






Perceptions of Doctoral Students: Satisfaction, Difficulties, Gained Skills and Performance in Publishing in Academic Journals

Doktora Öğrencilerinin Algıları: Memnuniyetleri, Zorlukları, Kazandıkları Vasıflar ve Akademik Dergilerde Yayın Performansları

Veysel Bozkurt¹ , Elvan Yalçınkaya² , Abdullah Karataş³ , Mustafa Talas⁴ , Arzu Şahin⁵ 

¹Department of Economic Sociology, Faculty of Economics, Istanbul University, Istanbul, Turkey

²Department of Turkish and Social Sciences Education, Faculty of Education, Erciyes University, Kayseri, Turkey

³Department of Management and Organization, Niğde Vocational School of Social Sciences, Niğde Ömer Halisdemir University, Niğde, Turkey

⁴Department of Educational Sciences, Faculty of Education, Niğde Ömer Halisdemir University, Niğde, Turkey

⁵Department of Media and Communication Studies, Graduate School of Social Sciences, Galatasaray University, Istanbul, Turkey

Özet

Bu çalışmanın amacı; doktora öğrencilerinin; doktora programlarının içeriği, öğretim üyeleri ve doktora alanı konusundaki algılarını incelemektir. Ayrıca doktora öğrencilerinin akademik dergilerde yayın yapma performanslarını etkileyen faktörlerin belirlenmesi amaçlanmıştır. Bu amaçla 15 farklı üniversiteden 1367 doktora öğrencisine yüz yüze ve çevrimiçi olarak bir “Doktora Eğitimi Değerlendirme Anketi” uygulanmıştır. Temel bileşenler analizi, 4 faktör ortaya çıkartmıştır. Ders aşamasında doktora öğrencilerinin çoğunluğu, doktora programının içeriğinden, doktora yapılan alandan ve öğretim üyelerinden memnun olduklarını ifade etmişlerdir. Ancak zamanla öğrencilerin farkındalıkları arttıkça, şikâyetleri de artmaktadır. Yeterlik sınavı aşamasında, doktora öğrencilerinin memnuniyetsizlikleri, en üst seviyeye ulaşmaktadır. İkinci yıldan itibaren, doktora öğrencilerinin doktora programlarının içeriğinden, doktora yapılan alandan ve öğretim üyelerinden memnuniyetleri, istatistiksel olarak anlamlı fark yaratıcı şekilde azalmaktadır. Özellikle sosyal bilimlerde çalışanlar, araştırma yöntemlerinin yeterince öğretilmediğinden şikâyet etmektedir. Doktora öğrencilerinin akademik dergilerde yayın yapma performansını etkileyen faktörleri belirlemek için ikili lojistik regresyon uygulanmıştır. Doktora öğrencilerinin uluslararası akademik sempozyumlara katılımları, yayın yapmalarını yordayan en önemli değişken olmuştur. Diğer yordayıcı değişkenler; doktora öğrencilerinin bir projede yer alması, üniversitede araştırma görevlisi olarak çalışması ve ders aşamasını tamamlamasıdır. Doktora öğrencilerinin, danışmanları veya meslektaşları ile akademik kongrelere katılımını teşvik etmek akademik dergilerde yayın performansının artmasına katkıda bulunacaktır.

Anahtar sözcükler: Algi, doktora öğrencileri, memnuniyet, yayın performansı.

Abstract

The aim of this study was to examine the perceptions of doctoral students about the content of doctoral programs, faculty and doctoral field. It was also aimed at determining the indicators that affect doctoral students' performance in getting published in academic journals. For this purpose, 1367 doctoral students from 15 different universities were administered a “Doctoral Education Evaluation Survey” face-to-face and online. Principal component analysis revealed 4 factors. The majority of doctoral students at the course stage are satisfied with the content of the doctoral program, the faculty members and the doctoral field. As the students' awareness increases over time, their complaints increase. The dissatisfaction of doctoral students reaches the highest level, at the proficiency stage. Furthermore, from the second year on, there is a decline in the satisfaction of doctoral students with the content of the doctoral programs, with the faculty members and the opportunities offered by the doctoral field, to a statistically significant extent. Especially those working in the social sciences complain that research methods are not taught enough. Binary logistic regression was applied to determine the indicators affecting the publication performance of the doctoral students in academic journals. The participation of doctoral students in international academic symposiums emerged as the most important indicator. The other predictive variables are doctoral students' participation in a project, working as a research assistant at the university, and completion of the course stage. Encouraging the participation of doctoral students in academic congresses with their advisors or their colleagues will contribute to increasing their publication performance.

Keywords: Doctoral students, perception, publication performance, satisfaction.

Doctoral education is a long, painful and exhausting process. As the peak of education, it requires competence, commitment, time and energy. PhD students are generally selected from among the most successful stu-

dents. They are the future lecturers, potential leaders and scientists, constituting the workforce that will provide a high level of production of knowledge. Doctoral education can be viewed as a kind of intellectual and cultural maturity and pro-

İletişim / Correspondence:

Prof. Dr. Veysel Bozkurt
Faculty of Economics, Istanbul
University, Istanbul, Turkey
e-mail: vbozkurt@istanbul.edu.tr

Yükseköğretim Dergisi / Journal of Higher Education (Turkey), 11(2 Pt 1), 263–275. © 2021 Deomed

Geliş tarihi / Received: Ocak / January 22, 2019; Kabul tarihi / Accepted: Temmuz / July 3, 2020

Bu makalenin atıf künyesi / How to cite this article: Bozkurt, V., Yalçınkaya, E., Karataş, A., Talas, M., & Şahin, A. (2021). Perceptions of doctoral students: Satisfaction, difficulties, gained skills and performance in publishing in academic journals. *Yükseköğretim Dergisi*, 11(2 Pt 1), 263–275. doi:10.2399/yod.20.516442

ORCID ID: V. Bozkurt 0000-0001-7623-3132; E. Yalçınkaya 0000-0003-1838-0411;

A. Karataş 0000-0002-5120-1203; M. Talas 0000-0002-0031-489X; A. Şahin 0000-0001-6429-1212

iciency test. Students gain independent research skills and develop their mental capabilities during this process (Akbulut, Şahin, & Çepni, 2013; Bernstein, Evans, Fyffe, Halai, & Hall, 2014; Lei, 2008; Parry, 2007).

The advent of a knowledge-based economy has increased the demand for a highly skilled workforce (*i.e.* PhD). The training process is steadily extending, and as a result of this steadily extending education process, doctoral programs have started to apply similar standards worldwide. Therefore, problems are similar in many respects.

Most doctoral students fail to complete their doctoral programs (Jairam & Kahl, 2012). In terms of student's success, the relationship with faculty members (especially with supervisors) is of critical importance. Supervisors are also role models for students and create the microclimate that affects the work of doctoral students (Christensen & Lund, 2014; Karadağ, Danişman, Dulay, Öztekin Bayır, & Tekel, 2018). To improve the quality of education, it will be useful to know the form of this relationship and to have feedback from students (measure their perceptions) (Mainhard, van der Rijst, van Tartwijk, & Wubbels, 2009). PhD education is a learning process, and at every stage of this process, students need support from faculty members. The strong relationship between the supervisor and the student is important in order to minimize the consequences of problems the student may have in the thesis writing process and to find solutions for these situations. A weak relationship with the doctoral supervisor will ruin a good doctoral project, irrespective of any or all of the other elements that may support it. The collaboration between students and faculty members is an important factor in successfully completing doctoral studies, as cooperation with the consultant increases the student's satisfaction, motivation and success (Bahçeci & Uşengül, 2018; Katz, 2016). In particular, if the supervisor has sufficient knowledge of the student's working subject, this will facilitate the work of the student and help to overcome some barriers (Ames, Berman, & Casteel, 2018).

The power relationship between supervisor and student is an unequal relationship. PhD students cannot always find what they expect from the faculty members. When the metaphors that PhD students adopt to describe their relationships with faculty members are examined, it can be seen that both positive and negative metaphors are used (Limon & Durnali, 2018). The problems experienced with supervisors, which have been mentioned in research, are listed as follows: lack of communication, not allocating enough time for the student, not giving feedback, and not sharing his/her knowledge with the student. It has been reported that 89% of the

students find solutions to their problems by examining the existing theses and 42% resolve their problems by talking to their friends (Akbulut et al., 2013; Bahçeci & Uşengül, 2018; Bakioğlu & Gürdal, 2001; Özmen & Güç, 2013).

In addition to developing the competence to conduct scientific research, one of the main aims of doctoral education is to prepare students for their career. However, some studies report that doctoral education does not achieve this and that doctoral students do not know what doctoral education means and how the process works. There are differences between students' dreams and facts outside the academy. PhD students insist on becoming a faculty member and doctoral programs prepare them for universities as well (Golde & Dore, 2001). Scientific research methods are of special importance for PhD students who will be the scientists of the future (Golde & Dore, 2001; Kürşad, 2015). Students who successfully complete the research methods course in their PhD courses can be expected to be more successful in publishing their work.

However, research writing is a complex process and requires special preparation (Sala-Bubaré, Peltonen, Pyhältö, & Castelló, 2018). Students who pass the research methods course are expected to have higher research self-efficacy, to conduct higher-quality research and to demonstrate lower writing anxiety (Lei, 2008; Saral & Reyhanlioğlu, 2015). Furthermore, students with research and writing competence may be expected to have high potential for publication in national or international journals, in addition to their dissertations. Thus a higher number of academic publications can be expected from students who are satisfied with the content of their doctoral courses and the faculty members (especially the supervisor).

In the first year of doctoral education, many subjects described in the lessons for students are quite new and exciting. Faculty members are glorified in the eyes of the students and their expectations tend to be quite high. However, as time goes by, students' knowledge increases and they begin to recognize the shortcomings of faculty members (or supervisors). The stress created by the proficiency exam and the dissertation also begins to decrease the overall satisfaction level. According to some studies, doctoral students begin to see their supervisors as insufficient after the first year (Bakioğlu & Gürdal, 2001; Gube, Getenet, Satariyan, & Muhammad, 2017).

On the other hand, as doctoral students discuss their research topics with their peers, the friends of doctoral students are often as important as their supervisors. They social-



ize, collaborate and learn from each other. Positive experiences of the students with their peers reinforce their loyalty to the doctoral university (Wolfe, Nelson, & Seamster, 2018).

It is, of course, important that students acquire independent research skills. Mason (2012) found a positive relationship between autonomy and motivation to continue the PhD. According to Gardner (2008), too much interference with students is damaging to their independence, although a perceived lack of interest creates a sense of abandonment. Sometimes working alone can be useful to produce original ideas, but loneliness can reduce motivation. It can increase students' insecurity, causing them to cast doubt on their abilities, and thereby adversely affecting their success. However, an inclusive environment can enhance students' confidence and success. Previous research has shown that working with other thesis students has a positive effect on the studies of doctoral students (Bakioğlu & Gürdal, 2001; Christensen & Lund, 2014).

As mentioned above, doctorate study is a long and challenging path. Especially for doctoral students who are working at the same time, the excessive workload is a serious problem. Problems such as sacrificing any social life, material difficulties, and the relationship with the supervisor, lessons, foreign language, etc. have been emphasized in research. Many doctoral students have stated that they are not sufficiently interested in their dissertation due to the intensity of their advisors (Karadağ et al., 2018; Limon & Durnalı, 2018; Özmen & Güç, 2013).

In this study, doctoral education will be evaluated from the perspective of doctoral students, because the examination of the doctoral education from the perspective of the students can contribute to better learning and understanding of the problems in the functioning of the system (Golde & Dore, 2001). In Turkey, the number of extensive research studies measuring the perceptions of doctoral students is low enough to be negligible. Therefore, the aim of this paper was to examine the perceptions of doctoral students about the PhD programs and the factors affecting their publishing performance. Thus, it aimed to increase the publishing potential of students and to contribute to the quality of education with a comprehensive sample.

Aim of the Study

The aim of this study was to measure the satisfaction of doctoral students with the content of the doctoral program, faculty members, the doctoral field, and the physical and environmental opportunities. It was also aimed to reveal the employment concerns encountered.

Method

A total of 1367 students from 15 different universities voluntarily participated in this study. The survey was conducted both online and face-to-face, with 511 surveys (37.38%) administered face-to-face and 836 PhD students (62.62%) answered the questionnaires online. The personal information of the sample is shown in ■ Table 1.

The sample of doctoral students in the research comprised 46.9% females and 53.1% males mainly in the age range of 20–40 years, although there were some individuals aged ≥ 51 years who were continuing their doctoral education. In respect of specific fields of study, 43.9% of the participants were enrolled in the Graduate School of Social Sciences, 28.1% in the Graduate School of Natural Sciences, 22.7% in the Graduate School of Medical Sciences, 4.1% in the

■ Table 1. Demographical information of the sample.

| Personal information | | n | % |
|----------------------|---|------|------|
| Gender | Female | 637 | 46.9 |
| | Male | 722 | 53.1 |
| | Total | 1359 | 100 |
| Age | 20–30 | 718 | 53.9 |
| | 31–40 | 525 | 39.4 |
| | 41–50 | 69 | 5.2 |
| | 51 and over | 21 | 1.6 |
| | Total | 1333 | 100 |
| Marital status | Single | 700 | 51.7 |
| | Married | 654 | 48.3 |
| | Total | 1354 | 100 |
| Enrolled grad school | Social sciences | 595 | 43.9 |
| | Educational sciences | 56 | 4.1 |
| | Natural sciences | 381 | 28.1 |
| | Medical sciences | 308 | 22.7 |
| | Other | 16 | 1.2 |
| | Total | 1356 | 100 |
| Doctoral stage | Course stage | 459 | 33.9 |
| | Proficiency stage | 215 | 15.9 |
| | Dissertation stage | 678 | 50.1 |
| | Total | 1352 | 100 |
| Employment status | Research assistant (Article 35) | 132 | 10.3 |
| | Research assistant (Article 50) | 151 | 11.7 |
| | Permanent research assistant (Article 33/a) | 105 | 8.2 |
| | Teaching staff training program | 78 | 6.1 |
| | Working outside the university | 375 | 29.2 |
| | Not working | 445 | 34.6 |
| | Total | 1286 | 100 |

Graduate School of Educational Sciences, and 1.2% in other graduate schools. The stage of doctoral education was determined as the course stage in 33.9%, the proficiency (preliminary) stage in 15.9%, and the dissertation stage in 50.1%. Of the whole sample in doctoral education, 34.6% indicated that they did not have any jobs, 29.2% worked outside the university, and the other participants worked in various positions in universities.

Collection and Analysis of the Data

The Doctoral Education Evaluation Survey form was used as the data collection tool, to determine the students' problems, their gains from doctoral programs and their satisfaction. In the process of creating the questionnaire, the opinions of many faculty members and doctoral students were consulted. The form is composed of two sections. Personal information (age, gender, marital status, graduate school enrolled, doctoral stage, employment situation), and questions related to academic publication status (publication in national and international academic journals, presentations, working on a project) are included in the first section, and the second contains questions on doctoral education.

A pre-test was conducted with 30 PhD students to finalise the questionnaire. According to the pre-test results, some of the questions were modified and some expressions were changed. In face-to-face interviews, support was received from the managers of the graduate schools of social, natural, medical and educational sciences.

The questionnaire items are answered on a 5-point Likert-type scale (1–5) ranked as “strongly agree”, “agree”, “neither agree nor disagree”, “disagree”, and “strongly disagree”. The arithmetic mean obtained for each item was calculated to determine the level of agreement and was evaluated according to the ranges below:

- 1.00–1.80: Strongly disagree
- 1.81–2.60: Disagree
- 2.61–3.40: Neither agree nor disagree
- 3.41–4.20: Agree
- 4.21–5.00: Strongly agree

The data obtained in the survey were analysed by using the SPSS 24.0 (Statistical Program for Social Sciences) software. In the analysis of the data, explanatory factor analysis (principal component analysis), the independent samples *t*-test, one-way analysis of variance (ANOVA), descriptive statistics, and logistic regression were used.

The principal component analysis was applied to the Likert-type responses. The items are collected under four

factors with eigenvalue 1 and over as shown in ■ Table 2. The first factor (F1) grouped items related to the “*General satisfaction from the doctoral program content and the faculty members*”. The Cronbach's alpha reliability coefficient of F1 was found to be 0.97. The second factor (F2) related to items about the “*Satisfaction with the doctoral field*” with a Cronbach's alpha reliability coefficient value of 0.85. The third factor (F3) included four items related to “*Satisfaction with the opportunities that the doctoral field offers*” and the Cronbach's alpha reliability coefficient value is .70. The fourth factor (F4) included items concerning “*The skills that the doctoral program brought*” and the Cronbach's alpha reliability coefficient value was 0.80. Within the analysis, only items with a factor load score >0.49 were included and thus, three items were removed due to the low reliability scores. This shows that the survey is a quite reliable measurement tool. It is assumed that the data is normally distributed when Skewness and Kurtosis values are between -1.5 and 1.5 (Tabachnick & Fidell, 2013). Since Skewness and Kurtosis values are within acceptable limits, parametric tests such as *t*-test and ANOVA were preferred.

Results

The results of the analyses used within the study (independent samples *t*-test, one-way analysis of variance (ANOVA), descriptive statistics and logistic regression) are explained in this section. The academic publication status of the participant doctoral students according to their doctoral stages are presented in ■ Table 3.

According to the total results, most of the participant doctoral students had no publication in academic journals ($n=705$) and were not working on any project ($n=938$). However, most ($n=734$) had a paper presentation. Students with a publication in an academic journal ($n=640$) had their paper published in a *national* (30%) or an *international* (30.4%) academic journal. Students working on a project ($n=398$), were generally working as a coordinator, researcher, or scholar. The doctoral students in the dissertation stage were those with the most publications ($n=404$) and presentations ($n=434$), and who were working most on a project ($n=236$).

■ Table 4 shows information about the academic publication status of the PhD candidates according to their institute. As seen in ■ Table 4, the highest number of publications in academic journals belong to students enrolled firstly, in social sciences ($n=247$) and secondly in natural sciences ($n=232$). In terms of paper presentations, although the natural sciences are ranked as the first graduate schools ($n=270$), they have nearly the same number of paper presentations as the social sciences



Table 2. Factor structure of Doctoral Education Evaluation Survey.

| | Component | | | |
|--|-----------|------|------|------|
| | F1 | F2 | F3 | F4 |
| A2- I believe that the lecturers take care over the doctorate lessons | .823 | | | |
| A6- The lecturers come to the lessons prepared | .819 | | | |
| A3- The doctorate lessons are running as they should be | .790 | | | |
| A22- The lessons are generally well-planned | .756 | | | |
| A5- The lecturers make time for the students | .755 | | | |
| A7- I think the lecturers are competent in the areas of which they are giving lessons | .725 | | | |
| A8- I think the content of the lessons is up-to-date | .721 | | | |
| A11- The doctorate program meets my expectations | .720 | | | |
| A19- I believe that the feedback given to students from seminars and assignments is made after careful evaluation by the lecturers | .720 | | | |
| A1- My doctorate program was as I expected in an academic sense | .705 | | | |
| A26- I believe that the lecturers share information with the students | .688 | | | |
| A9- I think that the lecturers clearly express what they expect from us in the lessons | .685 | | | |
| A28- I think that the lecturers measure the success of the lessons objectively | .684 | | | |
| A4- The doctorate program is beneficial for my academic development | .663 | | | |
| A10- I find the content of the doctorate lessons intellectually stimulating | .634 | | | |
| A35- I think that the doctorate education I have received is of international standards | .571 | | | |
| A15- I believe that the research methods are taught sufficiently | .563 | | | |
| A33- I am pleased to be taking my doctorate at this university | .482 | | | |
| A12- I am taking the doctorate program in my ideal area | | .830 | | |
| A14- If I had another chance. I would still take a doctorate in the same area | | .799 | | |
| A32- I am satisfied with this doctorate program | | .761 | | |
| A13- I believe that the outcomes of my doctorate work will contribute to society | | .668 | | |
| A34- I think that the international student exchange program is adequate | | | .737 | |
| A31- I have access to the resources I need for my research. | | | .678 | |
| A25- I think the physical facilities in the doctorate program are sufficient | | | .675 | |
| A27- I believe that there is sufficient academic communication between the students | | | .445 | |
| A17- During the doctorate program I think I have developed the skills to be able to deal with unexpected difficulties | | | | .818 |
| A16- The doctorate program has given me the skills to approach problems from a different perspective | | | | .730 |
| A21- I have become used to teamwork during the doctorate program | | | | .612 |
| A20- I believe that the doctorate program has contributed to my creativity and innovation | | | | .525 |

Extraction method: Principal component analysis. Rotation method: Varimax with Kaiser normalization. KMO: .97; Explained variance: .64.49; Eigenvalue: 1.

($n=269$). The highest number of doctoral students who reported working on a project ($n=177$) were enrolled in natural sciences graduate schools.

Table 5 shows the results of the one-way ANOVA analysis related to the differences by age in the opinions of the doctoral students about doctoral education. A statistically significant difference was determined in the F1 scores “the general satisfaction from the doctoral education content and the faculty members” ($F_{(2-1330)}=7.57; p<0.05$) as the mean value

of the opinions of those aged 21–28 years (3.33) was lower than that of students aged 29–32 years (3.44) and of those aged ≥ 33 years (3.59).

There was a statistically significant difference in respect of the F2 values of “the satisfaction with the opportunities that the doctoral field offers” according to age ($F_{(2-1330)}=3.61; p<0.05$). This was due to the mean value of the opinions of the doctoral students aged 21–28 years (3.95) being lower than that of those aged 29–32 years (4.01) and of those aged ≥ 33 years (4.11).

Table 3. Academic publication status of the doctoral students by their doctoral stage.

| Publication | | Doctoral stage | | | Total |
|----------------------------------|-------|------------------|-----------------------|------------------------|-------|
| | | Course stage (n) | Proficiency stage (n) | Dissertation stage (n) | |
| Publication in academic journals | No | 312 | 123 | 270 | 705 |
| | Yes | 144 | 92 | 404 | 640 |
| | Total | 456 | 215 | 674 | 1345 |
| Paper presentation | No | 234 | 109 | 230 | 573 |
| | Yes | 200 | 99 | 435 | 734 |
| | Total | 434 | 208 | 665 | 1307 |
| Working in a project | No | 348 | 154 | 436 | 938 |
| | Yes | 106 | 56 | 236 | 398 |
| | Total | 454 | 210 | 672 | 1336 |

Table 4. Academic publication status of the doctoral students by their graduate school.

| Publication | | Graduate school | | | | | Total |
|----------------------------------|-------|---------------------|--------------------------|----------------------|----------------------|-----------|-------|
| | | Social sciences (n) | Educational sciences (n) | Natural sciences (n) | Medical sciences (n) | Other (n) | |
| Publication in academic journals | No | 344 | 25 | 149 | 182 | 6 | 706 |
| | Yes | 247 | 31 | 232 | 123 | 10 | 643 |
| | Total | 591 | 56 | 381 | 305 | 16 | 1349 |
| Paper presentation | No | 303 | 24 | 108 | 133 | 7 | 575 |
| | Yes | 269 | 31 | 270 | 157 | 9 | 736 |
| | Total | 572 | 55 | 378 | 290 | 16 | 1311 |
| Working in a project | No | 465 | 39 | 200 | 222 | 12 | 575 |
| | Yes | 120 | 16 | 177 | 85 | 4 | 736 |
| | Total | 585 | 55 | 377 | 307 | 16 | 1340 |

Table 5. The results of one-way ANOVA related to the differences among opinions of the doctoral students about the doctoral education with respect to their age status.

| Dimensions | | Sum of squares | df | Mean squares | F | p | Mean difference |
|--|----------------|----------------|------|--------------|--------|-------|-----------------|
| General satisfaction with the doctoral education content and the faculty members | Between groups | 15.152 | 2 | 7.576 | 9.107 | .000* | |
| | Inside groups | 1106.360 | 1330 | .832 | | | 1<2, 2<3 |
| | Total | 1121.511 | 1332 | | | | |
| Satisfaction with the doctoral field | Between groups | 5.329 | 2 | 2.664 | 3.618 | .027* | 1<2, 2<3 |
| | Inside groups | 979.426 | 1330 | .736 | | | |
| | Total | 984.754 | 1332 | | | | |
| Satisfaction with the opportunities offered by the doctoral program | Between groups | 18.044 | 2 | 9.022 | 13.258 | .000* | 1<2, 2<3 |
| | Inside groups | 903.712 | 1328 | .681 | | | |
| | Total | 921.756 | 1330 | | | | |
| Skills gained from doctoral program | Between groups | 1.380 | 2 | .690 | .900 | .407 | |
| | Inside groups | 1019.875 | 1330 | .767 | | | |
| | Total | 1021.255 | 1332 | | | | |

* $p < 0.05$; Categories: Aged between 21–28= 1; Aged between 29–32= 2; Aged ≥ 31 = 3.



Table 6. Independent samples *t*-test results related to the gender-based differences among the opinions of the doctoral students about doctoral education.

| Factors | Gender | n | Average | S | t | sd | p |
|--|--------|-----|---------|-----|------|------|------|
| General satisfaction with the doctoral education content and the faculty members | Woman | 637 | 3.4713 | .88 | .70 | 1357 | .483 |
| | Man | 722 | 3.4362 | .94 | | | |
| Satisfaction with the doctoral field | Woman | 637 | 4.0506 | .84 | 1.03 | 1357 | .302 |
| | Man | 722 | 4.0023 | .87 | | | |
| Satisfaction with the opportunities offered by the doctoral program | Woman | 637 | 2.9754 | .80 | 1.18 | 1355 | .237 |
| | Man | 720 | 3.0291 | .86 | | | |
| Skills gained thanks to doctoral program | Woman | 637 | 3.6272 | .85 | 1.77 | 1357 | .077 |
| | Man | 722 | 3.5424 | .89 | | | |

According to age groups, there is statistically significant differentiation in doctoral students' satisfaction from the doctoral field ($F_{(2-1328)}=13.258; p<0.05$). But the findings showed that age does not play a determining role in their opinions on the skills gained from the doctoral program (F4). There was no statistically significant difference in the opinions on "the skills that doctoral education brought" ($F_{(2-1330)}=1.46; p>0.05$) in respect of age.

Table 6 shows the results of the independent samples *t*-test results regarding the gender-related differences in the opinions of the doctoral students about doctoral education. As shown in Table 6, there were no statistically significant gender-based differences in the satisfaction with the content of the doctoral program and general satisfaction with the faculty members ($t_{(1357)}=0.70; p>0.05$), satisfaction with the doctoral field ($t_{(1357)}=1.03; p>0.05$), satisfaction with the opportunities that the doctoral field offers ($t_{(1355)}=1.18; p>0.05$), and their opinions on the skills that the doctoral program brought

($t_{(1357)}=1.77; p>0.05$). Based on the findings obtained, it can be said that gender does not have a determining role on the opinions about these dimensions.

Table 7 shows the results of the independent samples *t*-test results related to the differences in the opinions of the doctoral students about their doctoral education by marital status. As seen in Table 7, there was a statistically significant difference in the doctoral students' satisfaction with the content of their doctoral program and general satisfaction with the faculty members ($t_{(1352)}=-3.41; p<0.05$), the satisfaction with the opportunities that the doctoral field offers ($t_{(1352)}=-3.47; p<0.05$) and their opinions about the financial and administrative difficulties ($t_{(1348)}=3.46; p<0.05$) by marital status. However, no statistically significant marital status-based difference was found in their satisfaction with the doctoral field ($t_{(1352)}=-1.79; p>0.05$) and their opinions on the skills that the doctoral program brought ($t_{(1352)}=-1.41; p>0.05$).

Table 7. Independent samples *t*-test results related to the differences among the opinions of the doctoral students about doctoral education by marital status.

| Factors | Marital status | n | Average | S | t | sd | p |
|--|----------------|-----|---------|-----|-------|------|-------|
| General satisfaction with the doctoral education content and the faculty members | Single | 700 | 3.3693 | .93 | -3.41 | 1352 | .001* |
| | Married | 654 | 3.5389 | .89 | | | |
| Satisfaction with the doctoral field | Single | 700 | 3.9827 | .86 | -1.79 | 1352 | .074 |
| | Married | 654 | 4.0665 | .86 | | | |
| Satisfaction with the opportunities offered by the doctoral program | Single | 699 | 2.9273 | .84 | -3.47 | 1350 | .001* |
| | Married | 653 | 3.0840 | .81 | | | |
| Skills gained thanks to doctoral program | Single | 700 | 3.5471 | .89 | -1.41 | 1352 | .157 |
| | Married | 654 | 3.6148 | .86 | | | |

* $p<0.05$.

■ Table 8 shows the results of one-way ANOVA analysis related to the differences in opinions about doctoral education by the graduate school where the doctoral students were enrolled. There was a statistically significant difference between the mean scores of the “general satisfaction with the content of the doctoral program and the faculty members” ($F_{(3-1336)}=2.78; p<0.05$). This difference was due to the mean scores of the opinions of doctoral students enrolled in the natural sciences (3.34) being lower than those of students enrolled in the social sciences (3.50). No statistically significant difference was found between the other groups.

A statistically significant difference was identified between the opinions of the students on the dimension of the skills that the doctoral program brought ($F_{(4-1351)}=4.29; p<0.05$) due to the lower mean scores of the opinions of the doctoral students who were enrolled in the graduate school of social sciences (3.47) compared to those of the students enrolled in the graduate school of natural sciences (3.64) and those enrolled in the graduate school of medical sciences (3.71). Consequently, the satisfaction of the participants enrolled in the natural sciences and medical sciences was higher in the skill category.

No statistically significant difference was found in the opinions of the doctoral students on the “satisfaction with the doctoral field” ($F_{(3-1336)}=1.59; p>0.05$) and the “satisfaction with the opportunities that the doctoral field offers” ($F_{(34-1336)}=1.75; p>0.05$) by the graduate school in which they were enrolled.

■ Table 9 shows the differences in the mean scores of the doctoral students’ opinions about the dimensions of the doc-

toral education by their doctoral stage. A statistically significant difference was identified in the dimension of “general satisfaction with the content of the doctoral program and the faculty members” ($F_{(2-1349)}=17.68; p<0.05$) due to the higher mean scores of the opinions of the doctoral students at the course stage (3.64) compared to those at the proficiency stage (3.25) and the dissertation stage (3.38). No statistically significant difference was found between the other groups (■ Table 9).

There was a statistically significant difference, by the doctoral stages of the participants, in the opinions related to the category of the satisfaction with the opportunities that the doctoral field offers ($F_{(2-1347)}=9.40; p<0.05$). The mean scores of the doctoral students at the course stage (3.13) were higher than those of the students at the proficiency stage (2.92) and dissertation stage (2.93). No statistically significant difference was found between the other groups (■ Table 9).

A statistically significant doctoral stage-based difference was found in the opinions related to the dimension of the skills that doctoral program brought ($F_{(2-1349)}=4.29; p<0.05$) the due to the lower mean scores of the opinions of the doctoral students at the proficiency stage (3.43) compared to those of students at the course stage (3.64). Therefore, the scores of the students at the course stage are higher in the skill category (■ Table 9).

No statistically significant difference was identified in the opinions of the doctoral students regarding their “satisfaction with the doctoral field” ($F_{(24-1349)}=2.97; p>0.05$) according to the doctoral stages.

■ **Table 8.** One-way ANOVA results related to the differences among the opinions of the doctoral students about doctoral education by their graduate school.

| Dimensions | | Sum of squares | df | Mean squares | F | p |
|--|----------------|----------------|------|--------------|-------|-------|
| General satisfaction with the doctoral education content and the faculty members | Between groups | 7.035 | 3 | 2.345 | 2.783 | .040* |
| | In groups | 1125.949 | 1336 | .843 | | |
| | Total | 1132.984 | 1339 | | | |
| Satisfaction with the doctoral field | Between groups | 3.372 | 3 | 1.124 | 1.509 | .210 |
| | In groups | 995.289 | 1336 | .745 | | |
| | Total | 998.661 | 1339 | | | |
| Satisfaction with the opportunities offered by the doctoral program | Between groups | 3.634 | 3 | 1.211 | 1.756 | .154 |
| | In groups | 920.002 | 1334 | .690 | | |
| | Total | 923.636 | 1337 | | | |
| Skills gained thanks to doctoral program | Between groups | 13.188 | 3 | 4.396 | 5.728 | .001* |
| | In groups | 1025.419 | 1336 | .768 | | |
| | Total | 1038.608 | 1339 | | | |

* $p<0.05$.



Table 9. One-way ANOVA results related to the differences among the opinions of the doctoral students about doctoral education with respect to their doctoral stage.

| Dimensions | | Sum of squares | df | Mean squares | F | p | Mean difference |
|--|----------------|----------------|------|--------------|--------|-------|-----------------|
| General satisfaction with the doctoral education content and the faculty members | Between groups | 29.069 | 2 | 14.534 | 17.681 | .000* | 2<1, 3<1 |
| | In groups | 1108.945 | 1349 | .822 | | | |
| | Total | 1138.013 | 1351 | | | | |
| Satisfaction with the doctoral field | Between groups | 4.412 | 2 | 2.206 | 2.976 | .051 | |
| | In groups | 1000.064 | 1349 | .741 | | | |
| | Total | 1004.475 | 1351 | | | | |
| Satisfaction with the opportunities offered by the doctoral program | Between groups | 12.891 | 2 | 6.445 | 9.403 | .000* | 2<1, 3<1 |
| | In groups | 923.297 | 1347 | .685 | | | |
| | Total | 936.188 | 1349 | | | | |
| Skills gained thanks to doctoral program | Between groups | 6.637 | 2 | 3.318 | 4.295 | .014* | 2<1 |
| | In groups | 1042.119 | 1349 | .773 | | | |
| | Total | 1048.755 | 1351 | | | | |

* $p < 0.05$; Categories: Course stage= 1; Proficiency stage= 2; Dissertation stage= 3.

Table 10 shows that there was no statistically significant difference in the dimensions of the doctoral education regarding employment situation of the participants.

As seen in Table 11, a logistic regression model was established to predict the publication performance of PhD students. All the variables were added to the model, except for the graduate school, coded as dummy. In the regression model, Nagelkerke R^2 is .305 and the classification accuracy 72.5. The most important indicator in the model was determined to be “paper presented at academic conferences”

($Beta = -1.757$; $p < 0.05$). In other words, the participation of doctoral students in an academic conference with a paper presentation greatly increases the potential to publish in academic journals. It can be easily predicted that doctoral students who have completed the course stage and passed to the dissertation stage increase their competencies and thus publication potential in the field.

The ability to publish in academic journals is gained over time. The publication performance of PhD candidates at the dissertation stage is higher than that of students at the course

Table 10. The results one-way ANOVA related to the differences among the opinions of the doctoral students about doctoral education with respect to their employment status.

| Dimensions | | Sum of squares | df | Mean squares | F | p |
|--|----------------|----------------|------|--------------|-------|------|
| General satisfaction with the doctoral education content and the faculty members | Between groups | 3.241 | 5 | .648 | .770 | .571 |
| | In groups | 1077.855 | 1280 | .842 | | |
| | Total | 1081.097 | 1285 | | | |
| Satisfaction with the doctoral field | Between groups | 4.268 | 5 | .854 | 1.147 | .333 |
| | In groups | 952.650 | 1280 | .744 | | |
| | Total | 956.918 | 1285 | | | |
| Satisfaction with the opportunities offered by the doctoral program | Between groups | 7.067 | 5 | 1.413 | 2.041 | .070 |
| | In groups | 885.123 | 1278 | .693 | | |
| | Total | 892.190 | 1283 | | | |
| Skills gained thanks to doctoral program | Between groups | 2.943 | 5 | .589 | .757 | .581 |
| | In groups | 995.647 | 1280 | .778 | | |
| | Total | 998.591 | 1285 | | | |

Table 11. The results of logistic regression for predicting publication performance.

| | <i>B</i> | <i>S.E.</i> | Wald | <i>df</i> | <i>p</i> | Exp(<i>B</i>) | 95% CI for EXP(<i>B</i>) lower | Upper |
|---|----------|-------------|---------|-----------|----------|-----------------|----------------------------------|-------|
| B12- Employed in university 0=Not employed in university 1=Employed in university | -.350 | .137 | 6.584 | 1 | .010* | .704 | .539 | .921 |
| B8- Paper presented at academic conferences 0= No, 1= Yes | 1.757 | .133 | 174.395 | 1 | .000* | .173 | .133 | .224 |
| B13- Involving a research project. 0= No, 1= Yes | -.464 | .142 | 10.723 | 1 | .001* | .628 | .476 | .830 |
| B5- Dissertation stage 0= No, 1= Yes | -.750 | .128 | 34.288 | 1 | .000* | .472 | .367 | .607 |
| Constant | 1.603 | .153 | 109.993 | 1 | .000* | 4.966 | | |
| -2 Log likelihood | 1460.11 | | | | | | | |
| Nagelkerke <i>R</i> ² | .302 | | | | | | | |
| Hosmer and Lemeshow test | .867 | | | | | | | |
| Classification | 72.1 | | | | | | | |

* $p < 0.05$.

stage ($Beta = -.750$; $p < 0.05$). Working as a research assistant at the university and participating as a coordinator or researcher in a project are also significant indicators of the publication potential of PhD students ($Beta = -.464$; $p < 0.05$). Working as a research assistant in the university provides a suitable environment for doctoral students to improve their academic skills ($Beta = -.350$; $p < 0.05$). In the second model, there was also an unexpected negative effect of F1 (general satisfaction with the doctoral program content and the faculty members), whereas the graduate school where the doctoral student is enrolled has no effect on publication performance.

Discussion and Conclusion

Within this study, the doctoral education survey was administered to doctoral students of different ages, gender, graduate school, marital status, doctoral education stage and employment status, with the objective of determining the factors affecting their satisfaction with the doctoral education. The differences in the mean scores by the age of the doctoral students were statistically significant for the following factors: general satisfaction with the doctoral program content and the faculty members (F1); the satisfaction with the opportunities that the doctoral field offers (F2). Nevertheless, age does not have a determining role on the satisfaction from the doctoral field (F3) and the skills gained during the doctoral program (F4).

The mean scores related to the gender difference showed no statistically significant difference in respect of general satisfaction with the doctoral program content and the faculty members (F1), the satisfaction with the doctoral field (F2), the satisfaction with the opportunities offered by the doctoral program (F3), and the skills that doctoral program brought (F4).

The relationship of doctoral students with faculty members (especially advisors) is extremely important. Collaboration with the advisor increases the motivation of the student (Bakioğlu & Gürdal, 2001; Christensen & Lund, 2014; Karadağ et al., 2018; Katz, 2016). On the basis of this item, 67% of the students stated that the lecturers spared enough time for them. If the advisor is competent in the consultancy subject, the study of the student accelerates (Ames et al., 2018). Of the doctoral students who answered the questionnaire, 79% stated that they believed in the competency of the faculty members in their fields of study. Especially at the course stage, optimism and satisfaction are at the highest level. However, the proficiency stage is an extremely stressful phase, when students have doubts about the questions to be asked in the examination and uncertainty is at the highest level. Therefore, with the impact of the stress created by the proficiency exam, an increase in pessimism is seen and dissatisfaction in almost every field increases to the highest level. These results are similar to the findings of other studies cited in the introduction (Bakioğlu & Gürdal, 2001; Gube et al., 2017).

The marital status of doctoral students also has an effect on their satisfaction with doctoral education. A statistically signifi-



cant difference was found in general satisfaction with the doctoral program content and faculty members (F1), in the satisfaction with the opportunities that the doctoral field offers (F2).

Most of the doctoral students will be the scientists of the future. Therefore, it is important for them to learn the methods of scientific research (Kürşad, 2015; Sala-Bubaré et al., 2018). Only 41% of the students in this study claimed that the research methods were sufficiently taught. The ratio of those stating that the research methods are not sufficiently taught is a much greater subject of complaint, especially among students in social sciences. Students become more aware of their deficiencies in methodology at the dissertation stage or when they want to publish in an academic journal.

Graduate schools also play a role in doctoral students' satisfaction with their doctoral education. Statistically significant differences were found in three factors. The mean scores of the general satisfaction with the content of the doctoral program and the faculty members (F1) were higher for students enrolled in the graduate school of social sciences compared to those enrolled in the graduate school of natural sciences. There was no other statistically significant difference between other graduate school categories in respect of Factor 1. Doctoral students enrolled in the graduate school of natural sciences and the graduate school of medical sciences are more satisfied than other school categories regarding the factor (F4) related to the skills gained during doctoral education.

Doctoral stages also have an effect on the doctoral education perception. The results showed a statistically significant difference in the mean scores of the general satisfaction with the content of the doctoral program and the faculty members, which were higher for doctoral students at the course stage compared to those at the proficiency and dissertation stages. A statistically significant difference was not found between the other groups.

Previous research has emphasized that working with other thesis students positively affects the studies of doctoral students and strengthens their loyalty to the university (Bakioğlu & Gürdal, 2001; Christensen & Lund, 2014; Wolfe et al., 2018). However, only 39.6% of the current study students believed that there was adequate academic communication among students, while 45% believed that there was sufficient teamwork. Faculty members' encouragement of collaborative studies to strengthen cooperation between doctoral students may contribute to the students' success. As emphasized in the academic literature, the doctoral stage is a period in which new qualifications are gained (Akbulut et al., 2013; Bernstein et al., 2014; Lei, 2008; Parry, 2007). In the current study, 72% of the students stated "The

doctorate program has given me the skills to approach problems from a different perspective and I have developed the skills to be able to deal with unexpected difficulties".

The majority of the doctoral students in this study were satisfied with their doctoral field and institution. The participants generally expressed that they were studying in the field they had dreamed of. They considered the faculty members to be generally competent in their fields and thought that they shared their knowledge with their students. However, the students who could not find a research assistant position and had to work in other types of jobs complained about insufficient staff positions. There were also some who complained that administrative procedures were slow and time-consuming. A majority found the physical facilities to be inadequate. One of the most serious problems of the research assistants was concerns about employment.

Contrary to expectations, the logistic regression analysis revealed a negative relationship between the general satisfaction with the doctoral program content and the faculty members' factor and the students' academic publishing performance. Doctoral students publish in academic journals at the dissertation stage of doctoral education, which was one of the reasons for the negative relationship. Compared to the course-taking stage, at the dissertation stage, students feel tired and sometimes fear that they will not be able to complete the doctorate program. In addition, students who are satisfied with the program may have a second focus on participating in symposiums and publishing in academic journals, as they are more focused on their dissertation study. Of course, the primary priority of PhD students is not to publish in academic journals but to complete their dissertations. However, as they will be the scientists of the future, it is extremely important for PhD students to learn to publish in academic journals. Some universities require publication in a peer-reviewed academic journal as a prerequisite for the doctoral degree. In addition, PhD students need to have publications in academic journals to be assigned as a faculty member. The logistic regression analysis revealed that participation in academic symposiums greatly increased the publication performance of PhD students. Therefore, encouraging the participation of PhD students in academic symposiums and projects will be helpful.

The following recommendations can be made on the basis of the results obtained:

- Serious measures need to be taken on the employment issue as when concerns about the future increase, the satisfaction levels decrease significantly in all dimensions.
- More attention must be paid to the teaching of research methods.

- Doctoral education should be delivered at international standards.
- There is often dissatisfaction among students regarding the research methodology courses. It may be useful to review the contents of these courses and to encourage students to undertake field studies in certain areas.
- To increase publication in academic journals, it would be beneficial to encourage students' participation in international symposiums and to include them in faculty members' projects.
- In order to increase publications in academic journals, it would be beneficial to encourage students' participation in international symposiums and to include them in faculty members' projects.
- Academic communication and teamwork should be encouraged between students to enable peer learning.
- Doctorate students complain about the insufficiency of international cooperation. Strengthening international cooperation will improve the quality of doctoral education.

With a sufficiently inclusive sample, this study contributes to our understanding of the factors affecting PhD students' perceptions of their doctoral study and publication performance. Policy-makers can use these results to improve doctoral programs, student competencies, and motivation. However, the most important research limitation is analyzing student perceptions from a very general perspective. Therefore, it would be useful for future studies to research more specific areas such as “advisor and doctoral student relationship”.

Yazar Katkıları / Author Contributions: VB: Çalışmayı tasarlama, verileri toplama, verileri inceleme, yazıyı yazma ve verilerin ve analizlerin doğruluğunu onaylama; EY: Verileri inceleme, yazıyı yazma ve verilerin ve analizlerin doğruluğunu onaylama; AK: Verileri inceleme, yazıyı yazma ve verilerin ve analizlerin doğruluğunu onaylama; MT: Verileri inceleme, yazıyı yazma ve verilerin ve analizlerin doğruluğunu onaylama; AŞ: Çalışmayı tasarlama, verileri toplama, yazıyı yazma. / VB: *Conceiving and designing the study, data collection, writing the manuscript, critical reading and final check of the data analysis*; EY: *Data analysis, writing the manuscript, final check of the data analysis*; AK: *Data analysis, writing the manuscript, final check of the data analysis*; MT: *Data analysis, writing the manuscript, final check of the data analysis*; AŞ: *Conceiving and designing the study, data collection, writing the manuscript*.

Araştırma Fonu Desteği / Funding: Bu çalışma herhangi bir resmi, ticari ya da kar amacı gütmeyen organizasyondan araştırma fonu desteği almamıştır. / *This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.*

Etik Standartlara Uygunluk / Compliance with Ethical Standards: Yazarlar bu makalede araştırma ve yayın etiğine bağlı kaldığını, Kişisel Verilerin Korunması Kanunu'na ve fikir ve sanat eserleri için geçerli telif hakları düzenlemelerine uyulduğunu ve herhangi bir çıkar çakışması bulun-

madığını belirtmiştir. / *The authors stated that the standards regarding research and publication ethics, the Personal Data Protection Law and the copyright regulations applicable to intellectual and artistic works are complied with and there is no conflict of interest.*

References

- Akbulut, H., Şahin, Ç., & Çepni, S. (2013). Determination of faced problems in doctorate thesis process: Education faculty sample. [Article in Turkish] *Dicle Üniversitesi Ziya Gökalp Eğitim Fakültesi Dergisi*, 20, 50–69.
- Ames, C., Berman, R., & Casteel, A. (2018). A preliminary examination of doctoral student retention factors in private online workspaces. *International Journal of Doctoral Studies*, 13, 79–107.
- Bahçeci, F., & Uşengül, L. (2018). Examination of thesis subject determination criteria of postgraduate and doctorate students. [Article in Turkish] *Turkish Journal of Educational Studies*, 5(2), 85–96.
- Bakıoğlu, A., & Gürdal, A. (2001). Role perception of supervisors and students in postgraduate thesis: Implications for administrations. [Article in Turkish] *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi*, 21, 9–18.
- Bernstein, B. L., Evans, B., Fyffe, J., Halai, N., & Hall, F. L. (2014). The continuing evolution of the research doctorate. In M. Nerad, & B. Evans (Eds.), *Globalization and its impacts on the quality of PhD education* (pp. 5–30). New York, NY: Springer.
- Christensen, M., & Lund, O. (2014). Doctoral education in a successful ecological niche: A qualitative exploratory case study of the relationship between the microclimate and doctoral students' learning to become a researcher. *International Journal of Higher Education*, 3(3), 103–113.
- Gardner, S. K. (2008). “What's too much and what's too little?": The process of becoming an independent researcher in doctoral education. *The Journal of Higher Education*, 79(3), 326–350.
- Golde, C. M., & Dore, T. M. (2001). *At cross purposes: What the experiences of doctoral students reveal about doctoral education*. Philadelphia, PA: A report prepared for The Pew Charitable Trusts. Retrieved from www.phd-survey.org (January 11, 2019).
- Gube, J., Getenet, S., Satariyan, A., & Muhammad, Y. (2017). Towards “operating within” the field: Doctoral students' views of supervisors' discipline expertise. *International Journal of Doctoral Studies*, 12, 1–16.
- Jairam, D., & Kahl, D. H. (2012). Navigating the doctoral experience: The role of social support in successful degree completion. *International Journal of Doctoral Studies*, 7, 311–329.
- Karadağ, E., Danişman, Ş., Dulay, S., Öztekin Bayır, Ö., & Tekel, E. (2018). Tough academic journey of research assistants in the Faculty of Education: PhD dissertation process. [Article in Turkish] *Yükseköğretim Dergisi*, 8(1), 103–112.
- Katz, R. (2016). Challenges in doctoral research project management: A comparative study. *International Journal of Doctoral Studies*, 11, 105–125.
- Kürşad, M. Ş. (2015). Investigation of relationship between attitude toward scientific research and epistemological belief. [Article in Turkish] *Abant İzzet Baysal Üniversitesi Eğitim Fakültesi Dergisi*, 15(2), 217–246.
- Lei, S. A. (2008). Factors changing attitudes of graduate school students toward an introductory research methodology course. *Education*, 128(4), 667–685.



- Limon, İ., & Durnalı, M. (2018). Phd students' metaphoric perceptions on doctorate education and instructors. [Article in Turkish] *Sakarya University Journal of Education*, 8(1), 26–40.
- Mainhard, T., Van der Rijst, R., Van Tartwijk, J., & Wubbels, T. (2009). A model for the supervisor-doctoral student relationship. *Higher Education*, 58(3), 359–373.
- Mason, M. A. (2012). The future of the Ph.D. *The Chronicle of Higher Education*, May 3, 2012. Retrieved from <https://www.chronicle.com/article/The-Future-of-the-PhD/131749/?sid=ja> (January 11, 2019).
- Özmen, Z. M., & Güç, F. A. (2013). Challenges in doctoral education and coping strategies: A case study. [Article in Turkish] *Yükseköğretim ve Bilim Dergisi*, 3(3), 214–219.
- Parry, S. (2007). *Disciplines and doctorates*. Dordrecht: Springer.
- Sala-Bubaré, A., Peltonen, J. A., Pyhäntö, K., & Castelló, M. (2018). Doctoral candidates' research writing perceptions: A cross-national study. *International Journal of Doctoral Studies*, 13, 327–345.
- Saral, D. G., & Reyhanlıoğlu, D. (2015). An analysis of educational faculty students' research self-efficacy in terms of a number of variables. *Procedia - Social and Behavioral Sciences*, 174, 1138–1145.
- Tabachnick, B. G., & Fidell, L. S. (2013). *Using multivariate statistics* (International ed.). Boston, MA: Allyn and Bacon.
- Wolfe, K. A., Nelson, A. B., & Seamster, C. L. (2018). In good company: A collaborative autoethnography describing the evolution of a successful doctoral cohort. *International Journal of Doctoral Studies*, 13, 293–311.

Bu makale Creative Commons Attribution-NonCommercial-NoDerivs 4.0 Unported (CC BY-NC-ND 4.0) Lisansı standartlarında; kaynak olarak gösterilmesi koşuluyla, ticari kullanım amacı ve içerik değişikliği dışında kalan tüm kullanım (çevrimiçi bağlantı verme, kopyalama, baskı alma, herhangi bir fiziksel ortamda çoğaltma ve dağıtma vb.) haklarıyla açık erişim olarak yayımlanmaktadır. / *This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivs 4.0 Unported (CC BY-NC-ND 4.0) License, which permits non-commercial reuse, distribution and reproduction in any medium, without any changing, provided the original work is properly cited.*

Yayıncı Notu: Yayıncı kuruluş olarak Deomed bu makalede ortaya konan görüşlere katılmak zorunda değildir; olası ticari ürün, marka ya da kuruluşlarla ilgili ifadelerin içerikte bulunması yayıncının onayladığı ve güvence verdiği anlamına gelmez. Yayıncının bilimsel ve yasal sorumlulukları yazar(lar)ına aittir. Deomed, yayınlanan haritalar ve kurumsal bağlantılardaki yargı yetkisine ilişkin iddialar konusunda tarafsızdır. / **Publisher's Note:** *The content of this publication does not necessarily reflect the views or policies of the publisher, nor does any mention of trade names, commercial products, or organizations imply endorsement by Deomed. Scientific and legal responsibilities of published manuscript belong to their author(s). Deomed remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.*