

# Towards the Standardization of Graduation Profiles in Doctoral Programs

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## Abstract

This article presents the analysis of the graduation profiles declared by the Education Doctoral programs in Chilean territory. This process was carried out in accordance with a Standard Graduation Profile, which spells out the competencies that a future doctor must possess after training. This profile includes the competences required in the current globalized context, taking into consideration national and international documentation, as well as the opinions of the doctoral students. Accordingly, it intends to analyze the consistency of each of the declared graduation profiles with respect to the standard graduation profile. The nature of the method used is descriptive and quantitative, with a cross-sectional design, using descriptive and association techniques. The results include the quantification of the disciplinary, methodological, instrumental, and generic competencies declared in the graduation profiles of the Education Doctoral programs in Chile, with the aim of contributing to their assessment within the national context. At the international level, a replicable methodology is presented for the analysis of the graduation profiles in doctoral programs.

**Keywords:** doctoral; evaluation; methodology; graduation profiles

## Hacia la estandarización de los perfiles de egreso de los programas de doctorado

### Resumen

En este artículo se presenta el análisis de los perfiles de egreso declarados por los programas de Doctorado en Educación dictados en territorio chileno. Este proceso fue realizado en función de un Perfil de Egreso Estándar, donde se explicitan las competencias que ha de adquirir un futuro doctor tras su formación. Este perfil recoge las competencias que se demandan en el contexto globalizado actual, considerando la documentación nacional, internacional y la opinión de los doctorandos. De acuerdo a ello, se propone analizar la coherencia de cada uno de los perfiles de egreso declarados con respecto al perfil de egreso estándar. El método utilizado es de carácter cuantitativo descriptivo, con un diseño de tipo transversal, utilizándose técnicas descriptivas y de asociación. Como resultados se presenta la cuantificación de las competencias disciplinares, metodológicas, instrumentales y genéricas declaradas en los perfiles de egreso de los programas de Doctorado en Educación dictados en Chile, con el fin de contribuir a la evaluación de estos en el contexto nacional. A nivel internacional, se presenta una metodología replicable para el análisis de perfiles de egreso de programas de doctorado.

**Palabras clave:** doctorado; evaluación; metodología; perfiles de egreso

## Em busca da padronização dos perfis de egresso de cursos de doutorado

### Resumo

Este artigo apresenta a análise dos perfis de egresso declarados pelos cursos de Doutorado em Educação ministrados no Chile. Este processo foi realizado em função de um Perfil de Egresso Padrão, onde se explicam as competências que o futuro doutor deve adquirir após a sua formação. Este perfil reúne as competências exigidas no contexto globalizado atual, considerando a documentação nacional e internacional, assim como a opinião dos doutorandos. O objetivo é analisar a coerência de cada um dos perfis de egresso declarados com relação ao perfil de egresso padrão. O método utilizado é o quantitativo descritivo, com um desenho de tipo transversal, que faz uso de técnicas descritivas e de associação. A maneira de resultados, apresenta-se a quantificação das competências disciplinares, metodológicas, instrumentais e genéricas declaradas nos perfis de egresso dos cursos de Doutorado em Educação ministrados no Chile, com o intuito de contribuir para a sua avaliação no âmbito nacional. Igualmente, apresenta-se uma metodologia possível de ser replicada na análise de perfis de egresso de cursos de doutorado, no plano internacional.

**Palavras-chave:** doutorado; avaliação; metodologia; perfis de egresso

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The history of Chilean higher education has been divided into four stages (Bernasconi & Rojas, 2004). However, with the passing of the Higher Education Law 21.091, a fifth stage is visualized, given the changes that will be introduced in the financing of higher education and the processes of institutional and program accreditation being proposed. In relation to the stages, the first one was characterized by the existence of a small and homogeneous higher education system, focused especially on the undergraduate level. The second one, defined by the university reform and the changes it brought with it: the increase in enrollment and public funding, the reorganization of university governments, the incorporation of scholars with a research profile and a new outreach vision. The 1973 coup d'état marked the beginning of a third stage, which is particular due to the intervention of higher education institutions through the appointment of military rectors and the dismantling of measures adopted after the university reform. The last stage began with the 1981 reforms. It was essentially characterized by a drastic decrease in enrollment in higher education institutions, by approximately 30%. Consequently, the military government authorized the creation of private universities and new

non-university institutions of higher education (professional institutes and technical training centers).

Chile changed from a small, elite, state-run university system to a market-based university system (Bernasconi & Rojas, 2004). At the same time, the higher education financing system was redesigned, diversifying the State subsidy. In this context, in order to recover their operating costs, universities began charging fees to their students, creating a student loan program for those who could not finance their fees. All these changes were made within the framework of the undergraduate programs. In 1982, the National Fund for Scientific and Technological Research (FONDECYT) was created to distribute research funds through the submittal of projects that were arbitrated by external peers. It was not until the 2000s that the postgraduate course, which had been scarcely discussed in the whole country, was added to the discussion as a central topic (Corvalán, Falabella, & Rojas, 2011).

The new system's institutional structure, forged from the changes that took place around 1980, allowed for an increase in the supply and, therefore, in university enrollment in Chile, expanding the system towards fourth level education. In line

with emerging demands, it has been recognized that knowledge, in the globalized context, is a strategic component in the economic growth of a country (Baeza, 2017; Chiappa, & Muñoz, 2015). The doctorate represents a highly advanced instance of human capital formation, since doctoral programs allow to guarantee that a professional has the competencies to develop original research in a certain field of study (National Accreditation Commission & Ministry of Education, 2007).

Doctorates are the highest degree conferred by a university. The academic doctorate is characterized by the development of rigorous research, which shows that a person masters the most advanced concepts in an area of knowledge and therefore, can contribute to a certain field of knowledge (Krauskopf, 2003). Although the importance of doctoral education has been recognized in Chile, in the 1990s there were only two doctoral programs in education offered by

Pontificia Universidad Católica de Chile and Universidad de Humanismo Cristiano, both created in 1991. The late development of Chilean postgraduate programs was due to the fact that the State's interest was focused on training graduates and not on this academic degree (Vera-Villaruel, 2010). However, this panorama has been transformed by the changes in Chilean university education, which is evident in the number of programs that currently exist. This phenomenon is explained by the change in objectives assumed by universities, where knowledge is fundamental in the globalized context (Weijden, Teelken, de Boer, & Drost, 2016). Thus, universities had to take on the demands of the information society, where knowledge is considered as an economic good (Fernández, Fastuca, & Wainerman, 2015). In 2018, a total of 20 PhD programs in education were offered in Chile, defined by area of study (Table 1), according to the data provided by the Ministry of Education (2018b).

**Table 1**  
*Doctoral Programs in Education Taught in Chile by 2018*

N°	University	Program Name
1	Pontificia Universidad Católica de Chile	Doctorate in Education Sciences
2	Pontificia Universidad Católica de Valparaíso	Doctorate in Didactics of Mathematics
3	Universidad Academia Humanismo Cristiano	Doctorate in Education
4	Universidad Alberto Hurtado	Doctorate in Education
5	Universidad Andrés Bello	Doctorate in Education and Society
6	Universidad Bernardo O'Higgins	Doctorate in Education
7	Universidad Católica de la Santísima Concepción	Doctorate in Education
8	Universidad Católica de Temuco	Doctorate in Education
9	Universidad Católica de Maule	Doctorate in Education
10	Universidad Católica de Maule	Doctorate in Acting Physics
11	Universidad Católica de Maule	Doctorate in Didactics of Mathematics
12	Universidad de Concepción	Doctorate in Education
13	Universidad de La Frontera	Doctorate in Education Sciences
14	Universidad de Los Lagos	Doctorate in Mathematics Ed.
15	Universidad de Santiago de Chile	Doctorate in Education Sciences
16	Universidad de Biobío	Doctorate in Education
17	Universidad Diego Portales	Doctorate in Education
18	Universidad Diego Portales	Doctorate in Higher Education
19	Universidad Metropolitana de Ciencias de la Educación	Doctorate in Education
20	Universidad SEK	Doctorate in Education

**Note:** Chart based on the National Information System for Higher Education (Ministerio de Educación, 2018b) and university websites

Of the programs listed, the doctoral program from Universidad Academia Humanismo Cristiano indicates on its website that it will not have admissions this year, while the program at Universidad de Santiago de Chile is closed for the year 2019. It should be noted that the programs at Universidad Diego Portales and Universidad Alberto Hurtado are taught together, so they share the same graduation profile and training activities. The same is true for the doctoral program taught by Universidad Católica de la Santísima Concepción, in partnership with Universidad Católica de Temuco, Universidad Católica del Maule and Universidad del Biobío, which constitute a single doctoral program. In summary, for the year 2019, the actual offer of Doctorate in Education programs is 14. It is relevant to point out that, of the existing programs, the Doctorate in

Higher Education of Universidad de Diego Portales has a double degree, since it is taught jointly with the School of Humanities of the University of Leiden, The Netherlands. Meanwhile, the Doctorate in Education at Universidad Bernardo O'Higgins keeps a framework agreement of academic collaboration with Universidad de Valencia, Spain.

Considering the offer of Doctorate in Education programs for 2018, the national enrollment was 321 students, with 76 applicants entering the first year, corresponding to 24% of the total enrollment (Table 2). This situation contrasts with previous years, for example, the national enrollment for 2009 was 524 students (Corvalán et al., 2011). The current figure represents 38% fewer students enrolled in Doctorate in Education programs in Chile, in a period of less than a decade.

**Table 2**

*Total and First Year Enrollment in Doctorate in Education Programs in Chile Presented by University as of 2018*

No.	University	Enrollments 2018	1 <sup>st</sup> year 2018
1	Pontificia Universidad Católica de Chile	49	12
2	Pontificia Universidad Católica de Valparaíso	28	6
3	Universidad Academia Humanismo Cristiano	19	7
4	Universidad Alberto Hurtado	8	2
5	Universidad Andrés Bello	6	6
6	Universidad Bernardo O'Higgins	7	0
7	Universidad Católica de la Santísima Concepción	13	4
8	Universidad Católica de Temuco	12	3
9	Universidad Católica del Maule	20	3
10	Universidad Católica del Maule	6	0
11	Universidad Católica del Maule	3	3
12	Universidad de Concepción	7	0
13	Universidad de La Frontera	6	0
14	Universidad de Los Lagos	11	5
15	Universidad de Santiago de Chile	14	0
16	Universidad de Biobío	12	4
17	Universidad Diego Portales	8	3
18	Universidad Diego Portales	19	3
19	Universidad Metropolitana de Ciencias de la Educación	12	8
20	Universidad SEK	61	7
		<b>321</b>	<b>76</b>

**Note:** Chart based on the National Information System for Higher Education (Ministerio de Educación, 2018b) and university websites

### Accreditation of Doctoral Programs in Chile

Accreditation processes in Chile date back to the 80s, when the new context, namely the creation of universities, professional institutes and technical training centers, was under a monitoring system aimed at revising the curricula of new careers (Bernasconi & Rojas, 2004). This monitoring system collapsed in the late 80s, due to the excessive burden of examinations and the laxity of the applied standards, which resulted in the loss of credibility of the system. In 1990, Law No. 18.962, the Organic Constitutional Law on Education (LOCE), was enacted, establishing a new mechanism for supervising private institutions, based on the accreditation carried out by an autonomous and predominantly technical Higher Education Council (CSE). Although the new system was called accreditation, it differed from its usual meaning; therefore, the Ministry of Education later began to call it licensing (Bernasconi & Rojas, 2004).

It should be noted that accreditation processes in the 90s were focused only on private institutions, and this experience was the beginning of the culture of evaluation in Chile. At the end of that decade, in 1999, the National Commission for Undergraduate Accreditation (CNAP) was created. With regard to the accreditation of postgraduate programs, the Commission for the Evaluation of the Quality of Postgraduate Programs (CONAP) was in charge of leading the accreditation processes, since it had a decade of experience under the auspices of the National Commission for Scientific and Technological Research (CONICYT) in carrying out evaluations of the programs for granting scholarships to its students (Bernasconi & Rojas, 2004). This commission determined that the programs not meeting the minimum quality assurance parameters could be denied accreditation (Comisión Nacional de Acreditación & Ministerio de Educación, 2007).

In 2006, the Education Quality Assurance Act No. 20.129 was enacted, and the following year an integrated system for education quality assurance was implemented. Thus, CONAP and CNAP were merged into the National Accreditation Commission (CNA), which institutionalizes accreditation in Chilean higher education (Comisión Nacional de Acreditación & Ministerio de Ed-

ucación, 2007).

Consequently, the CNA assumed the accreditation functions for institutions and undergraduate and graduate programs, establishing, through law, the institutional bases for the creation of the evaluation system currently in force in Chile (Espinoza & González, 2016).

The accreditation of doctoral programs was established by law, through self-assessment and external peer review, applying dimensions and evaluation criteria for this purpose (González, Sarzoza, & López, 2018).

In 2010, with the enactment of the General Education Law (LGE), the Constitutional Organic Law on Education (LOCE) was replaced, passing the regulation of higher education on to the National Education Council (CNED), which became the entity responsible for the Education Quality Assurance System, thus replacing the Higher Education Council (CSE). With this change, it was established that accreditation processes would be voluntary, except for education and medicine programs; and that the accreditation stages would be internal evaluation, external evaluation and accreditation judgment (Cancino & Schmal, 2014).

After the implementation of the CNA, the Regulations were approved in 2014. They established the procedure for the development of accreditation processes for postgraduate studies and specialties in the health area. These regulations covered master, doctoral and specialty programs in the health area and other equivalent levels. Both in 2016 and in 2018, modifications were made to these regulations, establishing the constituent elements of the accreditation processes at this level (National Accreditation Commission, 2016a, 2018).

Currently and through accreditation processes, quality assurance is constituted as a tool for the regulation of higher education, aiming at certifying the quality of the programs offered in Chile. In regard to postgraduate education, it is important to note that, despite the existing institutional framework, there is still a significant percentage of programs that are not accredited. This shows the lax nature of the regulatory framework at the doctoral level (Baeza, 2017). This situation is intended to be rectified with the approval of Law 21.091, which establishes

that universities must submit their doctoral programs to accreditation processes, and their accreditation will be a requirement to have access to public funding or to have the guarantee of the State (Ministerio de Educación, 2018a). This implies that, if a doctoral program is not accredited, it will not be recognized by the State and consequently its students will not be able to access public funding of any kind. State funding for this level is managed through the Chile Scholar-

ship Program created in 2008, which arose from the need to have high-level professionals who acquire the necessary skills for the country's development (González & Jiménez, 2014). This situation is extremely critical for doctoral programs in education, considering the number of programs currently accredited (see Table 3), It represents a challenge for universities, bearing in mind that funding is essential for the research training of a doctoral student (Horgué, 2012):

**Tabla 3**

*Doctorados en Educación chilenos acreditados al año 2019.*

No.	University	Status of Accreditation	No. of years of Accreditation	Expiration
1	Pontificia Universidad Católica de Chile	Accredited	4 years	2021
2	Pontificia Universidad Católica de Valparaíso	Accredited	3 years	2019
3	Universidad Academia Humanismo Cristiano	No		
4	Universidad Alberto Hurtado	Accredited	4 years	2021
5	Universidad Andrés Bello	No		
6	Universidad Bernardo O'Higgins	No		
7	Universidad Católica de la Santísima Concepción	Accredited	3 years	2019
8	Universidad Católica de Temuco	Accredited	3 years	2019
9	Universidad Católica del Maule	Accredited	3 years	2019
10	Universidad Católica del Maule	No		
11	Universidad Católica del Maule	No		
12	Universidad de Concepción	No		
13	Universidad de La Frontera	No		
14	Universidad de Los Lagos	No		
15	Universidad de Santiago de Chile	No		
16	Universidad del Biobío	Accredited	3 years	2019
17	Universidad Diego Portales	Accredited	4 years	2021
18	Universidad Diego Portales	No		
19	Universidad Metropolitana de Ciencias de la Educación	No		
20	Universidad SEK	No		

**Note:** Chart based on the National Information System for Higher Education (Ministerio de Educación, 2018b) and university websites

Table 3 shows that eight doctoral programs in education are accredited, which is equivalent to 40% of the total Chilean offer. It is important to mention that, if we consider that there are programs taught in consortium and as a whole, the figure falls to 4 programs, which are those taught by Pontificia Universidad Católica de Chile, Pontificia Universidad Católica de Valparaíso, the Consortium of Universities, and Universidad Alberto Hurtado/Universidad Diego Portales. Another equally important factor is that the accreditation of these programs is granted for between 3 and 4 years, being the maximum 10 years of accreditation. The programs obtaining 3 years are in the first section determined by the National Accreditation Commission, which indicates that the program has deficiencies that need to be improved (Comisión Nacional de Acreditación, 2016b). The programs obtaining 4 years are in the third section, defined as those that meet the aspects of the criterion in a good way, although some improvements are required (Comisión Nacional de Acreditación, 2016b). Both sections have a noticeable distance from the fourth and maximum period of accreditation, which is between 8 and 10 years. It indicates that the program complies outstandingly with all the aspects that are evaluated, with its weaknesses being minimal (National Accreditation Commission, 2016b).

If we consider the importance of accreditation as a form of regulation of doctoral programs, it is evident that 60% of these programs operate without quality certification, so 49% of students are enrolled in non-accredited programs, specifically 160 doctoral students by 2018. This also means that they do not have the possibility of accessing state funding to pursue doctoral studies, since it is required to be enrolled in an accredited program.

### **The Graduation Profile as Evaluation of Doctoral Programs**

It is well known that globalization has had a great impact at all levels, one of them being higher education, which has had to adapt to the new challenges arising from the immediacy and exchange of products, human capital and resources. This has occurred based on how quickly commercial exchanges and communications take place (Núñez Valdés, 2017), which translates into a

change of paradigm incorporating the concept of competencies. This concept is based on an educational conception where the relationship between complex knowledge and its deepening is essential for subjects to be able to integrate them into the working life (Muñoz & Araya, 2017).

Competencies are defined as complex knowledge that allows the mobilization of different skills, knowledge and attitudes (Villarroel & Bruna, 2014). Given their significance, universities have had to incorporate in their training programs and in their graduation profiles the skills that applicants must acquire for a given academic degree.

The graduation profile is thus a formal statement from a higher education institution regarding the skills students should acquire after their training. It is the commitment acquired for society, since it is where the training processes and key competencies for a given profession are evidenced (Hawes, 2010). Möller and Gómez (2014, p.25) state that the "graduation profile (as an identity definition and as a training commitment) is conceived as an instrument that gives meaning to training programs, so it is essential that these include mechanisms to evaluate their compliance."

The competencies that have been identified in the graduation profile are constituted as an evaluation input both of training processes and the performance of a certain student (Knust & Gómez, 2009). In this way, the graduation profile gives an indication of the kind of graduate formed by a higher education institution and who will subsequently enter into the working world.

Internationally, and more specifically in Europe, a doctoral program is understood as the third cycle of university studies and leads to the acquisition of competencies and skills related to quality scientific research (Horgué, 2012). With this acknowledgement, and after the development of the Bologna process—initiated twenty years ago—people begin to understand that the university of the 21st century will have to focus on doctoral training, which involves interdisciplinary, cooperative and international work. That way, the doctorate is the mark of the university doing research (Nebot, 2009).

This new vision of university led to many discussions about doctoral training, establishing, among other things, the skills that a doctor



should acquire and that would be established in the graduation profiles of each of the programs taught in the European area. As a result, the importance of doctoral training is highlighted, since it is recognized as fundamental for the development of research (Jiménez-Ramírez, 2017). A graduation profile should contain not only a definition of the type of program to be taught, but also the characteristics that doctoral students will develop in the training process (Spronken-Smith, Brown, & Miroso, 2018).

Meanwhile, the set of skills that doctors should acquire with their training has not been determined in Chile. However, it is understood that a doctoral program is linked to the training of researchers (Corvalán et al., 2011), and there is no definition of the type of researcher to be trained. In this context, Núñez-Valdés and González (2019) elaborated a graduation profile called Standard Graduation Profile, which gathers the competencies that future doctors should acquire in their training process. The authors used as inputs for

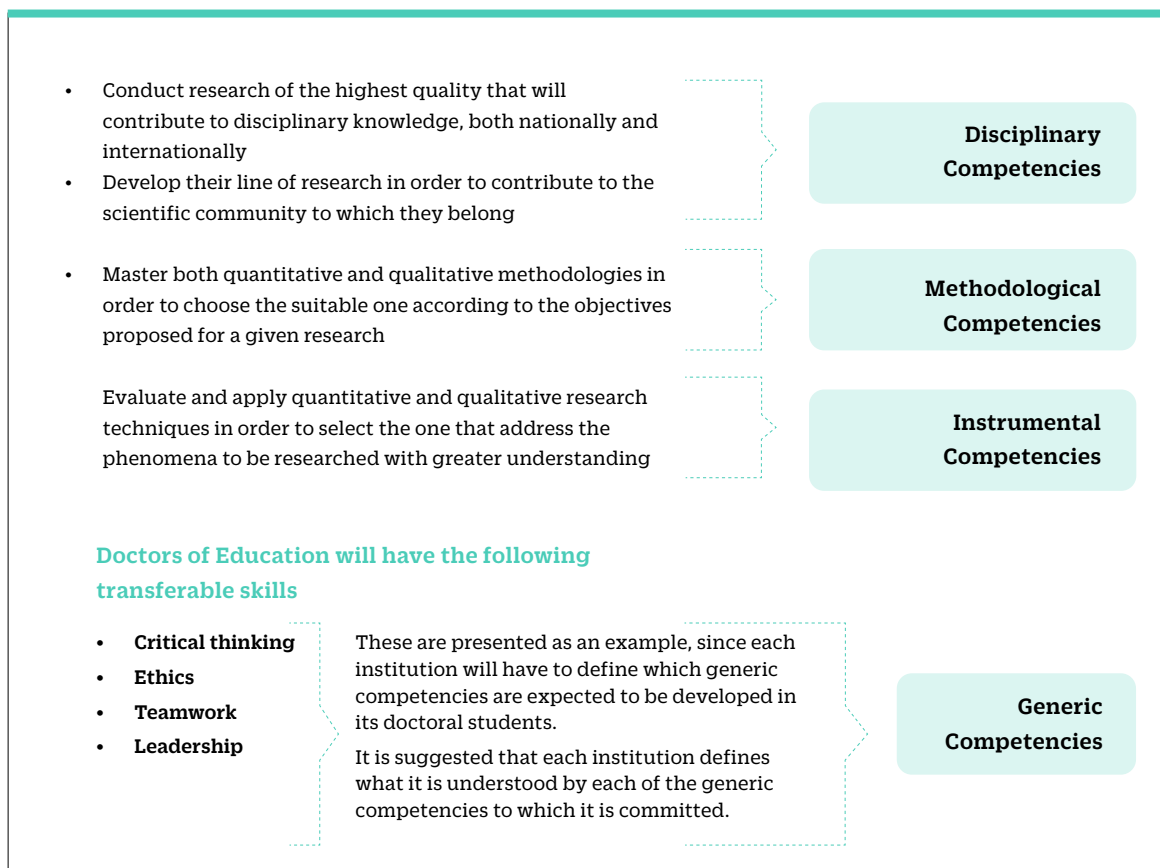
their proposal the documents produced since the Bologna Process to the present day (international level), the documents issued by the National Accreditation Commission (Chile) and the opinion of doctoral students regarding the competencies they should acquire at the end of their doctoral training. The Standard Graduation Profile for Chilean doctoral programs is derived from the analysis of this triad:

**Standard Graduation Profile for the Academic Degree of Doctor of Education**

Graduates with the degree of Doctor of Education will demonstrate highly developed skills in defining, managing and communicating original research in a specialized area.

**Definition of the Field of Study**

Doctors of Education will make a significant contribution to knowledge in their field of specialization, so that upon completion of their studies, they will be able to:



Source: Núñez-Valdés and González (2019, p. 173).



As it is necessary to know the type of researchers being trained in Chile and the skills they must have acquired after their doctoral training, it is proposed to analyze the graduation profiles stated by the Chilean doctorate in education programs—taught until 2018—according to the Standard Graduation Profile (Núñez-Valdés & González, 2019). This is to establish whether there is consistency among them. The following research objectives have been set for the development of this task:

**Objective 1:** To determine the similarities between the standard graduation profile and doctorate in education profiles in Chile

**Objective 2:** To evidence the predominant areas of study in doctorate in education programs in Chile

**Objective 3:** To quantify in percentage terms the frequencies of occurrence of competencies in the graduation profiles of doctoral programs, i.e. disciplinary, methodological, instrumental and generic competencies

**Objective 4:** To rank the predominant disciplinary competencies in the graduation profiles of Chilean doctorate in education programs

## Method

This study is of a quantitative-descriptive nature, with a cross-sectional research design. Different documents (graduation profiles) on the same content (competencies) were analyzed, using descriptive and association techniques (Silverman et al., 2018). The sample will be all the graduation profiles stated by the Doctorate in Education programs of Chilean universities in force as of 2018.

Each sample unit will be collected from the different websites of the universities teaching these programs (17 universities). Doctorate graduation profiles are available to the general public, so there are no ethical restrictions for their collection. The software used for data analysis is R-project 3.5.1 and Excel 2010.

## Results

The standard graduation profile has been organized according to the area of study and the competencies involved. Therefore, the analyses are

based on 1) definition of the program's field of study, 2) statement of disciplinary competencies, 3) methodological competencies, 4) instrumental competencies, and 5) generic competencies.

One of the first findings of this study is the existence of doctoral programs that do not use the term “graduation profile” to make explicit the educational commitment they have acquired for doctoral candidates but employ the term “program objectives.” Of a total of 20 programs, 3 of them refer to Objectives and not to Graduation Profile. Similarly, when reviewing each of the profiles presented by the different programs and institutions, the heterogeneity among them stands out, both in wording and in content.

In terms of the “Definition of the Field of Study,” 19 of the 20 programs make an explicit statement of it, which is equivalent to 95% of the total current offer in the area. It should be noted that the program not referring to the field of study only indicates that work will be done according to the lines of research of the program; however, there is no clear information regarding them on the website of the institution.

With regard to the statement of “Disciplinary Competencies,” 100% of the programs incorporate them, with their explicit statement ranging from two to seven competencies, depending on each institution. On the other hand, the “Methodological Competencies” are only explained by 3 programs, which is equivalent to 15% of the total doctoral offer, making it clear that they are not a constitutive element of the graduation profiles of the Chilean Doctorate in Education programs; consequently, they are far from the standard graduation profile. The same occurs in terms of “Instrumental Competencies” which are stated only in a doctoral program but are not considered in the elaboration of graduation profiles, which reflects the eventual absences of doctoral training processes in Chile.

The “Generic Competencies” are presented in 9 of the 20 programs offered, which is equivalent to 45% of the total. In one group, these are presented according to the objectives of the program itself and, in others, in relation to the transferable competencies stated at a general level by the institution.

One element that was not considered in the standard graduation profile, and that emerged

from the analyses is the “Labor field in which future doctors can work” variable, which appears in 9 of the 20 programs examined. This is equivalent to 45% of the total current doctoral offer, which demonstrates the importance that institutions give to inform their doctoral candidates about the possible job fields upon completion of their doctoral training.

Table 4 presents the areas of study stated by the Doctorate in Education Programs offered in Chile.

As shown in Table 4, there is diversity in terms of the areas of study in the Chilean doctoral offer. The area of *interdisciplinary and multidisciplinary educational research* is the one with the largest number of programs because it has been stated by the four universities that make up the Consortium of Universities, and that teach the doctoral program as a whole. It is noteworthy

that there is no specificity in declaring the areas of study, which leaves a wide spectrum for research works. The programs dedicated to didactics of mathematics are the most specific ones regarding their lines of research, as well as the programs that have stated the curriculum and intercultural education as their specific area of research. With respect to the other programs, and in order to know their study area with greater certainty, the lines of research they have should be explored in order to clearly establish what area of study they offer.

In each graduation profile, the disciplinary competencies stated by the doctoral programs were analyzed. These were grouped according to their coincidences, and their frequencies were established. Table 5 presents the 26 disciplinary competencies quantified in the graduation profiles.

**Table 4**  
*Areas of Study of Doctoral Programs in the Area of Education*

Area of Study	No. of programs that identify with the area
Understanding Education	1
Didactics of Mathematics	2
Educational Practice	1
Improving Public Policy and the School System	2
Education and Society	1
Research Lines of the Program (not present on the institution's website)	1
Interdisciplinary and Multidisciplinary Educational Research	4
Higher Education	1
Educational Phenomenon	2
Physical Activity Science	1
Intercultural Education	1
Educational Sciences	1
Curriculum	1
Mathematical Education	1

**Table 5***Disciplinary Competencies of the Graduation Profiles of the Chilean Doctorate in Education Programs*

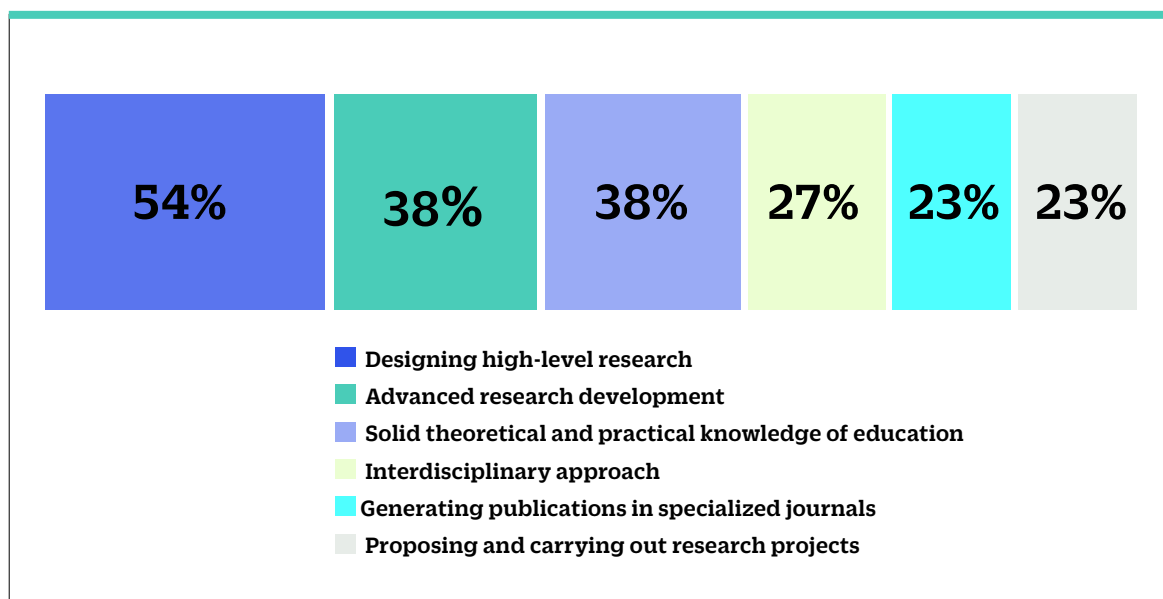
<b>Disciplinary Competencies</b>	<b>f</b>	<b>%</b>
Conducting autonomous research	4	15
Designing high-level research	7	27
Critical-transformational perspective	1	4
Advanced research development	6	23
Solid theoretical and practical knowledge of education	14	54
Leading research teams	5	19
Understanding lines of thought and pedagogical action	1	4
Interpreting theories and paradigms from other disciplines	1	4
Possessing epistemological and methodological rigor	1	4
Systematic reflection	2	8
Ability to analyze an educational problem in depth	2	8
Interdisciplinary approach	6	23
Generating publications in specialized journals	10	38
Analyzing new ideas from an epistemological criticism	4	15
Creativity in methodological processes	1	4
Generation of public policies	1	4
Proposing and carrying out research projects	10	38
Applying the own knowledge of the area of study	1	4
Ability to analyze an educational problem in depth	3	12
Epistemological awareness	1	4
Solving educational problems	1	4
Proposing scientific alternatives	1	4
Collaborating with different actors in the area	1	4
Promoting the development of spaces and centers of discussions	1	4
Teaching in different institutions	1	4
Contributing to innovation	2	8

Of the competencies stated, the most important one refers to *solid theoretical and practical knowledge of education*, since it has been included in 14 graduation profiles, which constitutes 54% and denotes the relevance given to the knowledge of the area of study, which in this case is education. In line with current demands

for research, the competency of *Generating publications in specialized journals* is positioned in second place, which implicitly refers to the competency of academic writing indicated by doctoral students, who considered it as fundamental given their future as researchers. The same position is occupied by the competency of *Proposing*

and carrying out research projects, which is fundamental for the development of high-impact research, and also for accessing public funding (for example, projects financed through FONDECYT). It should be noted that there is heterogeneity in

the competencies stated in graduation profiles, since many of them are focused more on activities than on competencies. Figure 1 below shows the hierarchy of the disciplinary competencies according to their frequency in graduation profiles:



**Figure 1:** Hierarchy of disciplinary competencies according to their frequency in graduation profiles

In terms of methodological competencies, only 3 programs refer to them. Consequently, there is no evidence of a training commitment set by the institutions in this regard, since they are not stated in their graduation profiles. Specifically, in the opinion of doctoral students, this situation is striking because great importance is given to methodological training in doctoral programs at national and international levels.

With regard to instrumental competencies, only one Chilean program states them in its graduation profiles, representing a weakness when comparing them with the current requirements of research worldwide.

The generic, also known as transferable, competencies are stated by 9 programs, which is equivalent to 45% of the total national offer. Some graduation profiles mention more than one of these competencies. Ethics is the most recurrent competence in the profiles analyzed, as it is treated as

fundamental in the research work. Other institutions give relevance to those competencies that are aligned to the ones set at the institutional level.

One element that was not considered, since it is not part of the standard graduation profile with which the doctoral profiles were analyzed, is the work field. This was pointed out by 9 doctoral programs, giving great emphasis to the profile of the doctoral candidate's professional future. The line of work, considered the most important element for the graduate of a Doctorate in Education, is university teaching and not precisely research, which is the objective of a doctoral program, considering the definition of this academic degree.

The accredited doctoral programs in Chile are in the first two sections established by the National Accreditation Commission, so they present shortcomings and/or elements to be improved in some of the criteria that are evaluated by this entity. In this sense, when analyzing the graduation

profiles of these institutions, there is evidence of coincidence with the standard graduation profile presented; however, these do not comply with all the elements that make up this profile. With respect to the area of study, it is included in all of these profiles. The same happens with the disciplinary competencies, given that each program details them varying between 4 and 7 competencies depending on the institution. As far as methodological skills are concerned, none of the accredited programs mention them in their graduation profiles, and they are therefore ignored in the training statement of the doctoral program. The same applies to instrumental skills, which are not part of the profiles analyzed. Meanwhile, generic competencies are stated by 6 of the 8 accredited doctoral programs.

## Discussion

The changes that have taken place in Chilean higher education in recent years show that a new period in its history is beginning, since the approval and prompt implementation of Law 21.091 not only establishes the basis for the access to State funds for institutions dedicated to this level of education, but also a more demanding regulatory framework for doctoral programs taught in the national territory (Ministerio de Educación, 2018a). The great change presented in this law is the mandatory accreditation of Chilean doctoral programs in order to have the guarantee of the State. Therefore, the lax nature that these programs show nowadays is expected to be regulated by accreditation processes, especially in the area of education (Baeza, 2017; Corvalán, et. al, 2011).

The need to have graduation profiles capable of providing solid training at the doctoral level, in terms of disciplinary, methodological, instrumental and generic skills, is becoming increasingly important. In this respect, a doctor serves as advanced human capital that is vital for a country's economic growth and development, so taking care of this level is fundamental in view of the demands of a globalized society (Baeza, 2017; Jiménez-Ramírez, 2017).

The proposal of a standard graduation profile

emerged from a reflection on three elements. The first one covers the changes experienced in Europe since the Bologna Process, initiated two decades ago, when there was awareness of the importance of establishing homogeneous training frameworks in higher education that would allow the transfer of knowledge to the various areas of society. It is of vital importance to have a clear definition of the competencies that must be acquired in a doctoral training process, given the demands of the 21st century for universities. The emphasis is no longer on undergraduate training but on first-level research, which would be the identifying element of these institutions (Nebot, 2009). The second element refers to the opinions and expectations of Chilean doctoral students in education regarding the skills they must acquire at the end of their training process.

These competencies are aligned with the international proposals on what the doctoral degree represents and the objectives it has in a globalized context (Muñoz & Araya, 2017; Villarroel & Bruna, 2014). The third element refers to the scarce information from the Chilean Ministry of Education regarding the skills that should be acquired in a doctoral training process. The choice of competencies is in the hands of the institutions that offer these programs, so the heterogeneity evidenced in the doctorate in education programs offered in Chile until 2018 is not a surprise. This triad is the architect of the elaboration of a standard graduation profile, which allows the analysis of existing graduation profiles that, in this study, they refer to the programs taught in the area of education.

Ultimately, the lack of relevant elements in graduation profiles, and therefore, in the composition of a doctoral program may have influenced the opinions of the evaluation committee. For this reason, there would be coherence between the years of accreditation received and the quality of the graduation profiles stated. This situation would explain why these programs did not achieve the quality certification in the maximum sections established by the National Accreditation Commission.

In Chile, discussions on postgraduate degrees began in the late 2000s, but they lagged far behind Europe, which has delayed the regulation of doctoral levels in the country (Corvalán, et.

al, 2011). By 2018, the Chilean State, through Law 21.091, tried to ensure the existence of quality doctoral programs (Ministerio de Educación, 2018a). For this reason, the analysis presented allows us to establish the goals to be achieved in the short term, in order to advance towards an international level of training for future Chilean doctors in education. The clear definition of the competencies that a future doctor must acquire is a challenge for the institutions dedicated to teaching doctoral programs, since this will influence the decisions that are taken both in the training processes and in the lines of research that are proposed in each of them.

In summary, the results obtained in this study are expected to provide tools to higher education institutions on the decisions that must be made to achieve high levels of quality in their programs. The graduation profile is, thus, a definition of the training processes offered to society, in which the skills to be developed are compromised. This would eventually translate into the achievement of the highest standards established by accreditation processes, considering the levels proposed by the National Accreditation Commission (2016b) for the Chilean case. Stating disciplinary, methodological, instrumental and generic competencies will allow doctoral candidates to clearly know the kind of training is offered the institution they have chosen. It will also allow the constant evaluation of the graduation profile, according to the demands that emerge faster and faster, addressing them in a more efficient way.

In conclusion, having a management tool that allows for the elaboration, evaluation and eventual improvement of doctoral level graduation profiles will bring these programs closer to the training of more qualified professionals with the competencies required for the development of a given area of study. Finally, the limitations of this study refer to the analysis of doctorates belonging to the area of education. Therefore, this study is expected to be replicated in other areas and make this analytical tool available to society. This will serve to improve the processes of defining competencies at the doctoral level not only in Chile, but also in neighboring countries, which share some elements in terms of fourth-level education.

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