



INTE 2014

## An analysis of educational faculty students' research self-efficacy in terms of a number of variables

Duygu Gizem SARAL<sup>a\*</sup>, Didem REYHANLIOĞLU<sup>b</sup>

<sup>a</sup>Amasya University, Faculty of Education, Amasya, 05100, Turkey

<sup>b</sup>Hacettepe University, Faculty of Education, Ankara, 06800, Turkey

---

### Abstract

Enabling students to acquire the research abilities is an educational issue. The target of education is to raise individuals with research-oriented attitudes and behaviours. Sustaining the research activities requires that, in addition to the compatibility of research environments, individuals and institutions to conduct the research have the competence facilitating them to do the research. Therefore, the need was felt to determine educational faculty students' levels of research self-efficacy. This research examines whether or not educational faculty students' research self-efficacy differs on the basis of gender, university, department, and taking or not taking the Scientific Research Methods course. The research sample was composed of 532 volunteering students attending the Psychological Counseling and Guidance, Elementary School Mathematics Teaching, Science Teaching, and Computer and Teaching Technologies departments of the educational faculties of Amasya and Eskişehir Osmangazi Universities. The research data were obtained through a 43-item, 5-pointed Likert scale of Research Competence (Büyükoztürk, 1997), with a reliability coefficient of  $\alpha=0,89$ . In the analysis of the data, the frequencies and the percentages for the variables were calculated, the one-way variance analysis (ANOVA) and the significance test for the difference between two averages (the t-test) were employed. When differences were found between the groups in consequence of the variance analysis, between which groups the differences were available was found via the Scheffé test. Consequently, it was found that educational faculty students' research self-efficacy differed according to department, and to whether they took the Scientific Research Methods course; but that it did not differ according to gender or university.

© 2015 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Peer-review under responsibility of the Sakarya University

*Keywords:* research; self-efficacy.

---

\* Corresponding author. Tel.: +90 537 352 66 67; fax: +90 358 252 62 22  
*E-mail address:* [duygugizemsaral@gmail.com](mailto:duygugizemsaral@gmail.com)

## 1. Introduction

The power of societies has always relied on differing sources. The concept of industrial society in particular was based on production depending on industrialisation, and kept existing for a long time. In the process following the industrial society, however, the fundamental factor of production and power was information, and thus being a society of information became increasingly important. Information societies need individuals who can easily reach information, who can use it and contribute to its production, who have the evaluation and communication skills with the capability of analysing and synthesizing, who are creative and who have internalized the universal values. In this context, educational systems must raise the manpower carrying the properties in question (Saracaloğlu & Kaşlı, 2001).

Science and education are complementary to one another. At the intersection of these two phenomena is the Universities. The functions fulfilled by universities are divided into three groups as education-teaching, basic scientific research, and community services (Doğramacı, 2000; Gürüz et al., 1994). Universities have important tasks in the development and modernisation of societies from every aspect. Raising the qualified manpower needed by the society, performing pieces of research and investigation and publishing them, finding and explaining the ways of solution to various problems and presenting the views concerning the issues, and thus contributing to the scientific, technological and social development are among the tasks and responsibilities of universities (Işıksoluğu, 1993).

Research is basically a kind of searching, learning, transforming the unknown into the known, or shedding light to the darkness, or briefly, it is a process of enlightenment (Karasar, 2007a). The process can be divided into such stages as recognising the problem, predicting the recommendations of solution, developing the research method, collecting the data and analysing them, making decisions and interpreting the findings (Bailey, 1987; Cohen & Mabion, 1988; Mason & Bramble, 1978: quoted by Büyüköztürk et al., 2008, 7). In brief, research can be defined as the production of the new knowledge in certain processes.

In listing the basic properties of scientific education, the skill of describing and solving the problem, the skill of using the research techniques, and the positive attitudes towards the research come into prominence (Bektur et al., 1997; Yılmaz, 1997). It is possible for a contemporary person to have such a culture only through education; and such education is described as research education. Research education is the education which instills in individuals the scientific attitudes and behaviours and the competence in the field of research, and thus aims to raise the research consciousness in individuals and in the society. Raising individuals who produce the knowledge and who can share it, who are research oriented and who have scientific attitudes and behaviours is among the fundamental goals of educational systems (Ünal and Ada, 2007). Yet, although the research related properties of schools and individuals are emphasised in the relevant laws and regulations of Turkish system of education and raising research oriented individuals is targeted, research education seems to be sufficient neither in terms of content or method nor in terms of level (Saracaloğlu, 2008).

Instilling the research skills in individuals is an issue of education. The objective of this education is to raise individuals having research oriented attitudes and behaviours. Maintaining the research activities requires that - in addition to the compatibility of research environments- individuals and institutions to conduct the research have the capacity and the positive attitudes enabling them to do the research. Instilling the knowledge and skills is not a sufficient condition although it is an essential condition for an individual to perform research. It may be said that individuals' interest in the field, the values they hold, and even the fact that they do not consider this process as a threat to themselves are influential in their doing research (Saracaloğlu, Varol and Ercan, 2005).

Publications intending to establish the research consciousness and to develop the research qualities have increased recently, and courses related to research have been included in graduate and post-graduate programmes. Studies are available in literature stating that taking a course in research methods would enable teachers to do more research in their classes (Bard et al., 2000; Green & Kvidhal, 1990), would raise their levels of research self-efficacy (Lei, 2008; Saracaloğlu, Varol and Ercan, 2005; Unrau & Beck, 2004), individuals with high levels of research self-efficacy would be more interested in participating in research studies (Bard et al., 2000; Bieschke, Bishop and Garcia, 1996; Kahn & Scott, 1997) and thus research production would be higher (Krebs, Smither and Hurley, 1991; Phillips & Russel, 1994), and their research anxiety would be reduced (Lei, 2008; Unrau & Beck, 2004).

Students who had taken a research methods course were found to have higher levels of research self-efficacy (Saracaloğlu, Varol, and Ercan, 2005; Büyüköztürk, 1996; Piburn, 1992).

When the constructivist approach is considered as the basis, it is important that the teachers - who are to facilitate research-investigation, problem-solving and critical thinking skills to the next generations – should themselves have such skills and capacities (Saracaloğlu, 2008). Therefore, it is an important part of the professional development of the students of educational faculties, who are going to become teachers in the future, to be able to distinguish research studies with scientific content, to be able to analyse them in accordance with the stages of analysis, to be able to criticise them, and to be able to do independent research (State Planning Organisation, 1993: quoted by Karasar, 2007b).

### 1.1. *The Purpose and Significance of the Research*

This study aims at examining educational faculty students' research self-efficacy according to a number of variables. For our purposes, the research problem was put as “does educational faculty students' research self-efficacy differ on the basis of universities, departments, gender, and whether they have taken the scientific research methods course?”

Due to the fact that only a limited number of research studies concerning the research self-efficacy of students attending the educational faculties of differing Universities are available, it is believed that this research will be useful to researchers.

## 2. Method

### 2.1. *Type of Research*

This research, which aims to analyse educational faculty students' research capacities in terms of a number of variables, was designed in the survey model. Survey models are the research approaches aiming to describe a past or present state as it is (Karasar, 2005).

### 2.2. *Population and Sample*

The research population was composed of all the Universities in Turkey. Yet, Amasya and Eskişehir Osmangazi Universities were chosen as the study population. The research sample was composed of 532 volunteering students attending the psychological Counseling and Guidance, Elementary School Mathematics Teaching, Science Teaching, and Computer and Teaching Technologies departments of the educational faculties of Amasya and Eskişehir Osmangazi Universities. The distribution of the research sample is shown in Table 1.

Table1. Demographic Distribution of Students Included in the Research Sample

		Girls		Boys		Total	
		f	%	f	%	f	%
University	Amasya University	145	62,5	87	37,5	232	100,0
	Eskişehir Osmangazi University	214	71,3	86	28,7	300	100,0
	Total	359	67,5	173	32,5	532	100,0
Department	Counseling and Guidance	85	64,4	47	35,6	132	100,0
	Elementary School Mathematics Teaching	91	65,5	48	34,5	139	100,0

	Science Teaching	112	72,3	43	27,7	155	100,0
	Computer and Teaching Technologies	71	67,0	35	33,0	106	100,0
	Total	359	67,5	173	32,5	532	100,0
Scientific	They have taken the course	184	70,8	76	29,2	260	100,0
Research	They have not taken the course	175	64,3	97	35,7	272	100,0
Methods	Total	359	67,5	173	32,5	532	100,0

### 2.3 Data Collection

In order to determine the educational faculty students' research self-efficacy, a 43-item, 5-pointed Likert type "Scale of Research Competence" (Büyüköztürk, 1997), with a reliability coefficient of  $\alpha=0,89$ , was used. The scale contained the options of "completely", "to a large extent", "very little", and "none"; and they were scored between 1 and 5. the scores receivable from the scale were 43 at the minimum and 215 at the maximum. The high scores received from the Scale of Research Self-efficacy mean that the students are competent in the stages of "describing the problem, literature review, explaining-interpreting-reporting the method and the findings" of the research.

A separate Personal Information Form was not prepared in order to gather the information about the students. Instead it was considered appropriate to learn about gender, universities, departments and whether they had taken the scientific research methods course with 4 questions at the beginning of the scale.

In interpreting the arithmetic averages obtained in the Scale of Research Self-efficacy, the group interval coefficients were found by dividing the span between the lowest and the highest values assigned to the options (range) into the number of options (levels-groups). After dividing the span between 63-the lowest value- and 205-the highest value- obtained with the implementation of the Scale of Research Self-efficacy into the number of groups; the average values between 63 and 91 were regarded as "quite insufficient", the ones between 92 and 120 were regarded as "insufficient", the ones between 121 and 149 were regarded as "partly sufficient", the ones between 150 and 178 were regarded as "sufficient", and the ones between 179 and 207 were regarded as "quite sufficient" in terms of research self-efficacy.

### 2.4. Data Analysis and Interpretation

In line with the research purposes, the frequencies and percentages were calculated for the variables; and the one-way variance analysis (ANOVA) as well as the significance test for the difference between two averages (the t-test) were also employed. When there were differences between groups in consequence of the variance analysis, the Scheffe test was used so as to find between which groups the differences were available and to find in favour of which group the difference was.

Prior to the analyses, it was checked to see whether or not the data collected met the suppositions of the afore mentioned statistical methods, and it was concluded that those methods of analysis could be used.

## 3. Findings

The research problem was put as: "does educational faculty students' research self-efficacy differ on the basis of universities, departments, gender, and whether they have taken the scientific research methods course?" The students' scores of research self-efficacy were analysed through variance analysis and the t-test according to a number of variables, and the findings obtained are shown in Table 2.

Table2. The Distribution of Educational Faculty Students' Research Competence Scores According to a Number of Variables

Gender	N	X	S	sd	t	p
Female	359	151,3621	26,87146	530	0,854	0,393
Male	173	149,2543	26,21676			
Universities	N	X	S	sd	t	p
Amasya University	232	152,3017	30,06507	530	1,237	0,217
Eskişehir Osmangazi University	300	149,4200	23,65803			
Department	N	X	S	sd	F	p
Counseling and Guidance	132	155,4545	23,58236	528	22,849	0,000*
Elementary School Mathematics Teaching	139	144,5683	27,11357			
Science Teaching	155	141,9419	27,47968			
Computer and Teaching Technologies	106	165,5094	20,30728			
Scientific Research Methods	N	X	S	sd	t	p
They have taken the course	260	155,5923	24,03527	530	4,224	0,000*
They have not taken the course	272	145,9779	28,18821			

\*:  $p < 0,05$

As is clear from Table 2, the educational faculty students' research self-efficacy differs on the basis of department and whether they have taken the scientific research methods course whereas it does not differ on the basis of gender or university.

The research self-efficacy scores received by educational faculty students do not differ according to the university they attend. According to the results of the t-test, the research self-efficacy scores attained by Amasya University students were found to be higher than those attained by Eskişehir Osmangazi University students ( $152.301 > 149.420$ ). However, the difference was not significant. This is a finding parallel to the one obtained by Saracaloğlu, Varol and Ercan (2005) who aimed to determine post-graduate students' research self-efficacy. Yet, research conducted by Büyüköztürk (1996) with graduate students found that research self-efficacy differed according to Universities. The cause of the difference was attributed to such facilities as university library and computer labs. In the case of this current research, however, it may be thought that no significant differences were available due to the fact that the graduate students had research experiences at the basic level and that they had similar research environments and research facilities.

Students' research self-efficacy differs according to the department they attend. Similar results were obtained in Büyüköztürk (1996) and in Saracaloğlu, Varol and Ercan (2005). The participants' research self-efficacy was analysed through one-way variance analysis according to the departments, and it was found to differ statistically significantly. In order to find the groups causing the difference, the Scheffé test was administered; and it was found that the two groups having no differences between were the Science Teaching students and the Elementary School Mathematics Teaching students. Significant differences were available for the students of all of the other departments. Thus, according to the results of the Scheffé test,

- The research self-efficacy of the Counseling and Guidance students was found to be higher than that of the Elementary School Mathematics Teaching students. The difference of average between them is 10.886, and the significance level is below 0.05 ( $p=0.006<0.05$ )
- The research self-efficacy of the Counseling and Guidance students was found to be higher than that of the Science Teaching students. The difference of average between them is 13.512, and the significance level is below 0.05 ( $p=0.000<0.05$ ).
- The research self-efficacy of the Computer and Teaching Technologies students was found to be higher than that of the Counseling and Guidance students. The difference of average between them is 10.054, and the significance level is below 0.05 ( $p=0.025<0.05$ ).
- The research self-efficacy of the Computer and Teaching Technologies students was found to be higher than that of the Elementary School Mathematics Teaching students. The difference of average between them is 20.941, and the significance level is below 0.05 ( $p=0.000<0.05$ ).
- The research self-efficacy of the Computer and Teaching Technologies students was found to be higher than that of the Science Teaching students. The difference of average between them is 23.567, and the significance level is below 0.05 ( $p=0.000<0.05$ ).
- There are no significant differences between Elementary School Mathematics Teaching students' research self-efficacy and that of Science teaching students'. The difference of average between them is 2.626, and the significance level is bigger than 0.05 ( $p=0.850>0.05$ ).

Accordingly, the group with the highest level of research self-efficacy is the students of Computer and Teaching Technologies department while the group with the lowest level of research self-efficacy is the students of Science Teaching department. This can be interpreted as that the students of Computer and Teaching Technologies department are able to overcome the problems and difficulties encountered in the research process whereas the students of Science Teaching department have some inadequacies in relation to the research process.

The fact that the research self-efficacy of the students who had taken the scientific research methods course was found to be higher ( $155.59>145.98$ ) shows that the self-efficacy is connected with the course. The research conducted by Saracaloğlu, Varol and Ercan (2005) and by Piburn (1992) also found that taking the research methods course affected the research self-efficacy. In the same way, Nartgün et al (2008) found that the self-efficacy perceptions of research of the prospective teachers who had taken the Research Techniques course were higher than those who had not taken the course. Thus, it may be stated that the research studies mentioned are supportive of this current study.

Besides it may also be said that gender is independent of research self-efficacy. Thus, in a number of studies (Bieschke, Bishop and Garcia, 1996; Bishop & Bieschke, 1998; Gelso, Mallinckrodt and Judge, 1996) it was found that research self-efficacy was not connected with gender.

In conclusion, it may be stated that the participants attain a "sufficient" level of research self-efficacy ( $X=150.31$ ). Despite the fact that the findings of this research were seen to contradict with the ones obtained in various research studies (Büyüköztürk, 1996; Karagül, 1996; Karasar, 1984), the studies in question were at the graduate level. In research conducted by Nartgün et al (2008), where self-efficacy was analysed, it was found that the prospective teachers perceived themselves as "competent at the medium level". In this case, all of the studies mentioned are supportive of one another.

#### 4. Discussion And Conclusions

This research has investigated the variables capable of influencing educational faculty students' research self-efficacy. The variables were established as gender, universities, departments, and taking or not taking the scientific research methods course.

The educational faculty students' research self-efficacy differs on the basis of department and whether they have taken the scientific research methods course whereas it does not differ on the basis of gender or university. This makes us think that such courses as scientific research methods, which raise students' research abilities, should be included in the programmes more extensively or that the number of weekly class hours should be increased.

It was found in this research that the students' research self-efficacy was at a "sufficient" level.

In line with the research findings, the following recommendations are made:

- Students should be made to do individual and group work, and be given research assignments/projects. In this way, it may be possible to raise generations who research, question, produce and criticise.
- As is emphasised in Saracaloğlu, Varol and Ercan (2005), students can be made to prepare and exhibit their individual and group activities, and the successful research projects can be rewarded in various ways. For instance, those projects can be announced in ceremonies at the beginning or end of the semesters, and/or they can be publicised on the web pages of the universities or the students can be granted monetary prizes in this way, they can also be motivated.
- The weekly hours of the scientific research methods course and of similar courses which are influential in raising students' research self-efficacy can be increased, or it may be assured that courses with similar content are included in the syllabus.
- Field experts can be requested to hold seminars, conferences or such activities so as to increase students' research self-efficacy.
- Similar studies can be performed with different variables and different samples.
- Experimental or qualitative studies concerning the variables affecting research self-efficacy can be performed.

## References

- Bard, C. C., Bieschke, K. J., Herbert, J. T., ve Eberz, A.B. (2000). Predicting Research Interest Among Rehabilitation Counseling Students And Faculty. *Rehabilitation Counseling Bulletin*, 44(1), 48-55.
- Büyükköztürk, Ş. (1996). *Türk Yükseköğretiminde Araştırma Eğitimi*. Yayınlanmamış Doktora Tezi. Ankara: A.Ü. Sosyal Bilimler Enstitüsü.
- Bektur, T., Yaşar, H., Küçükkaragöz, H. ve Titiz, T. (1997). Ezbersiz eğitim. Nasıl bir Eğitim sistemi: Güncel Uygulamalar ve Geleceğe ilişkin Öneriler (Eğitim Sempozyumu, 10-12 Nisan) izmir, 139-47.
- Büyükköztürk, Ş. (1997). Araştırmaya Yönelik Kaygı Ölçeğinin Geliştirilmesi. *Eğitim Yönetimi Dergisi*, 3, 453-64.
- Büyükköztürk, Ş. (1999). İlköğretim Okulu Öğretmenlerinin Araştırma Yeterlikleri. *Eğitim Yönetimi Dergisi*, 18, 257-69, Bahar.
- Büyükköztürk, Ş., Kılıç, Ç. E., Akgün, Ö. E., Karadeniz, Ş. ve Demirel, F. (2011). Bilimsel Araştırma Yöntemleri (8. Baskı). Ankara: Pegem Akademi.
- Bieschke, K. J., Bishop, R. M., & Garcia, V. L. (1996). The utility of the Research Self-Efficacy Scale. *Journal of Career Assessment*, 4, 59-75.
- Bishop, R. M., & Bieschke, K. J. (1998). Applying social cognitive theory to interest in research among counseling psychology doctoral students: A path analysis. *Journal of Counseling Psychology*, 45, 182-188.
- Çokluk Bökeoğlu, Ö. ve Yılmaz, K. (2005, Kış). Üniversite Öğrencilerinin Eleştirel Düşünmeye Yönelik Tutumları ile Araştırma Kaygıları Arasındaki İlişki. *Kuram ve Uygulamada Eğitim Yönetimi*, 41, 47-67.
- Doğramacı, İ. (2000). Günümüzde Rektör Seçimi ve Atama Krizi (Türkiye'de ve Dünyada Yükseköğretim Yönetimine Bakış), Ankara: Meteksan, [www.dogramaci.org/r-bol5.html](http://www.dogramaci.org/r-bol5.html), 20-21 Nisan 2002.
- Gelso, C. J., Mallinckrodt, B., & Judge, A. B. (1996). Research training environment, attitudes toward research, and research self-efficacy: The revised research training environment scale. *The Counseling Psychologist*, 24, 304-332.
- Green, K., ve KvidhaL, R. (1990). Research Methods Courses And Post-Bachelor's Education: Effects On Teachers' Use And Opinions. Paper Presented At The Annual Meeting Of The American Educational Research Association, Boston, MA. (ERIC Document Reproduction Service No. ED320881)
- Gürüz, K. (Koordinatör), Şuhubi, E. A. M., Şengör, C., Türker, K. ve Yurtsever, E. (1994). Türkiye'de ve Dünyada Yükseköğretim, Bilim ve Teknoloji. İstanbul: Türk Sanayicileri ve İşadamları Derneği (TÜSİAD).
- Hoshmand, L. L. (1991, July). Clinical inquiry as scientific training. *Journal of Counseling-Psychologist*, 19 (3), p.431-53.
- İşiksoğlu, M. K. (1993). Bilimsel Yayınlarda Dürüstlük Boyutu. *Eğitim ve Bilim*, 17, 90: 3-7.
- Kahn, J.H. ve Scott, N.A. (1997). Predictors Of Research Productivity And Sciencerelated Career Goals Among Counseling Psychology Doctoral Students. *The Counseling Psychologist*, 25, 38-67.
- Karagül, T. (1996). *Yükseköğretim Programları İçin Gerekli Öğrenci Yeterlikleri ve Yükseköğretime Geçiş Süreci*. Yayınlanmamış doktora tezi, Ankara Üniversitesi, Sosyal Bilimler Enstitüsü.
- Karasar, N. (1984). *Türk Üniversitelerinde Araştırma Eğitimi*. Yayınlanmamış Araştırma, (TUBİTAK SAYG-E-49 Projesi).
- Karasar, N. (2007a). Bilimsel Araştırma Yöntemleri (17.baskı). Ankara: Nobel Yayıncılık
- Karasar, N. (2007b). Araştırmalarda Rapor Hazırlama (14.baskı). Ankara: Nobel Yayıncılık.
- Krebs, P.J., Smither, J.W. ve Hurley, R.B. (1991). Relationship Of Vocational Personality And Research Training Environment To The Research Productivity Of Counseling Psychologists. *Professional Psychology: Research And Practice*, 22, 362-367.
- Lei, S. A. Factors Changing Attitudes Of Graduate School Students Toward An Introductory Research Methodology Course. *Education*, June, 22 (2008) <http://www.articlearchives.com/education-training/education-systems-institutions/960215-1.html> (Erişim tarihi: 13.12.2012)
- Nartgün, Z., Uluman, M., Akin, Ç., Çelik, T., Çevik, C., Şanlı, H. Ve Gülözer, A. (2008). Öğretmen Adaylarının Bilimsel Araştırma Öz Yeterliklerinin İncelenmesi. *17. Eğitim Bilimleri Kongresi*, 1-3 Eylül 2008, Sakarya Üniversitesi.
- Phillips, J. C. ve Russell, R. K. (1994). Research Self-Efficacy, The Research-Training Environment And The Student In Counseling Psychology: Does The Research Training Environment Influence Graduate Students' Attitudes Toward Research? *The Counseling Psychologist*, 14, 9-30.

- Piburn, M. D. (1992). Teaching a Hypothesis Testing Strategy to Prospective Teachers. *Journal of Science Teacher Education*, 3 (2), 42-46.
- Saracaloğlu, A. S. ve Kaşlı, A. F. (2001), Öğretmen Adaylarının Bilgisayara Yönelik Tutumları ile Başarıları Arasındaki İlişki, *Ege Eğitim Dergisi*, 1, 1: 112-127.
- Saracaloğlu, A. S., Varol, S. R. ve Ercan, İ. E. (2005). Lisansüstü Eğitim Öğrencilerinin Araştırma Kaygıları, Araştırma ve İstatistiğe Yönelik Tutumları ile Araştırma Yeterlikleri Arasındaki İlişki. *Buca Eğitim Fakültesi Dergisi. Özel Sayı*, 17, 187-199.
- Saracaloğlu, A. S. (2008). Lisansüstü Öğrencilerin Akademik Güdülenme Düzeyleri, Araştırma Kaygıları ve Tutumları ile Araştırma Yeterlikleri Arasındaki İlişki. *Yüzüncü Yıl Üniversitesi, Eğitim Fakültesi Dergisi*. Aralık 2008, 5(2), 179-208.
- Trimarco, K. A. (1997). *The Effects of a Graduate Learning Experience on Anxiety, Achievement, and Expectations in Research and Statistics* (Report No. TM028328). Paper presented at the Annual Meeting of the Northeastern Educational Research Association. (ERIC Document Reproduction Service No. ED 419 022).
- Unrau, Y.A. ve Beck, A.R. (2004). Increasing Research Self-Efficacy Among Students In Professional Academic Programs. *Innovative Higher Education*. 28(3), 187-204.
- Uzunoğlu, S. (1997). Bilgi çağındaki eğitimin temel özellikleri. Nasıl Bir Eğitim Sistemi: Güncel Uygulamalar ve Geleceğe İlişkin Öneriler (Eğitim Sempozyumu, 10-12 Nisan), İzmir, 555-64.
- Ünal, S., Ada, S. (2007). Eğitim bilimine giriş. Nobel Yay. Ankara.
- Yılmaz, M. (1997). Eğitim politikaları bağlamında 21. yüzyılın temel sorunları ve öğretmen eğitimi. Nasıl Bir Eğitim Sistemi: Güncel Uygulamalar ve Geleceğe İlişkin Öneriler (Eğitim Sempozyumu, 10-12 Nisan). İzmir, 555-64.
- Van der Geer, J., Hanraads, J. A. J., & Lupton, R. A. (2000). The art of writing a scientific article. *Journal of Science Communication*, 163, 51–59.
- Strunk, W., Jr., & White, E. B. (1979). *The elements of style* (3rd ed.). New York: MacMillan.
- Mettam, G. R., & Adams, L. B. (1999). How to prepare an electronic version of your article. In B. S. Jones & R. Z. Smith (Eds.), *Introduction to the electronic age* (pp. 281–304). New York: E-Publishing Inc.
- Fachinger, J., den Exter, M., Grambow, B., Holgerson, S., Landesmann, C., Titov, M., et al. (2004). Behavior of spent HTR fuel elements in aquatic phases of repository host rock formations, 2nd International Topical Meeting on High Temperature Reactor Technology. Beijing, China, paper #B08.
- Fachinger, J. (2006). Behavior of HTR fuel elements in aquatic phases of repository host rock formations. *Nuclear Engineering & Design*, 236, 54.