997). This step is named as "needs analysis" or "needs assessment" in social sciences (Witkin and Altschuld, 1995). Needs analysis provides a rational approach for not only in determination of areas that requires development but also in detecting learners' level of cognitive and emotional readiness, specification of priorities, economical use of budget, efficient use in tools and equipment, strategic planning of the institution (Barutçugil, 2002; Demirel, 1997). Detecting demanded areas plays an important role in training's reaching its goals and being effective.

Needs analysis can be made by using one or more data gathering tools such as observation, taking views (questionnaire, interview, etc.), self-assessment and investigating recorded data. Data gathering stage starts after determining target population's needs. The needs emerged from data gathering are reviewed, ordered and reported. Since data gathering is a long stage, arranging and following a timetable is critical for the progress of the process. It is important to reserve enough time for each trainee. The real needs should be cleaned out of exaggerated needs and should be sorted in order of importance (Kaufman, Rojas and Mayer, 1993). After gathering data, it is needed to investigate needs and identify solutions.

There are a number of educational methods used for professional development (workshop, seminars, etc.). The developments in e-learning environments allows for designing web-based in-service training programs. Online or distance education can be preferred due to their features such as student-centered and personalized learning, independence of time and physical location, multimedia rich environments, and resource saving (Latchem, Odabaşı and Kabakçı, 2006). The selection of appropriate training method depends on employee's characteristics, needs and learning preferences. The needs analysis have been reported to be used for collecting information about these variables in the literature (Kemp, Morrison and Ross, 1998).

Studies towards Professional Development of Academicians

Literature related to training programs and needs analysis of academicians is in the development phase and it is observed that these studies have increased recently. In her study about gathering academic staff's opinions and suggestions on professional development, Odabaşı (2003) found that academic staff thought their most prominent need was teaching qualifications and technology use. Moreover, academic staff expressed that professional training activities should be prepared by domain experts, arranged in work group format and carried out by experts from their own institutions in order these activities to be successful. Soran, Akkoyunlu and Kavak (2006) conducted a training program for 443 academicians that comprised of change in education, assessment and evaluation, efficient teaching and learning and material development module. At the end of this program, participants found these modules effective enough in terms of content, method, technique and duration.

Kabakçı and Odabaşı (2008) conducted a needs analysis in order to arrange professional development programs towards 1095 research assistants in faculties of education. According to results, it was detected that research assistants need a great amount of development in terms of professional, institutional, educational, and self-improvement domains. In addition, research assistants expressed that programs should be in workshop format and on a 2-3 hours per week basis. Erişen et al. (2009) found that academicians in faculties of technical education did not possess enough knowledge on subjects such as globalization and Turkey's integration into the EU, quality and accreditation in education, international grant and article writing, conducting research, and use of foreign languages and technology.

There are also similar studies and findings abroad. Brancato (2003) stresses that societal, organizational and student demands pressure on academicians and urge them to increase teaching quality and efficiency. As a result, academicians need to improve themselves in self-improvement, group teaching, vision sharing and systematic thinking. Siddiqui (2006) conducted a needs analysis on 736 academicians in order to prepare a certificate program for quality education in higher education. Communication skills, teaching skills, assessment and evaluation of student achievements were identified as the most important areas in which academicians needed to develop. Additionally, academicians preferred traditional face-to-face training model over other ones (distance learning, etc.).

In a study on academic staff teaching online in a university in the USA, Taylor and McQuiggan (2008) found that developing online courses, converting course materials in order to be used online, and creating effective online evaluation tools were the basic needs. Moreover, academicians demanded the training programs to be short and incentives and benefits in order to increase participation. Baasandorj (2010) explored on the content and strategy of academic staff development program planned to be developed in Mongolian State University. According to the result of this study, subjects such as assessing and evaluating student performance, motivating students to learn, effective use of the durable learning and various teaching methods emerged as primary.

Scarbecz et al. (2011) investigated preferences of academic staff on activities that target professional development. It was concluded that academicians' interest in education consisted of developing educational goals, using educational technologies, clinical education, developing learning skills, detecting learning disabilities and facilitating student participation. Additionally, those who have

jobs at higher positions are less interested in professional development activities than those working at lower level positions. Zierler and Nguyen (2011) studied professional development needs of academic staff of nursing and determined that there was a need for training and technical assistance on distance learning and the use of education technologies.

Overall, the review of the literature on academicians' professional development highlights that technological advances, change in educational programs and diversification of teaching methods are important factors in which academicians' needs should be identified and served.

Purpose of the Study

The basic aim of this study is to identify professional development needs of academic staff in Suleyman Demirel University. Academicians' expectations and preferences on which areas they need professional development and future training programs for them were investigated. Moreover relationships between level of needs and demographic characteristics were examined. The study was carried out within the frame of research questions below:

1. What are the need areas and levels towards academicians' professional development?
2. Do professional development needs of academic staff vary in terms of gender, age, title, experience, and workplace?
3. What are the preferences of academicians on format, duration and methods of future professional development programs?

Method

Research Design and Participants

Since the study aims to describe an existing situation (academicians' professional development needs) and investigate its relationship with variables, it was designed as a cross-sectional survey model (Büyüköztürk et al., 2011; Karasar, 2008; Mertens, 2014). The research population consists of academic staff at SDU during the Spring Semester of 2012. A questionnaire was developed in electronic format and published online. All academicians were invited via e-mail in order to reach as many academicians as possible. The questionnaire was kept accessible and remainder e-mails were sent twice during this period. Accordingly, participants consisted of 228 academicians. Their ages varied from 23 to 66 with a mean age of 37.43 ($SS=9.02$) while their years of experience varied from 1 to 41 with a mean years of 11.30 ($SS=8.15$). Demographic characteristics of participants were summarized in Table 1.

Table 1. Demographic Characteristics of Participants

Variable	Category	Frequency (f)	Percentage (%)
Gender	Male	149	65
	Female	79	35
Title	Research assistant	46	20
	Instructor	65	29
	Assistant professor	68	30
	Associate professor	30	13
	Professor	19	8
Area of expertise	Medical sciences	25	11
	Science and engineering	120	52
	Social sciences	84	37
Working unit	Vocational school	50	22
	Faculty	168	73
	Others (rektorate, graduate school)	10	5
Workplace	On campus	185	81
	Off campus	43	19
Administrative position	Yes	77	34
	No	151	66

Data Collection

The data were gathered by means of a questionnaire form consisting of 3 main sections. The first section included close-ended and multiple-choice questions aiming to identify demographic characteristics of the participants (gender, age, title, area of expertise, years of experience etc.). The second section of the questionnaire identified the level of academicians' professional development needs via closed-ended items. Unstructured interviews were conducted with 13 academic staff in SDU in order to provide a basis for the items and ensure their content validity. The interviewees were from volunteers selected from various departments and titles as possible (1 professor, 2 associate professors, 4 assistant professors, 2 lecturers, 4 research assistants). The interview participants consisted of five female and eight male.

The interview questions directed to participants basically were about the needs for their professional development. The interviews took place in the participants' offices and lasted 20-25 minutes. The responses of the participants were coded thematically and were analyzed by content analysis method. The findings of the interview data analysis were grouped into seven themes. These were instructional competency, research competency, technology use, legal rights and responsibilities, EU adaption process, self-improvement and effective communication with students. Similar studies

were examined (Baasandorj, 2010; Erişen et al, 2009; Kabakçı and Odabaşı, 2008; Siddiqui, 2006) so that themes could be consistent with the literature and unmentioned issues in the interviews could be covered by themes.

Researchers determined questionnaire items by synthesizing the result of interviews and literature review. The items for identification of needs were restructured as mutually exclusive as possible and as comprehensive as possible and reflecting the working conditions of the academicians. As a result, 42 items were grouped under 6 subscales: teaching (7 items), research (7 items), technology use (8 items), organizational competencies (7 items), self-improvement (5 items) and global competencies (5 items). Likert-type scaling varying from "1=I never need" to "5=I completely need" were used. In order to ensure face validity of the items (the relevance of the questions and the choices, grammatical correctness, compliance with spelling rules) expert opinions were taken from three academicians. In the framework of the feedback, necessary revisions were made and final form of the questionnaire was established.

In the third section of the questionnaire, academicians' preferences on the format of the training programs which might be held in the future were measured. The related questions were about appropriate time, format and methods of the future trainings. The questions were multiple-choice and participants were allowed to select more than one choice. In addition, at the end of the survey, there was an open-ended section that respondents could include their opinions and recommendations.

Validity and Reliability

In order to investigate the factor structure of each subscale in the questionnaire, exploratory factor analysis was employed. Maximum likelihood analysis as extraction method and varimax as factor rotation method were utilized (Büyüköztürk, 2010). For determination of the number of factors, eigenvalue criterion and scree plot were examined.

As a result of the factor analysis, it has been observed that ten items in teaching subscale were grouped under two factors with eigenvalue above 1. Eigenvalues of the factors were 5.75 and 1.06 and variance they explained was 57.50% and 10.58% respectively. Due to the sharply decrease after the first factor in the scree plot and eigenvalue of the first factor being five times greater than the second one, the 10 items were concluded to have a single factor structure. For single factor solution, factor loadings of the items varied between .62-.79. The Cronbach's alpha was calculated as .92.

In the research subscale, it has been observed that seven items were grouped under single factor which had an eigenvalue of 4.27. In the scree plot, a sharply decrease was also observed after this factor. Therefore, it has been concluded that the items have single factor structure. This factor, explains 60.96% of the total variance and factor loadings of the items varied between .65-.85. Cronbach's alpha coefficient of internal consistency for this subscale was calculated as .89.

It was observed that eight items in the technology use subscale were grouped under two factors with eigenvalue above 1. Eigen values of the factors are 4.41 and 1.51 and the variance they explained were 55.12% and 18.85% respectively. Due to the sharply decrease after the first factor in the scree plot and eigenvalue of the first factor being three times greater than the second one, the eight items were concluded to have a single factor structure. For single factor solution, factor loadings varied between .51-.84. Cronbach's alpha of the subscale was calculated as .88.

A total of seven items in the organizational competency subscale was seen to be grouped under a single factor with 4.75 eigenvalue. In the scree plot, a sharply decrease was also observed after this factor. Hence it was concluded that the items had a single factor structure. This factor explained 67.83% of the total variance. Factor loadings of the items varied between .61-.90. Cronbach's alpha of the subscale was calculated as .92.

A total of five items in the self-improvement subscale was seen to be grouped under a single factor with 3.75 eigenvalue. In the scree plot, a sharply decrease was also observed after this factor. Therefore, it was concluded that these items had a single factor structure. This factor explained 75.07%

of the total variance and factor loading of the items varied between .71-.90. Cronbach's alpha of the subscale was calculated as .92.

A total of five items in the global competency subscale was seen to be grouped under a single factor with 3.09 eigenvalue. In the scree plot, a sharply decrease was also observed after this factor. Hence, it was concluded that the items have a single factor structure. This factor explained 61.89% of the total variance. Factor loadings of the items varied between .45-.97. Cronbach's alpha of the subscale was calculated as .84.

Analysis of the Data

At first, descriptive statistics for each item and subscale (mean, standard deviation etc.) in the questionnaire were calculated. The means were interpreted according to value ranges of the Likert scale calculated with the formula "data range/number of groups" (Tekin, 2000) (1.00-1.80=no need, 1.81-2.60=low level need, 2.61-3.40=medium level need, 3.41-4.20=high level need, 4.21-5.00=very high level needed). For determining relations between needs and demographic characteristics, Pearson correlation and multivariate analysis of variance (MANOVA) have been utilized. Prior to MANOVA analysis, skewness and kurtosis coefficients, dual axis scatter plots and Mahalanobis distances of the variables were examined. As a result of this prior analysis, it was seen that the variables satisfied univariate and multivariate normality and linearity assumptions (Büyüköztürk, 2010). For inferential statistics, statistical significance level was determined as .05. However, due to the examination of six subscales (dependent variables) together, significance level was determined to be .01 by making Bonferroni correction (.05/6) in order to prevent increase of Type-1 error (Tabachnick and Fidell 2007).

Findings

Professional Development Need Levels

The mean (M) and standard deviation (SD) of each item in the questionnaire were calculated and presented in Table 2. Moderately and highly needed competency items were marked according to their mean values in Table 2. Based on the overall means of subscales, it was ascertained that there was a medium level of professional development need in every subscale primarily “research” and “global competency” having the highest grand means.

When the competency items were examined within each subscale in Table 2, it was found that participants had medium level needs for psychology and principles of adult learning and teaching methods and techniques in the “teaching” subscale. Regarding “research” subscale, high level needs were identified for awareness of grants available both in and out of the university and collaborative and interdisciplinary work in the projects. Furthermore, medium level needs were found in the competencies of preparation and submission of research proposals, statistical data analysis, and writing and publishing scientific articles. A high level need for developing and publishing websites was found in the “technology use” subscale. In addition to this, medium level needs were found with regards to multimedia development (video, animation, and graphs), hardware and software troubleshooting and the use of software available in the university.

In the “organizational competencies” subscale, medium level needs were identified for the issues of academic legislations, employee rights, duties and responsibilities, ethical and disciplinary rules, quality management, and strategic planning. For the subscale of “self-improvement”, medium level needs were found with regards to stress, chaos and time management. In the “global competencies” subscale, the analysis revealed high level in international cooperation and awareness of international grant programs and medium level needs in bilateral exchange programs, foreign language proficiency and Bologna adaptation process.

Table 2. Descriptive Statistics for Professional Development Needs

Subscale	Competency Item	Mean	SD
Teaching	Knowing and utilizing methods and techniques for adult education*	2,71	1,23
	Implementation of learning psychology and principles for adults*	2,66	1,17
	Providing and maintaining student motivation	2,50	1,16
	Academic counseling and guiding	2,46	1,24
	Measuring and evaluating student achievement	2,37	1,23
	Interaction with students of different cultures and needs	2,37	1,18
	Using computer technologies in education	2,34	1,27
	Adaptation to innovations in content knowledge	2,33	1,27
	Managing class and student behaviors	2,29	1,24
	Instructional planning and implementation (course plan, syllabus, etc.)	2,24	1,23
Overall		2,43	0,92
Research	Awareness of grants both in and out of the university**	3,47	1,34
	Collaborative and interdisciplinary work in the projects**	3,43	1,28
	Preparation and submission of research proposals*	3,10	1,41
	Statistical data analysis*	3,08	1,33
	Writing and publishing scientific articles*	2,83	1,46
	Knowing and following ethical rules in scientific research	2,57	1,41
	Knowing and implementing scientific research methods and techniques	2,56	1,21
Overall		3,01	1,05
Technology use	Developing and publishing websites**	3,60	1,35
	Multimedia production (video, animation, graphics, etc.)*	3,35	1,36
	Dealing with common software and hardware problems*	2,98	1,33
	Using software frequently used in the university*	2,86	1,26
	Online communication (e-mail, video conferencing, social networks, etc.)	2,26	1,23
	Using information access techniques (search engines, databases)	2,15	1,26
	Using operating systems (Windows, etc)	2,04	1,22
	Using basic office programs (Word, PowerPoint, Excel)	1,89	1,16
Overall		2,64	0,94
Organizational competencies	Awareness of laws and regulations related to academicians*	3,23	1,26
	Knowing about academicians' personal rights (title, appointment, etc.)*	3,13	1,37
	Knowing responsibilities of academic and administrative staff*	3,00	1,37
	Quality management and assurance *	2,97	1,18
	Knowing about institutional disciplinary and ethical rules *	2,85	1,36
	Knowing and implementing strategic planning*	2,80	1,20
	Management and leadership	2,50	1,23
Overall		2,92	1,05
Self-improvement	Stress management*	2,80	1,29
	Time management*	2,77	1,35
	Chaos management and reconciliation*	2,75	1,28
	Building relationships with public and partners	2,59	1,16
	Effective communication and presentation skills	2,44	1,23
Overall		2,65	1,09
Global competencies	Cooperation with international institutions and persons**	3,59	1,23
	Awareness of EU and international grant programs**	3,57	1,19
	Knowing and benefiting from Erasmus exchange programs*	3,14	1,30
	Foreign language proficiency*	2,94	1,40
	Implementing Bologna adaptation process (ECTS, DS, etc.)*	2,84	1,28
Overall		3,22	0,99

*Medium level need, **High level need

Professional Development Needs by Demographic Characteristics

Significant low level negative correlations were found between the age of participants and teaching, research, organizational competencies and self-improvement needs (Table 3). Similarly, there existed a significant low level negative correlation between the years of experience and teaching, research, self-improvement and global competencies. The more participants get older and experienced their related needs decrease. Besides, when Table 3 is analyzed, it is apparent that need domains are moderately and positively associated with each other. While need level increases in any domain, the needs in the other domains also increase.

Table 3. Correlation Coefficients between Needs and Age and Years of Experience

Variable	1	2	3	4	5	6	7	8
1. Age	1	0,87**	-0,23**	-0,29**	0,13	-0,29**	-0,17*	-0,12
2. Years of experience		1	-0,21**	-0,24**	0,12	-0,28**	-0,14*	-0,13*
3. Teaching			1	0,58**	0,45**	0,52**	0,64**	0,37**
4. Research				1	0,39**	0,56**	0,48**	0,61**
5. Technology use					1	0,34**	0,44**	0,35**
6. Organizational competencies						1	0,59**	0,49**
7. Self-improvement							1	0,40**
8. Global competencies								1

*p<0,05, **p<0,01

MANOVA analyses were conducted for determination of the relations between need levels and demographic characteristics which had categorical variable structure. The results are presented in Table 4. No significant differences were found in participants' professional needs in terms of age [Wilks' λ =.94, $F(6, 221)$ =2.48, η^2 =.06, $p>.01$], area of expertise [Wilks' λ =.90, $F(12, 440)$ =1.99, η^2 =.05, $p>.01$] and having an administrative position [Wilks' λ =.98, $F(6, 221)$ =.95, η^2 =.03, $p>.01$].

Table 4. MANOVA Results for Differences in Needs by Demographic Characteristics

Demographic characteristic	Wilks' λ	F	Hypothesis df	Error df	p	η^2
Gender	0,94	2,48	6	221	0,02	0,06
Title	0,76	2,55	24	761,72	0,00	0,07
Area of expertise	0,90	1,99	12	440	0,02	0,05
Working unit	0,87	2,66	12	440	0,00	0,07
Workplace	0,91	3,61	6	221	0,00	0,09
Administrative position	0,98	0,95	6	221	0,46	0,03

On the other hand, MANOVA tests showed that professional development needs significantly varied in terms of title [Wilks' λ =.76, $F(24, 761.72)$ =2.55, η^2 =.07, $p<.01$]. When the follow-up univariate analysis of variance (ANOVA) results for each subscale in Table 5 were examined, significant differences were found only in teaching [$F(4, 223)$ =3.66, η^2 =.06, $p<.01$] and research [$F(4, 223)$ =5.08, η^2 =.08, $p<.01$] needs in terms of title. Bonferroni tests were employed to find out between which titles the differences occur. Accordingly, the needs of the research assistants ($M=2.86$, $SD=.94$) for teaching were greater than that of assistant professors ($M=2.23$, $SD=.85$). Furthermore, the needs of research assistants ($M=3.38$, $SD=.98$) and lecturers ($M=3.26$, $SD=1.09$) for research were more than that of associate professors ($M=2.57$, $SD=1.13$) and assistant professors ($M=2.77$, $SD=1.09$).

In MANOVA analyses, participants' needs varied significantly in terms of working unit [Wilks' λ =.87, $F(12, 440)$ =2.66, η^2 =.07, $p<.01$]. The follow-up ANOVA results for each subscale (Table 5) showed significant differences only in the global competencies [$F(2, 225)$ =4.33, η^2 =.04, $p<.01$]. According to Bonferroni tests, the needs of participants working in faculties ($M=3.10$, $SD=1.01$) for global competencies were lower than that of those working in vocational schools ($M=3.51$, $SD=.86$).

In addition, MANOVA analyses revealed that professional development needs significantly varied in terms of workplace [Wilks' $\lambda=0.91$, $F(6, 221)=3.61$, $\eta^2=0.09$, $p<0.01$]. The follow-up ANOVA results for each subscale (Table 5) showed significant differences only in the teaching needs [$F(1, 226)=7.77$, $\eta^2=0.03$, $p<0.01$]. According to Bonferroni tests, teaching needs of participants working in the campus ($M=2.51$, $SD=.94$) were higher than that of those working out of the campus (districts) ($M=2.08$ $SD=.76$).

Table 5. Follow-up ANOVA Results for Differences in Needs by Demographic Characteristics

Demographic characteristic	Need subscale	SS	df	MS	F	p	η^2
Title	Teaching	11,94	4	2,98	3,66	0,00	0,06
	Research	20,99	4	5,25	5,08	0,00	0,08
	Technology use	1,51	4	0,38	0,43	0,79	0,01
	Organizational competencies	7,23	4	1,81	1,64	0,16	0,03
	Self-improvement	4,63	4	1,16	0,97	0,43	0,02
	Global competencies	9,26	4	2,31	2,40	0,05	0,04
Working unit	Teaching	5,91	2	2,96	3,54	0,03	0,03
	Research	4,44	2	2,22	2,02	0,14	0,02
	Technology use	3,20	2	1,60	1,84	0,16	0,02
	Organizational competencies	1,02	2	0,51	0,45	0,64	0,01
	Self-improvement	4,65	2	2,32	1,96	0,14	0,02
	Global competencies	8,31	2	4,16	4,33	0,01	0,04
Workplace	Teaching	6,44	1	6,44	7,77	0,00	0,03
	Research	0,18	1	0,18	0,17	0,68	0,00
	Technology use	1,66	1	1,66	1,90	0,17	0,01
	Organizational competencies	1,60	1	1,60	1,44	0,23	0,01
	Self-improvement	6,64	1	6,64	5,67	0,02	0,02
	Global competencies	2,67	1	2,67	2,72	0,10	0,01

Preferences towards Future Training Programs

Frequencies and percentages of the participants' preferences regarding future in-service training programs were given in Table 6. Four-fifths of the participants prefer face-to-face training, two-thirds of the participants demand trainings to be arranged in weekdays, and more than half of the participants prefer them to be arranged with project-based or problem-based learning or collaborative learning methods.

Table 6. Descriptive Statistics for Future Training Programs

Feature	Category	Frequency (f)	Percentage (%)
Training type	Face-to-face (seminar, etc.)	182	79
	Online synchronous (video conference, etc.)	90	39
	Online asynchronous (website, Wiki, etc.)	78	34
Training time	Weekdays	152	66
	Weekends	50	22
	Mid-term breaks	75	33
	Summers	80	35
Training method	Lecture	61	27
	Project-based or problem-based learning	156	68
	Collaborative learning (teamwork)	136	59
	Individual learning	62	27
	Mentor-supported teaching	92	40

Discussion and Conclusion

Results of this study aiming to investigate academicians' professional development needs with an interdisciplinary approach are consistent with previous studies conducted on a single discipline (e.g., education, technical education) or a single academic title (e.g., research assistants) (Erişen et al., 2009; Kabakçı and Odabaşı, 2008). Since student population in universities is in adult age group, academic staff needs to be well equipped and skilled especially in adult learning. In this point, it is important that pedagogical formation courses (development and learning, instructional planning and assessment) given to doctoral students, who are getting ready for academic life, are needed to be compulsory and their contents are needed to be developed in accordance to adult education. The finding of research assistants being more open to professional development in teaching also supports this importance.

The needs in the research subscale suggest that more importance should be given to scientific research principles, quantitative data analysis techniques and project management skills in the education of graduate students who prepare for academic life. Moreover, activities informing about national and international projects and grants programs can be arranged regularly for academic staff. These activities can include subjects determined within the frame of academicians' needs such as research techniques and article writing, preparation of project proposals, and project management. In this way, academicians can also be motivated for participation to training programs. Universities should promote all kinds of activities that will increase interdisciplinary cooperation. Required basis and conditions need to be provided for meetings that academicians from distinct disciplines participate. Thus, such actions can contribute to the development of a cooperative research and development culture within the institution. Contemporary paradigmatic changes in higher education also point to institutional restructuring in which students and academicians from distinct disciplines interact in teaching and research projects (Şimşek and Adıgüzel, 2012).

The need reported on multimedia content development, software and hardware troubleshooting and frequently used software in the university reveals that participants do not have enough knowledge and skills in interactive technologies and software programs used for content and material development. Technical problems that academic staff confronts may due to the lack of staff who can provide technical support.

Participants' needs germane to self-improvement subscale put forth that academic profession is a stressful job contrary to perception. These needs may arise from heavy course load and financial concerns in the universities except for those located in central and major cities such as Istanbul, Ankara, and Izmir in Turkey (Atılğan et al., 2014).

One of the reasons for the needs reported on global competencies might be that academicians experience problem in foreign language proficiency and international communication skills. This problem was also put forward in similar studies (Erişen et al., 2009; Odabaşı, 2007). Establishing international cooperation requires learning and using foreign languages, following international conferences, keeping up with global changes, and publishing international papers. Accordingly, it is considered appropriate that attempts to international academic cooperation and promoting publishing are assessed within the scope of strategic planning.

It is observed that professional development needs vary according to some demographic characteristics. Age and years of experience were found as negative predictors. This finding may be an indicator that professional development needs decrease as age and years of experience increase. Prior research in the literature has also revealed various training needs based on research assistants' lack of course load and experience (Moeini, 2003). On the other hand, the finding that research assistants and instructors have much more needs towards teaching compared to assistant professors can be interpreted as that they are more open to learning. Academicians working in off-campus locations (i.e., towns) consist of mostly instructors in vocational schools. Since both main responsibility of instructors and principal function of vocational schools are teaching, it is expected that they have fewer needs towards teaching. The more academicians give lectures, the more they develop in teaching. However, since

academicians working in faculties focus on research in addition to teaching, they may have less teaching loads. Positive and moderate relationship between need levels of teaching and research shows that academicians can develop themselves in both areas. The finding of research assistants and instructors reporting more needs in research subscale indicates that they are open to opportunities for increasing their competencies in research methods and techniques. This is consistent with findings of Khan and Sarwar (2011). Unless instructors take master's degree, opportunities for them to develop themselves are quite limited. Additionally, findings demonstrate that participants working in vocational schools have more needs in global competencies than those working in faculties. This might be due to the fact that most academicians working in vocational schools are instructors whose main responsibility is teaching and who use foreign languages less. Also, vocational schools focus on mainly training technically-skilled persons rather than doing research & development.

Most of the participants prefer future training programs to be arranged in a face-to-face manner and in weekdays by supporting constructive teaching methods (group works, project and problem based teaching, etc.). Odabaşı (2003) and Kabakçı and Odabaşı (2008) found that academic staff and research assistants have similar educational preferences. Moreover, in the studies carried out by Siddiqui (2006) and Moeini (2003), it was found that academicians preferred professional development activities in workshop format. However they did not prefer online trainings. This indicates that academic staff opts for active trainings including application and practice of what they learn.

On the whole, participants have professional development needs in areas of teaching, technology use, organizational competencies, self-improvement and primarily research and global competencies. Before making decisions on professional development, determination of academicians' needs and training preferences is important in terms of both the efficiency of such programs and the satisfaction of academicians.

This study has some limitations as every study does and findings should be evaluated in this context. Firstly, the data was gathered only from one university and certain number of academicians in Turkey. Accordingly, findings mainly represent the institution in which the study was conducted. Another limitation results from the use of a single data gathering technique (electronic questionnaire). Therefore, academicians' professional development needs should be analyzed in detailed manner by employing both quantitative and qualitative research patterns in prospective studies.

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