

Rediscovering the Added Value of Research in Undergraduate Education: A Reflection Based on the Case of Chile

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Abstract

The Research Skill Development Framework constitutes the basis of the preparatory courses of the Bachelor's Degree in Social Science offered by Finis Terrae University (Chile). This pedagogic strategy, established in initial theoretical courses, is aimed at strengthening cognitive skills in students right from the beginning of the Social Science program. This short paper provides hints about the usefulness of incorporating research skills in different areas of undergraduate education that have traditionally lacked a scientific approach.

Introduction

The vast evidence available and the large number of educational public policies in progress in developed countries show the importance of the establishment of a research culture in universities, no longer as a space reserved for an elite, where experienced academics predominate and only the best students participate, but as a pertinent development strategy for universities in the 21st century.

It is uncontroversial to state that universities have gone - in their educational function - from being knowledge transmitters to transforming students into creative generators of knowledge. That same knowledge - in its origin and management - has become more democratic and desacralized. Increasingly, rigorousness in theoretical and methodological processes is no longer the only quality appreciated in new knowledge: nowadays, people value its effective, efficient, and cross-sectional application outside of university settings. This is a challenging point, since it requires a degree of connection and attunement to the environment, but it is also complex, because excessive permeability to market logics is instilling tension into the time frames and objectives of the university.

But it is not only exogenous factors that have defined a new context for universities. Universities' own pertinence as generators of answers and interpretations of reality has been called into question due to the magnitude of this cultural change. As Leccardi (2014) points out, theoretical and methodological frameworks are often overwhelmed by the dynamism and depth of unprecedented cultural change. This is consistent with the basic concept that the Boyer Report (1998) highlights: that universities must be regarded as ecosystems made up of communities of learners.

The academic paradigm shift revealed by the Boyer Commission and the modifications carried out in England in areas such as research and high-grade teaching (to name but a few of the initiatives implemented) reflect the magnitude of the new challenges that the university faces at a global level. In this regard, the Research Skill Development Framework (RSD) is not only a model aimed at strengthening the educational functions of universities, but also (especially) a multidimensional and integrative response to an academic paradigm shift. Also, it is a response that revitalizes the nature of universities, since it does not deny their essence, but it rather enhances it by integrating and promoting their core functions.

This watershed, which has encouraged developed countries into rethinking universities within a postmodern context, has not affected Latin American and Chilean universities with the same intensity. This may be due to the fact that, precisely, enhancing the pertinence of the university system is not only an academic challenge, but, above all, a political task.

In the case of the current discussion on higher education reform in Chile, this debate is still absent. Due to the significance that universities have in the scientific, social, economic, and ethical development of a country and a region, it is not an exaggeration to think that the gap between developed and underdeveloped countries can widen if such issues are not pondered. Universities cannot be left without the words and the intelligence - the capacity to understand and respond - needed to address the challenges of present times.

Implementing a Pilot Experience Based on the RSD

The adoption and adaptation of the RSD in the context of the Bachelor's Degree in Social Science with a specialization in Family, offered by Finis Terrae University, is in its initial phase. This means that its foundations and logic have been incorporated into educational tasks, even though it has yet to be established as a clear column of the program's curricular model.

The Bachelor's degree, linked to the professional degree of Family Scientist, seeks to prepare Social Scientists who conduct research from the undergraduate level onwards and whose professional development horizon is not limited to the academic world, but extends towards the public and private domains. This is an innovative educational approach given that, in Chile, research is still connected to

postgraduate studies – within explicitly methodological courses – with employment prospects focused on academia.

Additionally, this is a major challenge due to the fact that, according to the PISA test, Chile lacks a quality school system. In addition, students who have enrolled in this program are not among those with outstanding school results. Given this situation, our objective is for the eight semesters of this study-program to result in a profound transformation in students.

In this context, the curriculum plan was redesigned in 2015 to make the first two semesters strongly propaedeutic, which influenced the following courses: Math, Theory and Psychological Systems, Introduction to Social Science, and Introduction to Family Science. The first contribution of the RSD consisted in visualizing the propaedeutic potential of the development of research skills.

Beforehand, remedial actions had involved seeking to support students who showed deficiencies. Even without systematic evidence, we believe that the propaedeutic value of including the development of research skills in the first semesters of undergraduate education will not only make it possible to bring students to a suitable level; in addition, this measure will greatly strengthen their cognitive skills, thereby strongly encouraging them. In the case of our Bachelor's degree, and based on this propaedeutic view, the six facets of inquiry considered in Willison and O'Regan's (2007) framework have been considered in its initial levels (level I and level II) and redesigned into four guiding lines.

The first one involves information comprehension. This axis is aimed at allowing students to identify the main argument that articulates the theoretical proposals of complex texts and describe their relationship with subordinate arguments.

The second guiding line could be called "movement of the social microscope" or "the view from different floors of a building". In this area, students exercise the ability to visualize that ideas are situated at different levels, starting from the most concrete ones to the most abstract ones. Additionally, it is shown that establishing logical, argumentative, and coherent connections is easier when one is aware of these different abstraction levels.

The third is related to the concept of Inquiry, central to the RSD. In the case of our students, they begin their studies with an interest in research. They are already "curious" young people, and therefore we are able to work with them on the construction of research problems (Popper, 1978). In this area, the importance of the link between what is observed and what is described in the literature is highlighted along with the necessity to permanently question knowledge, and the need to give an abstract form to the problem studied.

Coinciding with RSD's level II, students carry out guided and structured closed inquiry. It is them who, within a predefined frame, elaborate investigation questions, evaluate data and information, and organize and interpret it, taking into consideration the different abstraction levels. This guiding line is organized around the facets A, B, C, D, in levels I and II.

The fourth guiding line refers to a synthesizing skill, which implies the capacity to merge and reorganize, in an original way, various arguments to originate a new one. In this case, the facet of inquiry was considered, in point E.

It is important to mention that this -still incipient- propaedeutic proposal is being implemented in two introductory theoretical courses (located in the first and second academic semester) and not in the nine methodological ones. This course of action is expected to allow students to better comprehend and internalize both the methodological competences and the "research experiences" (Laursen, Seymour, & Hunter, 2012) offered by the degree, as well as the participation in annual metropolitan surveys and Fondecyt (National Fund for Scientific and Technological Development) investigation projects that our academic staff performs.

An important challenge is to achieve a level of linkage that students will enable us to view research training as a "continuum" (Willison & O'Regan, 2007) and appreciate how it not only imbues students with some specific competences, but how it also reinforces them in their professional identity (Hunter et al., 2006).

The levels of autonomy suggested by the RSD are being considered from two perspectives. First, by linking them to the achievement levels of the seven competences present in the graduation profile. Second, by connecting them to the program's curricular progression: the first two semesters constitute the propaedeutic cycle; the third to fifth semesters the basic cycle; and the sixth to eighth semesters the autonomous cycle.

For the class of 2017, tests are being evaluated which are expected to shed light on the basis of the inductive and deductive reasoning of students and the type of thinking (abstract or concrete) that prevails in their analysis. This approach is intended to provide evidence about the impact of the first year of studies. However, it is obviously not possible to determine, using this strategy, whether this impact is exclusively due to the implementation of propaedeutic courses based on the RSD, nor can the level of this potential impact be established.

It is not possible, either, to ascribe the decrease in dropout and failure rates and graduation delays to these new courses based on the RSD propaedeutic strategy, but it is undeniable that there has been a significant improvement since this curricular modification was implemented. Before that, first year dropout indexes, mainly caused by performance problems, were the following:



Year	Dropout rate by the end of the first year
2010	68%
2011	43%

The first year we incorporated this new modality a 22% dropout rate was observed, which has been maintained or even decreased in some years.

Year	Dropout rate by the end of the first year
2015	12,5%
2016	20%
2017	16%

Potentialities of the RSD in the Chilean Context

Beyond the propaedeutic value that the RSD appears to have in a program that seeks to prepare Social Scientists, its contribution could be important too in other bachelor-level-programs with a more professionalizing profile. This could be particularly relevant given the widespread growth of higher education and its limited concern for the added value and pertinence of its programs.

The first contribution could consist in its propaedeutic function, which we have already suggested.

The second one is related to developing basic research competences in students that will allow them to perform in the working world in the best way possible. This involves not only the ability to engage in research and problematization in professional areas where these activities are required, but also the capacity to implement solutions based on solid evidence.

In this regard, Finland's experience with respect to teacher training is paradigmatic. The investigative profile implemented means that school teachers must have a research-oriented attitude. This requires them to learn, first, to adopt an analytic and creative perspective; second, to draw conclusions based on observations and experiences; and, third, to generate teaching-learning environments in a systematic way (Niemi & Jakku-Sihvonen, 2013).

Finally, another key contribution concerns the rapid changes that the working world is undergoing. International institutions have warned that quick scientific-technological progress will eventually result in



the extinction of large swathes of several professional fields. Providing students with research skills will make it easier for them not only to reinvent themselves professionally but also to visualize and manage to respond to these important changes.



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