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International Online Journal of Educational Sciences

ISSN: 1309-2707

A Research on the Methods and Analysis Techniques of the Postgraduate Theses and Dissertations on Sports in Turkey*

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ARTICLE INFO

Article History:
Received 18.06.2015
Received in revised form 06.10.2015
Accepted 09.12.2015
Available online 30.12.2015

ABSTRACT

The main objective of this study is to analyze the different aspects of MA and PhD theses and dissertations classified under "sports" index between 2010 and 2014 by National Thesis Center of Higher Education Institution. Document analysis method, which is a qualitative research method, was adopted in this study. Within the scope of collecting research data for this study, 910 theses in total (master's degree 75.6%; n=688, specialty in medicine 2.1%; n=19 and doctorate 22.3%; n=203) which are accessible on the Internet and were written between 2010 and 2014 under the title of "Sports" in the catalogue of National Thesis Center of Higher Education Institution (YÖK) were analyzed. For this purpose, the researchers defined the aspects of study to be analyzed for each thesis and encoded the collected data using an Excel software package, and finally conducted a percentage and frequency analysis by calculating the percentage and frequency, respectively. As a conclusion, the present study showed that MA and PhD theses and dissertations indexed by National Thesis Center of Turkish Higher Education Institution were mainly conducted by male researchers, the number of MA theses were comparatively higher and the majority of thesis advisors were the academicians titled Asst. Prof. Dr. It was also revealed that quantitative analysis methods and techniques were commonly used, movement and training sciences were the main study fields in scientific research domain, sampling groups of theses predominantly included athletes, as expected, while trainers and referees were, interestingly, rarely included in sampling groups, and the number of theses in foreign languages was significantly low. Considering all these conclusions, it is possible to suggest that postgraduate theses on sports science in Turkey are affected by global changes and have unique features.

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Keywords:
Sports Thesis, Methods and Analysis Techniques, Theses Center, Dissertations

Introduction

One of the unique characteristics of human beings is to manage to convey all kinds of acquired information and knowledge to the next generations. The information can be based on either individual knowledge and social life or scientific information presented in a systematic manner. Today's world has been shaped by the transfer of information and knowledge to the next generations (Erkuş, 2011; Doğan, 2010; Armağan, 1983). Continuous transfer of the information provides new features to the information itself, making it constantly developing, articulated and reproducible. Yıldırım (1992, p. 15-16) states that there are various opinions about the development of science in consequence of the scientific information, and two of them are generally recognized. The first opinion suggests that the science is a process of knowledge generation and reproduction while the second opinion argues that it is a consequence of the fundamental change in the manner of thinking on a theoretical basis. These are not opposing but complementary opinions. The development of science depends on not only a series of changes in the

* This paper was orally presented at the 13th International Sports Science Congress (ISSC) at Selçuk University, Turkey.

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DOI: http://dx.doi.org/10.15345/iojes.2016.01.007

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theoretical approaches but also a chain of discovery attached to one another. Consequently, it is possible to mention different intertwined concepts of scientific thinking and scientific research.

In order for the information to be recognized as scientific knowledge, its events and objects have to be observable, objective and repeatable (Gökçe, 1999). On the other hand, only the information that is acquired through scientific research methods can be recognized as scientific information and knowledge. The scientific research is defined as "*a process consisting of various efforts to reach an extensive knowledge in line with certain functions of science such as understanding, explanation and control by using scientific methods*" (Balcı, 2005; Ural and Kılıç, 2006; Çömlekçi, 2001).

Scientific research aims to define the procedures to follow, specifying how, where and in which manner to start. It also includes a set of phases such as collection, ordering, definition, description, classification and analysis of the data related to the study subject (Armağan, 1983). The information acquired through the scientific research is classified according to the characteristics of the fields, which collectively form the scientific study fields. From past to present, there has been a specialization in every scientific field, which has been in the form of the sub-fields of the related scientific field. Especially from the perspective of methodology, it is possible to state that the distinction between all scientific fields is artificial. There is a common public perception that mathematics and natural sciences are counter fields of human sciences due to their different qualifications. However, it goes without saying that there is no methodological difference between understanding the human behaviors and the nuclear processes (Karasar, 1994; Gökçe, 1999).

The level of development for a scientific field depends on what kind of systematic theory, concepts, methods and hypothesis are used. Sports science nowadays is regarded as an applied and inter-disciplinary scientific field. Therefore, sports is a multi-disciplinary field by nature and it is related to all scientific fields. Especially in the last century, sports science has come to the fore initially in the field of education, and then medicine and psychology, forming its unique structure between the years of 1960 and 1970 (Bağırgan, 1990). Sports science classically depends on the concept of physical education and takes its place in the scientific world as "Sports Science" (Mirzeoğlu, 2003). Röthing defines sports science as "*the integrity of all kinds of knowledge, explanation and methods that are guided by the scientific principles about the problems in sports and the appearance of the problems*" (Röthing cited by Bağırgan, 1992). In order to improve sports science in Turkey, 66 people have been sent to different countries within the framework of international instructor trainee program since 1960s in accordance with Law No. 1416. The instructors have been appointed to the universities with different sports schools upon their arrival in Turkey after completing their training programs (Açıkada et al., 1993). It is possible to say that this has provided a significant contribution to the development of sports science in Turkey, yet this development is quite new in our country and it has been shaped as a scientific field only since 1980s (Bağıran, 1992).

It is virtually unavoidable to make use of the results of similar research carried out previously in order to reveal a new set of information and knowledge. Therefore, all scientific studies are classified in terms of index, and presented to those who are interested in. MA and PhD theses and dissertations are classified based on the very same principle in our country. Thesis is initially classified in the catalogue of the university where it was pursued, and then placed in the catalogue of the National Thesis Center of Higher Education Institution (YÖK). In the aforementioned catalogue, there are indices under different titles and researchers can access to all the theses under the related title. Açıkada et al. (1993) state that one of the most important indicators of the level of academic studies in a country is the number and quality of the academic studies carried out in the relevant field or fields. Based on this point of view, the main objective of this study is to analyze the different aspects of MA and PhD theses and dissertations classified under "sports" index between 2010 and 2014 by National Thesis Center of Higher Education Institution.

Method

Document analysis method, which is qualitative research method, was adopted in this study. The document review includes the analysis of written materials about the targeted phenomenon or phenomena to be studied which are significant sources of information commonly used in qualitative studies (Yıldırım ve Şimşek, 2005). Within the scope of collecting research data for this study, 910 theses and dissertations in total (master's degree 75.6%; n=688, specialty in medicine 2.1%; n=19 and doctorate 22.3%; n=203) which were accessible on the Internet and written between 2010 and 2014 under the title of "Sports" in the catalogue of

National Thesis Center of Higher Education Institution (YÖK) were analyzed. For this purpose, the researchers defined the aspects of study to be analyzed for each thesis and encoded the collected data using an Excel software package, and finally conducted a percentage and frequency analysis by calculating the percentage and frequency, respectively.

Findings

In this section, all the data collected during the study is represented in the form of tables below. Since the data related to the grand total is the same in each table, it is only shown in the first table and not included in the following ones.

Table 1. Distribution of sex

Sex		Thesis Publication Year					Total
		2010	2011	2012	2013	2014	
Male	f	180	173	96	98	81	628
	%	19.8	19.0	10.5	10.8	8.9	69.0
Female	f	91	61	53	43	34	282
	%	10.0	6.7	5.8	4.7	3.7	31.0
Grand Total	f	271	234	149	141	115	910
	%	29.8	25.7	16.4	15.5	12.6	100.0

As seen in the Table 1, it is revealed that more than half of the theses reviewed are written by male researchers.

Table 2. Distribution of thesis types

Type of Thesis	Thesis Publication Year					Total
	2010	2011	2012	2013	2014	
Master's Degree	209	167	111	104	97	688
	23.0	18.4	12.2	11.4	10.7	75.6
Doctorate	58	59	38	34	14	203
	6.4	6.5	4.2	3.7	1.5	22.3
Specialization in Medicine	4	8	0	3	4	19
	0.4	0.9	0	0.3	0.4	2.1

The analysis of Table 2 shows that 75.6% of all the theses consist of master's theses, as expected by the researchers. Besides, there is a decrease by years in the number of theses. The main reason of this is that Higher Education Institution (YÖK) re-arranged the criteria related to the postgraduate programs in accordance with the above years.

Table 3. Distribution of advisor

Distribution of Advisor	Thesis Publication Year					Total
	2010	2011	2012	2013	2014	
Dr.	2	1	1	1	5	10
	0.2	0.1	0.1	0.1	0.5	1.1
Asst. Prof.	166	132	89	69	59	515
	18.2	9.8	7.6	6.5	18.2	56.6
Assoc. Prof.	29	38	15	37	33	152
	3.2	4.2	1.6	4.1	3.6	16.7
Prof.	74	63	44	34	18	233
	8.1	6.9	4.8	3.7	2.0	25.6

It was determined that 56.6% of the theses written were advised by the academicians titled Asst. Prof. while the rest is advised by Professors and Associate Professors, respectively.

Table 4. Institutes of theses

Institute	Thesis Publication Year					
	2010	2011	2012	2013	2014	Total
Health Sciences	173	165	94	95	86	613
	19.0	18.1	10.3	10.4	9.5	67.4
Social Sciences	69	40	28	25	18	180
	7.6	4.4	3.1	2.7	2.0	19.8
Educational Sciences	26	27	26	21	11	111
	2.9	3.0	2.9	2.3	1.2	12.2
Other	3	2	1	0	0	6
	0.3	0.2	0.1	.0	.0	0.7

The data presented in Table 4 reveals that the majority of theses were pursued in the Institute of Health Sciences. Yet, it is also observed that research subject is not necessarily related to health despite having been carried out in the Institute of Health Sciences, which proves that a new structure titled "Institute of Sports Science" in the field of physical education and sports is required.

Table 5. The number of pages of thesis

Number of Pages	Thesis Publication Year					
	2010	2011	2012	2013	2014	Total
Between 0 and 100	132	116	67	68	75	458
	14.5	12.7	7.4	7.5	8.2	50.3
Between 101 and 150	83	68	62	55	30	298
	9.1	7.5	6.8	6.0	3.3	32.7
Between 151 and 200	36	33	10	12	7	98
	4.0	3.6	1.1	1.3	0.8	10.8
Between 201 and 250	14	10	7	5	1	37
	1.5	1.1	0.8	0.5	0.1	4.1
251 and more	6	7	3	1	2	19
	0.7	0.8	0.3	0.1	0.2	2.1

The data presented in Table 5 focuses mainly on the morphology rather than the content of a thesis. It is revealed that the page range of 50.3% of the theses are between "0-100".

Table 6. Scientific field's theses are written in

Scientific Field	Thesis Publication Year					
	2010	2011	2012	2013	2014	Total
Movement and Training	118	102	64	66	50	400
	13.0	11.2	7.0	7.3	5.5	44.0
Sports Management	49	55	22	24	38	188
	5.4	6.0	2.4	2.6	4.2	20.7
Psycho-Social Aspects in Sports	45	28	23	28	9	133
	4.9	3.1	2.5	3.1	1.0	14.6
Sports Education and Training (Pedagogics)	41	31	31	12	9	124
	4.5	3.4	3.4	1.3	1.0	13.6
Recreation	12	12	7	5	5	41
	1.3	1.3	0.8	0.5	0.5	4.5
Sports-Health	6	6	2	6	4	24
	0.7	0.7	0.2	0.7	0.4	2.6

Table 6 presents the distribution of scientific fields in which the sports theses are written. As expected, the majority of theses are written in the field of movement and training (44%). However there are

highly interesting findings about the field of sports management since undergraduate departments of sports management have started education and training activities very recently in Turkey. Considering the recent developments, it is possible to say that the field of sports management has begun to draw the attention of researchers.

Table 7. Research methods of the theses

Research Method	Thesis Publication Year					
	2010	2011	2012	2013	2014	Total
Quantitative Method	239	205	132	128	97	801
	26.3	22.5	14.5	14.1	10.7	88.0
Qualitative Method	27	21	14	9	16	87
	3.0	2.3	1.5	1.0	1.8	9.6
Mixed Method	5	8	3	4	2	22
	0.5	0.9	0.3	0.4	0.2	2.4

The method used in research is significantly important to obtain the research findings and examine the hypothesis of the findings obtained. Table 7 reveals that the majority of theses (88.0%) use quantitative research method.

Table 8. Statistical techniques used in quantitative tests

Statistical Techniques	f	%
Descriptive Analysis	1106	34.5
Test of Comparison (parametric)	789	24.6
Test of Comparison (non-parametric)	497	15.5
Test of Normality	403	12.4
Post Hoc	208	6.5
Tests for Homogeneity of Variance	164	5.0
Multivariate Analysis	6	0.1
Other	37	1.4
Total	3210	100.0

Table 8 presents the type of statistics that are used to analyze the quantitative theses. During the analysis, a frequency is designated to all statistical techniques used in each thesis. The above data reveals that descriptive analysis has the highest ratio.

Table 9. Techniques used in quantitative and mixed theses

Techniques Used	f	%
Document Analysis	75	46.9
Interview	61	38.1
Focal Group Interview	9	5.6
Situation Analysis	8	5.0
Case Study	5	3.1
Semiotics	2	1.2
Total	160	100.0

As in Table 8, Table 9 designates a frequency to all quantitative techniques used in each quantitative thesis therein. The data in the table reveals that document analysis techniques are the most commonly used quantitative research method.

Table 10. The number of samples in theses

Number of Samples	Thesis Publication Year					
	2010	2011	2012	2013	2014	Total
Between 0 and 100	155	124	79	76	56	490
	17.0	13.6	8.7	8.4	6.2	53.8
Between 101 and 200	54	32	21	27	20	154
	5.9	3.5	2.3	3.0	2.2	16.9
Between 201 and 300	27	17	14	10	7	75
	3.0	1.9	1.5	1.1	0.8	8.2
Between 301 and 400	22	18	8	11	5	64
	2.4	2.0	0.9	1.2	0.5	7.0
Between 401 and 500	13	17	9	5	10	54
	1.4	1.9	1.0	.5	1.1	5.9
501 and more	0	26	18	12	17	73
	0	2.9	2.0	1.3	1.9	8.0

The data in Table 10 suggests that the number of samples between 0 and 100 is preferred in theses, particularly in the fields of movement and training, sports and health sciences studies with less number of samples.

Table 11. Sample groups used in theses

Sample Groups	f	%
Athlete	355	39.0
Student	178	19.6
Sedentary	72	7.9
Teacher	41	4.5
Customer	32	3.5
Manager	25	2.7
Civil Servant	19	2.1
Handicapped	18	2.0
Trainer	15	1.6
Other (Referee, parent, child, private sector employee, experimental animal, elderly, patients, etc.)	155	17.0
Total	910	100.0

Table 11 shows that the majority of data is collected from athletes (%39.0). Although it is not shown in the Table, the distribution of athletes according to sports branches are also studied, which reveals that the main focus is on popular sports branches in our country. It is also interesting that trainers are included in the sample group with a ratio of 1.6%.

Table 12. Thesis language

Language	Thesis Publication Year					
	2010	2011	2012	2013	2014	Total
Turkish	260	229	145	138	110	882
	28.6	25.2	15.9	15.2	12.1	96.9
Foreign Language	11	5	4	3	5	28
	1.2	0.5	0.4	0.3	0.5	3.1

It is clearly understood from Table 12 that almost all theses (%96.9) in sports index of Turkey is written in Turkish.

Discussion and Conclusion

It is observed that the majority (69.0%) of theses between 2010 and 2014 in National Thesis Center of Higher Education Institution are written by male researchers, the theses written in 2010 are has a higher ratio (29.8%) which has declined in the following years. It is seen, as expected by the researchers, that the majority (75.6%) of theses are master's degree theses, and thesis advisors are mainly the academicians titled Asst. Prof. (56.6%). In their study, Açıkada et al. (1993) determined that 66 doctorate and 118 master's degree theses were written in the field of sports science between 1987 and 1991. Accordingly, it can be suggested that there is a quantitative increase in the number of theses published in sports science in our country. Similarly, Silverman and Skonier (1997) confirmed that there was an annual increase in the number of theses in the field of physical education between 1980 and 1994, yet various studies showed no increase. Also, Reilly (2008) emphasizes that national and international publications in sports and exercise sciences have dramatically increased, which proves that the number of studies in sports science have increased in all types of publications. A similar situation has been observed in the number of theses in physical sciences since 2005 (Doğru et al., 2012). While the underlying reason for this may vary depending on the country, the quantitative increase in the number of universities and institutes in Turkey since 1990s may be considered as the main reason for this increase.

It is understood that postgraduate theses and dissertations on sports are pursued in the institutes of health sciences, social sciences and educational sciences, respectively (Table 4), and the number of pages is mainly in the range of 0-200 (70.7%) pages. The detailed research on the sub-fields of sports science reveals that "movement and training" has comparatively the highest ratio (44%). This conclusion is consistent with the study by Xianliang and Hongying (2012) about the analysis of studies in sports science in China. Bağırgan (1992) indicates that movement and training field is comparatively more efficient for the development of sports science. Açıkada et al. (1993) found out in their study about the academic publications in sports science that the ratio of publications about athletes' health was approximately 67.5% while it was 17.5% for training and movement sciences. Likewise, Williams and Kendall (2007) suggest that main focus of the research between 1983 and 2003 is on physiology (37.3%) among the other sports sciences. All these results show that publication trends in sports science has changed in the course of time.

"Methods" used in scientific research are highly important to optimally reveal the research results. Accordingly, while quantitative research methods are commonly used for the theses written in the field of sports science, the usage of qualitative methods is very limited (Table 9). Culver et al. (2003) determined that a vast majority of research conducted in the field of sports psychology between 1990 and 1999 were conducted using quantitative methods (80%). Ward and Ko (2006) studied 68% of all articles published between 1981 and 2005 in the Journal of Teaching in Physical Education (JTPE), and found that 40% of the studies used quantitative research methods. However, Silverman and Skonie (1997) showed that only 8.9% of the studies in the field of physical education and sports used qualitative methods. As these results are consistent with the research findings, theses and articles written in other sciences apart from sports science prefer qualitative methods less (Selçuk et al., 2014; Doğru et al., 2012; Şimşek et al., 2008; Çiltaş et al., 2012; Ulutaş and Ubuz, 2008; Erdoğmuş, 2009). Selçuk et al. (2014) explain that the reason for the high number of quantitative researches is to reach samples very easily and quickly, collect the data more easily, and interpret them in relatively shorter time. Research findings reveal that qualitative research methods have limited usage in sports science. Similarly, Saban et al. (2010) suggest that the number of qualitative research is less than that of quantitative research in publications about sports science, and qualitative research is less preferred by academicians. Çiltaş (2012) considers that qualitative and mixed research methods are more comprehensive and detailed to the extent that they require more time, which can be a reason for the low level of interest in qualitative research. It can also be suggested that the main reason for the low level of interest in qualitative research in sports science is the high number of studies on movement and training (Table 6). Additionally, sampling and study groups of the theses show, as expected, that they include the highest number of athletes (39%), followed by students and sedentary people (Table 11). Interestingly, however, the ratio of trainers and referees is quite low. This finding should be taken into consideration by researchers in sports science.

Other variables evaluated within the scope of the present study include the statistical analysis used in the theses and other methods of analysis used in quantitative research. It is observed that more than one

statistical and quantitative analysis method are used for each thesis. Therefore, all statistical data and quantitative techniques used for each thesis are considered to be a frequency while analyzing the data in each thesis. Accordingly, descriptive analysis, parametric testing and non-parametric testing are used as the top three techniques in the theses written between 2010 and 2014 in the field of sports science. In qualitative research, document analysis (46.9%) and interview (38.1%) are the main methods preferred. In his study on the analysis trends of theses written in USA and Canada about fitness, Hung (2011) states that 22.8% of the theses use regression while 20.3% of them use t-test methods. Williams and Kendall (2007) concluded that qualitative methods were rarely used in sports science, and Culver et al. (2003) supported this conclusion by also adding that interview technique is the most frequently used method in sports science. All the above conclusions are in line with our research results.

Another important finding of our study is that majority of the theses were written in Turkish (97.3%) and the percentage of theses in a foreign language was significantly low. This result is highly meaningful in terms of conducting and presenting the scientific information and knowledge in native language. Yet, scientific information is considered to be universal, and thus abstracts are also written in English in each thesis. On the other hand, it should also be emphasized that English versions of abstracts are too brief, sometimes main highlights of a study are not included in the English abstracts, and in some theses there are significant grammar mistakes. It can also be suggested that abstracts should not be in the form of a brief summary, but in the form of an expanded summary as in certain countries where English is not the native language (Fransen, 2014). Tuncel (2008) indicates that the main challenge for Turkish researchers to conduct international studies is their insufficient level of English and thus not being able to carry out innovative and novel researches. It is also emphasized that the insufficient level of foreign language prevents researchers from reviewing international literature and consequently, they hardly conduct novel studies introducing innovative aspects to the relevant field.

In conclusion, the study shows that MA and PhD theses and dissertations indexed by National Thesis Center of Turkish Higher Education Institution are mainly pursued and written by male researchers, the number of MA theses are comparatively higher, and the majority of thesis advisors are the academicians titled Asst. Prof. It is also revealed that quantitative analysis methods and techniques are commonly used, movement and training sciences are the main fields of study in scientific research domain, sampling groups of the theses predominantly consist of athletes, as expected, yet interestingly, trainers and referees are rarely included in sampling groups, and the number of theses in foreign languages are significantly low. Considering all these conclusions, it is possible to suggest that postgraduate theses and dissertations on sports science in Turkey are affected by global changes, and have unique features.

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