



Involvement of Women in the Production of Doctoral Dissertations in Education in Andalusian Universities

Alexander Maz-Machado, María Josefa Rodríguez-Baiget, Ana María Antiduelo-García, Gema Linde

Facultad de Educación, Universidad de Córdoba, Córdoba, España

Email: malmamaa@uco.es

How to cite this paper: Maz-Machado, A., Rodríguez-Baiget, M.J., Antiduelo-García, A.M. and Linde, G. (2023) Involvement of Women in the Production of Doctoral Dissertations in Education in Andalusian Universities. *Open Access Library Journal*, 10: e10381.

<https://doi.org/10.4236/oalib.1110381>

Received: June 14, 2023

Accepted: July 24, 2023

Published: July 27, 2023

Copyright © 2023 by author(s) and Open Access Library Inc.

This work is licensed under the Creative Commons Attribution International License (CC BY 4.0).

<http://creativecommons.org/licenses/by/4.0/>



Open Access

Abstract

Research in educational aspects is crucial in contemporary society due to the continuous scientific and social changes. Doctoral dissertations are a source of information on various patterns of educational research, as well as trends and preferred lines of scientific research. A bibliometric study of doctoral dissertations on education carried out in the Autonomous Community of Andalusia in the period 2010 to 2021 is presented. A total of 951 dissertations were analyzed using bibliometric techniques and network analysis. A large drop in doctoral production was observed in recent years, and the University of Granada emerges as the driving institution of educational research in Andalusia.

Subject Areas

Education, Social Sciences

Keywords

Doctoral Dissertations, Education, University, Gender, Andalusia

1. Introduction

Research on educational issues is not only a constant in university systems, but it is also a huge source of data and provides to the society and the educational system itself ideas, proposals, and diagnostics on various aspects of education. All this is because education is the fundamental pillar of any society and for the integral development of individuals. Education is an instrument that society uses to foment the coexistence and to promote scientific, technological, and huma-

nistic development.

There are various techniques and methodological strategies to carry out effective research of all types, and this is also applicable to educational research. Bibliometrics is a technique used to observe research in general, the relationship between whom makes science and the influence of this scientific research [1]. Bibliometric studies are common in both classical sciences [2] [3] [4] and social sciences [5] [6] [7] and more recently in the field of arts and humanities [8] [9].

On the other hand, it is an accepted fact in the academic field that the completion of a Doctoral Dissertations is a crucial aspect for the formation of new researchers, because in this way they put into play the knowledge and skills acquired to plan and carry out scientific research in or about education. They not only acquired concepts, techniques, strategies and research methodologies, but they must also be put to the test in order to achieve certain objectives.

Doctoral dissertations are a source of data in bibliometric studies both internationally and nationally. As an example, Alikina *et al.* [10] analyzed doctoral dissertations on translation that were developed in Russia. In the results, they observed a predominance of references to classical works, especially Russian linguistic theories of translation. Wang *et al.* [11] analyzed Chinese doctoral dissertations on librarianship and information science using and, in this case, they focused the study on analyzing the co-occurrence of terms and content to identify the different clusters and the networks that are generated. Haque & Khan [12] analyzed doctoral dissertations on agriculture to carried out at Bangladesh Agricultural University over a period of twenty years (1994-2014).

In Spain, studies on doctoral dissertations are a recurring theme in scientific journals in many areas of knowledge. For example, Repiso *et al.* [13] studied 404 doctoral dissertations on television carried out in Spain during the period 1976 to 2007. Fernandez-Guerrero [14] analyzed 347 dissertations on medical scientific information. Machan & Portero [15] studied 1036 doctoral dissertations on radiodiagnosis carried out between 1976 and 2011. Duarte Martinez *et al.* [16] identified the networks generated in Spanish doctoral dissertations registered in the TESEO database, and their analysis included 237,187 dissertations carried out between the years 1976 to 2016.

In a particular form of education in the national context, several studies have been carried out on Mathematics Education doctoral dissertations [17] [18] [19].

Thesis about pedagogy was analyzed by Fernández-Cano *et al.* [20], who investigated the Spanish production over thirty years, verifying that they come to terms with some recognized bibliometric indicators.

Some studies have been carried out on educational research from a gender perspective. Muñoz-Ñungo *et al.* [21] analyzed the presence of women in educational publications in Colombia. They found that the percentage of articles with participation of women is 47.7% and that the articles signed only by women represent only 28.40% compared to those signed only by men, which represent 35.84%.

In gender studies on doctoral dissertations, Fernández-Guerrero *et al.* [22] analyzed those carried out by women in Medicine in Spain between 1882 and 1954. According to these authors, there is evidence of a glass ceiling for women in this field, with only 1% of the total number of dissertations written by women. On the other hand, Cáceres and Díaz [23], in their study on women's leadership in communication research in Spain, reviewed the participation of women in the authorship and direction of doctoral dissertations in this field. They analyzed 27,484 dissertations and found that men have directed 66%, almost twice as many dissertations as those directed by women (34%).

Maz-Machado *et al.* [24] reviewed the doctoral dissertations in mathematics education carried out in Andalusian universities, they found that the dissertations directed only by women were in the majority with 48.39% compared to those directed only by men (29.03%) or those in mixed co-direction (22.58%). Hernández *et al.* [25] analyzed the production of doctoral dissertations in foreign languages in Andalusia, focusing on gender aspects. They found that there was almost parity in the direction of dissertations between men (48.55%) and women (51.45%), furthermore, it was observed that 70% of women preferred to be directed by other women more than by men or mixed directions.

León-Mantero *et al.* [26] found that at the University of Córdoba women had only directed 23.3% of the doctoral dissertations carried out at this university, which shows a bias.

If we consider that in the academic year 2021/2022, 11606 students enrolled in the autonomous community of Andalusia in order to study some type of Master's degree related to education and that 921 students enrolled in doctoral studies in the Andalusian framework (EDUCAbase), there is a large base of people researching in educational fields, and therefore it is possible to identify some patterns in relation to the gender of the authors of university research as well as those who direct them.

In Andalusia there are 11 universities and the study of degrees related to education in the Autonomous Community of Andalusia can be carried out in 9 of the universities. In them there are departments related to education under different names. It is a fact that the faculties of education are among those with the highest number of students enrolled and with numerous PDI teachers. During the academic year 2021/2022 in the Andalusian universities there were 1253 PDI in the areas of knowledge related to Education.

The objective of this study is to know and describe the production of doctoral dissertations on Education from a bibliometric point of view in the period 2010 to 20221. In conclusion, the aim is revealed to light the achievements of women in educational research at the doctoral level in Andalusian universities.

2. Materials and Method

Firstly, all the websites of Andalusian universities were consulted so as to identify the education departments. Consequently, the TESEO database was visited.

Such database belongs to the Spanish Ministry of Education, Culture and Sport. This contains data regarding all the PhD dissertations defended since 1976. The names of the departments for the 2010-2021 period were reviewed to control possible name changes.

(<https://www.educacion.gob.es/teseo/irGestionarConsulta.do>).

All doctoral dissertations written in the departments identified were downloaded from TESEO to ensure that all dissertations to be analyzed were from education departments. In those where there were doubts, the abstract was read. These readings were carried out by the authors of the study and supervised by two experts in the areas of Didactics of Mathematics and Educational Research Methods. Variables under study are university, authorship, direction, gender of authors and directors, year of defence, and descriptors. The data searching process is displayed in **Figure 1**.

The information was downloaded in an Excel file to assign the biological gender of each of the authors and thesis directors according to their name. This assignment was done manually. For the analyses, the gender of each of the participants in the doctoral theses was counted and the behavior was observed at the level of each of the universities, as well as at the global level of all of them. **Figure 2** shows the example of data collected.

3. Results

The analysis of the information by means of frequencies has allowed us to observe some patterns in the production of doctoral theses in education in Andalusian

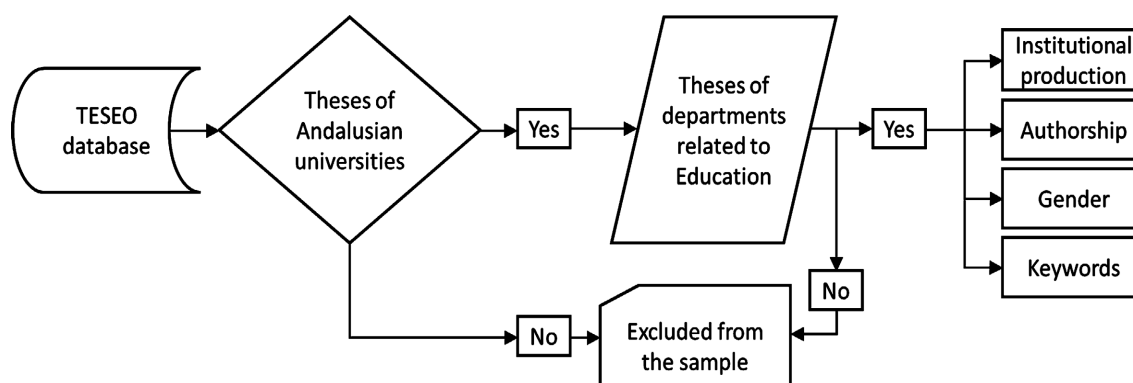


Figure 1. Diagram of the process.

Universidad	Departamento	Año	Título	Autor	Director
UNIVERSIDAD DE ALMERÍA	DIDÁCTICA Y ORGANIZACIÓN	2011	ANÁLISIS EDUCATIVO DE LA / LUQUE DE LA ROSA, ANTONIC	FERNÁNDEZ SIERRA, JUAN	
UNIVERSIDAD DE ALMERÍA	DIDACTICA DE LA LENGUA Y L	2012	LA RELIGIOSIDAD POPULAR E SÁNCHEZ GARCÍA, ÁNGELA	CHECA OLMOS, FRANCISCO	
UNIVERSIDAD DE ALMERÍA	DIDÁCTICA Y ORGANIZACIÓN	2012	ESTUDIO DE LAS COMPETENC ESPAÑA CHAVARRÍA, CAROLII	RODRÍGUEZ MARTINEZ, DOL	
UNIVERSIDAD DE CÁDIZ	DIDÁCTICA DE LA EDUCACIÓN	2020	ASSOCIATION OF PHYSICAL F DEL RIO DE CÓZAR, PAULA CE	CARBONELL BAEZA, ANA	
UNIVERSIDAD DE CÁDIZ	DIDÁCTICA DE LA LENGUA Y L	2016	LOS PROTAGONISTAS DE LOS CRUZ TROYANO, REGINA	SIBÓN MACARRO, TERESA-G	
UNIVERSIDAD DE CÁDIZ	DIDÁCTICA DE LA EDUCACIÓN	2016	RELACIÓN DE LAS VARIABLES GARCÍA LEÓN, RAFAEL	CASTRO PIÑERO, JOSÉ	
UNIVERSIDAD DE CÁDIZ	DIDÁCTICA DE LA EDUCACIÓN	2016	ACTIVIDAD FÍSICA, HÁBITOS : GONZÁLEZ GALO, ANA	CASTRO PIÑERO, JOSÉ	

Figure 2. Example of data collected.

universities according to the gender of both authors and directors. During the period 2010-2021 Andalusian public universities recorded 951 doctoral dissertations in the departments of education. The annual average is 79.25 dissertations per year. The highest number of dissertations took place in the years 2015 to 2017, in these two years 47.2% of the total were produced 2017 was the most productive year with 170 dissertations produced (**Figure 3**). The information was downloaded in an Excel file to assign the biological gender of each of the authors and thesis directors according to their name. This assignment was done manually.

The analysis of the production reveals that there is not a continuous growth pattern in production, after 2010 there are three distinct cycles, between the years 2011-2014, the number of doctoral dissertations is almost stable swinging between 85 and 93, then between 2015 and 2017 there is a gradual increase and finally between 2018 to 2021 there is a decrease. This decrease in the number of doctoral dissertations in education in Andalusian universities in recent years is quite remarkable, and the number of dissertations has reached a number that is lower than those defended at the beginning of the period analyzed.

The University of Granada (UGR) consists of the leading Andalusian institution in terms of production of doctoral dissertations in Education (**Figure 4**). This university produces 48.9% of the total, followed by the University of Seville (US) with 17.9%. Of the 10 public universities in Andalusia, 8 of them have produced dissertations in this field.

The 951 dissertations were written by 525 women (55.32%) and 424 men (44.68%). **Table 1** shows the evolution of thesis production in the period analyzed, according to the gender of the author.

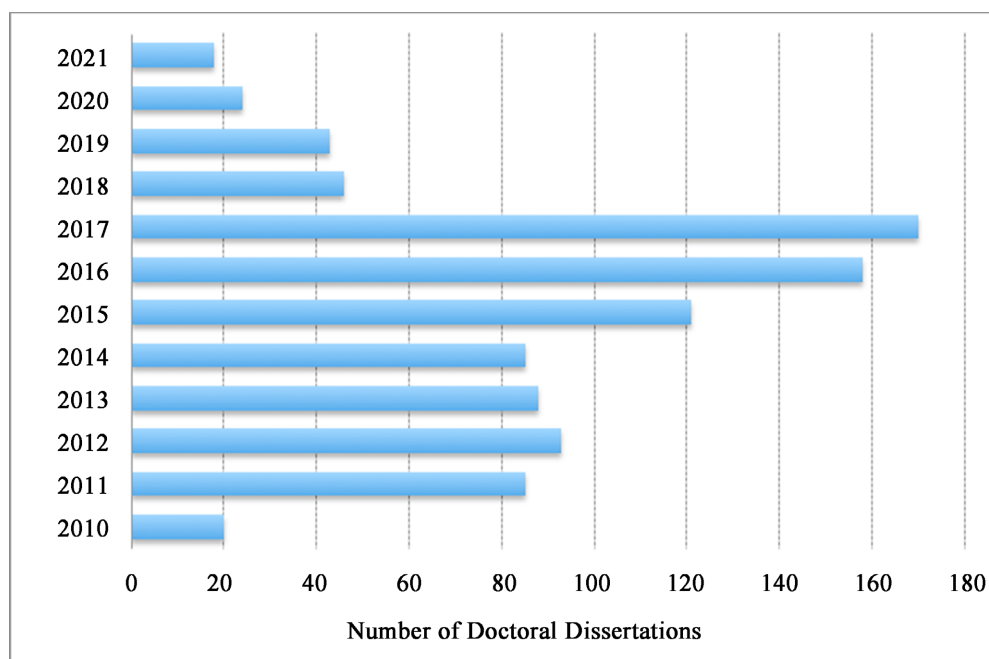


Figure 3. Diachronic production of doctoral dissertation in education.

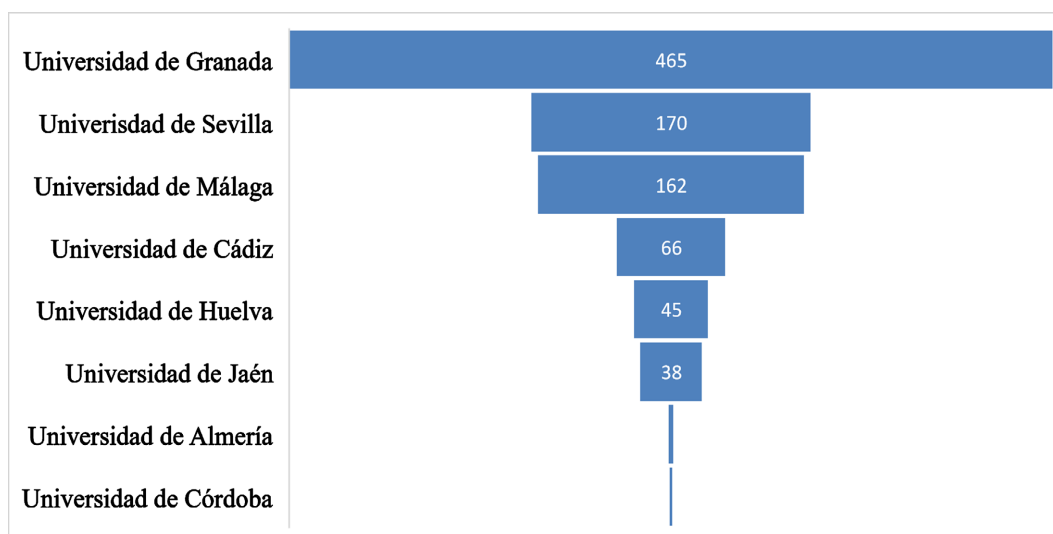


Figure 4. Production of dissertations on education in Andalusian universities (2010-2022).

Table 1. Diachronic production of doctoral dissertation in Education in Andalusia according to the gender of the authors.

Year	Men	%	Women	%	Total
2010	8	40.00	12	60.00	20
2011	42	50.00	42	50.00	84
2012	46	49.46	47	50.54	93
2013	39	44.32	49	55.68	88
2014	37	43.53	48	56.47	85
2015	52	42.98	69	57.02	121
2016	64	40.76	93	59.24	157
2017	74	43.53	96	56.47	170
2018	22	47.83	24	52.17	46
2019	23	53.49	20	46.51	43
2020	6	25.00	18	75.00	24
2021	11	61.11	7	38.89	18
Total	424	44.68	525	55.32	949

The maximum dissertations production by women occurred in 2017 with 96 dissertations. In the case of men, the lowest number of dissertations produced occurred in 2020 with 6. The year 2021 was the only one where men produced more dissertations than women 11 by men compared to only 7 by women. The average number of dissertations defended by men was 35.3 per year, while the average for women was 43.7 per year.

At the level of universities women have been in the majority in almost all except those with an almost anecdotal production (UCO and UAL). However, in the universities of Jaén, Cádiz and Málaga there are almost similar values be-

tween men and women (Figure 5), while in the University of Seville women double men as authors of doctoral dissertations in education departments.

If the direction of doctoral dissertations is analyzed, it can be female if it is only one or more women, male if it is only one or more men and mixed if there are both men and women sharing the role of directing the same thesis [25]. The direction of doctoral dissertations of only men triples those directed only by women (Figure 6). A total of 1433 researchers participated in the supervision role, of which 72.99% were men compared to 27.01% women.

During the period studied it is observed that in all the years the directors are mostly men. Female directorships have become lower than mixed ones in the years 2010, 2011, 2012, 2014 and 2018 (Figure 7).

At the University of Cordoba all its dissertations in education have had mixed direction, in all the others the direction of only men has been in the majority (Figure 8). In percentage terms, in the universities of Huelva and Cadiz, women-only supervisors are minimal, if not almost testimonial, and in Cordoba they are non-existent.

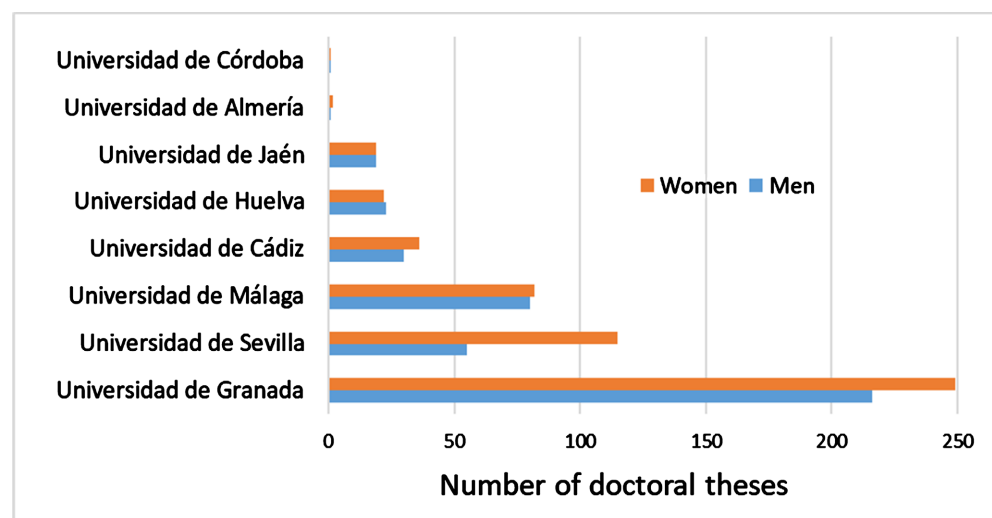


Figure 5. Doctoral dissertations in education departments in Andalusia according to the university and gender of the authors.

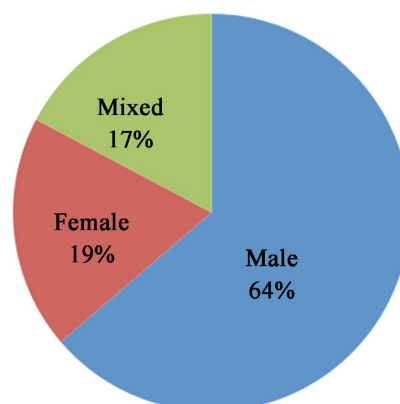


Figure 6. Typology of dissertation direction according to gender.

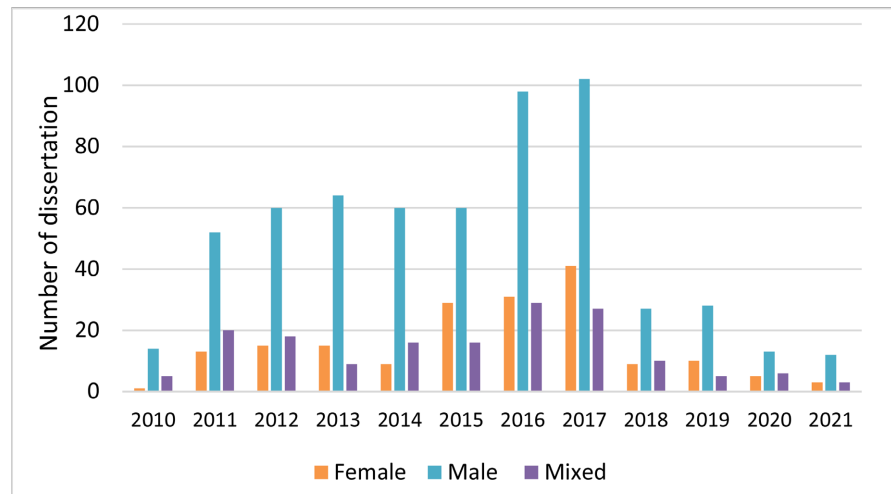


Figure 7. Evolution of dissertation direction according to type of direction in terms of gender.

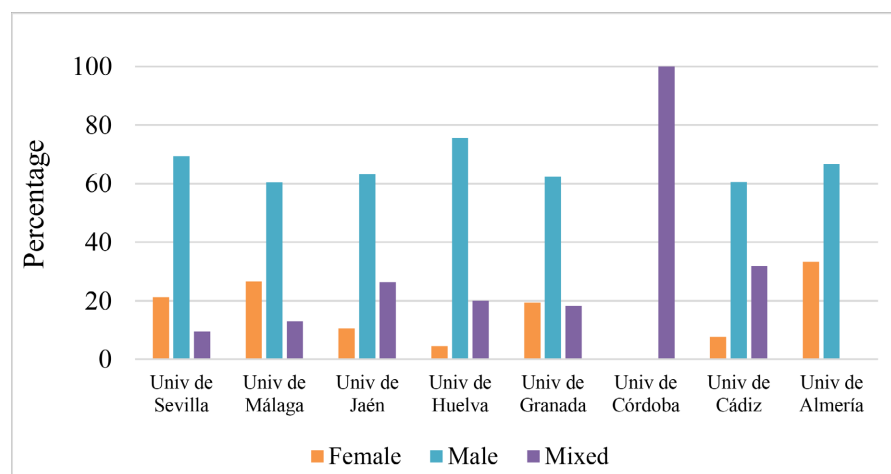


Figure 8. Type of dissertation direction according to gender and university of completion.

In the dissertations analyzed, 300 different descriptors were used, the most used being Education Organization and Planning in 155 dissertations (16.29%), followed by Higher Education and Education Sector in 113 dissertations each one (11.88%) (Table 2).

These descriptors according to the co-appearances in the doctoral dissertations are grouped around some thematic axes such as: languages, health, history and arts, educational planning and teacher training. In addition, we find that certain themes such as software, algebra or ethics are interrelated with some of the above.

When separating the descriptors according to the gender of the authors, although the descriptor organization and planning of education is the most used by both men and women, some differences are also observed. Women have done research in higher education in 16.57% of the dissertations while men only in 6.135. The descriptor Pedagogy is used in 15.65% of the dissertations by women while men only do so in 3.3% (Table 3).

Table 2. Most frequently used descriptors (n ≥ 21).

Descriptors	N°	%
Organization and planning of education	155	16.30
Higher education	113	11.88
Education sector	113	11.88
Teacher preparation	103	10.83
Pedagogy	96	10.09
Basic education	87	9.15
Vocational education	48	5.05
Student assesment	46	4.84
Educational theory and methods	46	4.84
Music and Musicology	42	4.42
Teacher profession and status of teachers	39	4.10
Teacher training and employment	38	4.00
Pedagogical methods	38	4.00
Language teaching	35	3.68
Educational methods	35	3.68
Organization and management of educational institutions	35	3.68
Computer-assisted instruction	34	3.58
Matemathics	34	3.58
Special education	32	3.36
Language and literature	23	16.30
Sociology of education	21	11.88

Table 3. Descriptors most frequently used in the dissertations according to author's gender.

Women			Men		
Descriptor	N°	%	Descriptor	N°	%
Organization and planning of education	109	20.76	Organization and planning of education	46	10.85
Higher education	87	16.57	Education sector	29	6.84
Education sector	84	16.00	Experience Teacher	27	6.37
Pedagogy	82	15.62	Higher education	26	6.13
Experience Teacher	76	14.48	Basic education	17	4.01
Basic education	70	13.33	Vocational training	16	3.77
Student assesment	36	6.86	Pedagogy	14	3.30
Educational theory and methods	35	6.67	Profession status of the teaching profession	13	3.07
Vocational training	32	6.10	Teacher training and employment	13	3.07
Music and Musicology	32	6.10	Language teaching	12	2.83
Pedagogical methods	30	5.71	Organization and management of educational institutions	11	2,59

production of doctoral dissertations in education in Andalusia, producing almost half of all those produced in this autonomous community.

In relation to the gender of the authors, it was observed that the majority of the dissertations on education were written by women. At the individual level, the University of Seville clearly shows the feminization of doctoral research in education, as it outnumbers men by a ratio of two to one in favor of women. If we look at the type of direction, we see that the participation of women is minimal (19%) and there is a bias in favor of the directions of only men (63.7%). In absolute terms, women only represent 21.01%.

Acknowledgments

This study was funded by 1381149-R research project of the Andalusian Research Plan and FEDER funds.

Conflicts of Interest

The authors declare no conflicts of interest.

References

- [1] Afia, N., Firdausi, N., Rosyidah, E., Anam, F. and Purnomo, A. (2021) A Study of TESOL in ASEAN Using Scientometric Mapping Approach. *Proceedings of the International Conference on Industrial & Mechanical Engineering and Operations Management*, Dhaka, 26-27 December 2021, 777-786.
- [2] Kappi, M. and Biradar, B.S. (2022) Twenty-Six Years of Research Performance of the Journal of Optics: A Bibliometric Analysis and Future Path. *Journal of Optics*, **52**, 77-89. <https://doi.org/10.1007/s12596-022-00849-5>
- [3] Özkaya, A. (2018) Bibliometric Analysis of the Studies in the Field of Mathematics Education. *Educational Research and Reviews*, **13**, 723-734. <https://doi.org/10.5897/ERR2018.3603>
- [4] Thanuskodi, S. (2011) Bibliometric Analysis of the Indian Journal of Chemistry. *Library Philosophy and Practice*.
- [5] Glänzel, W. and Schoepflin, U. (1999) A Bibliometric Study of Reference Literature in the Sciences and Social Sciences. *Information Processing & Management*, **35**, 31-44. [https://doi.org/10.1016/S0306-4573\(98\)00028-4](https://doi.org/10.1016/S0306-4573(98)00028-4)
- [6] Jiménez-Fanjul, N., Maz-Machado, A. and Bracho-López, R. (2013) Bibliometric Analysis of the Mathematics Education Journals in the SSCI. *International Journal of Research in Social Sciences*, **2**, 26-32.
- [7] Sivertsen, G. (2016) Patterns of Internationalization and Criteria for Research Assessment in the Social Sciences and Humanities. *Scientometrics*, **107**, 357-368. <https://doi.org/10.1007/s11192-016-1845-1>
- [8] Ho, H.C. and Ho, Y.S. (2015) Publications in Dance Field in Arts & Humanities Citation Index: A Bibliometric Analysis. *Scientometrics*, **105**, 1031-1040. <https://doi.org/10.1007/s11192-015-1716-1>
- [9] Wang, W.M. and Ho, Y.S. (2017) Bibliometric Analysis of Art Exhibit Reviews in the Arts & Humanities Citation Index. *Malaysian Journal of Library & Information Science*, **22**, 59-68. <https://doi.org/10.22452/mjlis.vol22no1.5>
- [10] Alikina, E.V., Kavardakova, E.L. and Kushnina, V. (2016) Scientometric Study of

- Russian Research into Translation/Interpreting Pedagogy. *International Review of Management and Marketing*, **6**, 182-189. <https://doi.org/10.3233/EFI-211545>
- [11] Wang, T., Lund, B. and Dow, M. (2022) A Bibliometrics Study of Library and Information Science Doctoral Dissertations in China from 2011 to 2020. *Education for Information*.
- [12] Haque, M.E. and Khan, M.M. (2020) Doctoral Dissertations of Agricultural Faculty of BAU: A Bibliometric Analysis from 1974 to 2014. *The Eastern Librarian*, **25**, 58-71.
- [13] Repiso, R., Torres-Salinas, D. and Delgado-López-Cózar, E. (2011) Bibliometric and Social Network Analysis Applied to Television Dissertations Presented in Spain (1976/2007) *Revista Comunicar*, **19**, 151-159. <https://doi.org/10.3916/C37-2011-03-07>
- [14] Fernández-Guerrero, I.M., Callejas, Z., Griol, D. and Fernández-Cano, A. (2020) Longitudinal Patterns in Spanish Doctoral Dissertations on Scientific Medical Information: A Tertiary Study. *Scientometrics*, **124**, 1241-1260. <https://doi.org/10.1007/s11192-020-03494-6>
- [15] Machan, K. and Portero, F.S. (2018) Doctoral Theses in Diagnostic Imaging: A Study of Spanish Production between 1976 and 2011. *Radiologia (English Edition)*, **60**, 394-403. <https://doi.org/10.1016/j.rxeng.2018.07.002>
- [16] Duarte-Martínez, V., López-Herrera, A.G. and Cobo, M.J. (2018) Constructing Bibliometric Networks from Spanish Doctoral Dissertations. *Intelligent Data Engineering and Automated Learning-IDEAL 2018: 19th International Conference*, Madrid, 21-23 November 2018, 130-137. https://doi.org/10.1007/978-3-030-03496-2_15
- [17] Fernández-Cano, A., Torralbo, M., Rico, L., Gutiérrez, P. and Maz, A. (2003) Análisis cuantitativo de las tesis doctorales españolas en educación y matemática (1976-1998). *Revista Española de Documentación Científica*, **26**, 162-174. <https://doi.org/10.3989/redc.2003.v26.i2.135>
- [18] Maz-Machado, A., Rodríguez, M. and de los Ángeles Hidalgo-Méndez, M. (2022) Una mirada de género a la gestión de la investigación en Educación matemática en las universidades andaluzas. *Matemáticas, Educación y Sociedad*, **5**, 1-9.
- [19] Torralbo, M., Vallejo, M., Fernández-Cano, A. and Rico, L. (2004) Análisis metodológico de la producción española de tesis doctorales en educación matemática (1976-1998). *RELIEVE-Revista Electrónica de Investigación y Evaluación Educativa*, **10**, 1-10.
- [20] Fernández-Cano, A., Torralbo, M. and Vallejo, M. (2008) Revisión y prospectiva de la producción española en tesis doctorales de Pedagogía (1976-2006). *Revista de Investigación Educativa*, **26**, 191-207.
- [21] Muñoz-Ñungo, B., Rodríguez-Faneca, C., Maz-Machado, A. and Cuida, A. (2021) La presencia de la mujer en las publicaciones de educación en Colombia: Un análisis en el ESCI. *Biblios*, **82**, 41-50. <https://doi.org/10.5195/biblios.2021.959>
- [22] Fernández-Guerrero, I.M., Fernández-Guerrero, C. and Fernández-Cano, A. (2019) Tesis doctorales de Medicina defendidas por mujeres pioneras en España (1882-1954). *Educación Médica*, **20**, 60-66. <https://doi.org/10.1016/j.edumed.2018.01.003>
- [23] Cáceres, M.D. and Díaz, M.J. (2022) El liderazgo de la mujer en la investigación en comunicación. *Revista Española de Documentación Científica*, **45**, e324. <https://doi.org/10.3989/redc.2022.2.1859>
- [24] Maz-Machado, A., Gutiérrez-Rubio, D., Madrid, M.J. and Pedrosa-Jesús, C. (2022) A Look at Doctoral Theses in Mathematics Education at Andalusian Universities (2010-2020) from a Gender Perspective. *TEM Journal*, **11**, 1007-1012.

<https://doi.org/10.18421/TEM113-03>

- [25] Hernández García, V., Maz-Machado, A. and Rodríguez, M.J. (2022) Doctoral Dissertations on Foreign Languages in Andalusia (2010-2021): A Gender Analysis. *Technium Social Sciences Journal*, **38**, 114-123.
<https://doi.org/10.47577/tssj.v38i1.7785>
- [26] León-Mantero, C., Casas-Rosal, J.C., Gutiérrez-Rubio, D., Gutiérrez, M.P. and Maz-Machado, A. (2020) La presencia de la mujer en la autoría, defensa y evaluación de tesis doctorales: el caso de la Universidad de Córdoba. In: Gorjón, M.C., Guzmán, R. and Nieto, A.B., Eds., *Políticas públicas en defensa de la inclusión, la diversidad y el género*, Ediciones Universidad de Salamanca, Salamanca, 595-608.