

Formative research at the university: meanings conferred by faculty at an Education Department*

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Abstract

Within the framework of formative research, a series of subjective constructs about its understanding and transcendence arises. This prompts the need to determine the meanings assigned to its pedagogical implementation in teacher training. To this end, seven professors from the Department of Educational Sciences at the National University of San Agustín in Arequipa (Peru) were interviewed for the purpose of identifying their conceptualization, the distinctions they make from scientific research, the required characteristics and their expectations on the subject. The results show that teachers express diverse educational perspectives regarding formative research, related more closely to the training of researchers than to teaching. Likewise, they subtly distinguish formative research from scientific research in the strict sense, which leads to confusion between them; on the other hand, they emphasize the development of cognitive abilities linked to research, and finally, they situate various performance expectations in the formative research process that are not always specified in teaching. The meanings assigned to formative research differ and reveal misunderstandings, but also unveil coincidences in terms of the training aspects of research, which leads to the need to devise strategies to better face challenges related to teaching and socio-professional issues.

Keywords

Formative research – University – Teacher training – Scientific research.

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Introduction

Formative research has become a topic of considerable interest for the training of researchers, mainly in university settings (PARRA, 2004). The importance attributed to it is related to the mission of the university: to train professionals who are familiar with the logic and activities of scientific research (RESTREPO, 2003). To that end, the pedagogical process instituted in universities is dynamically framed through “[...] theoretical, methodological and praxiological instruments, as long as they promote, like practical didactics within each micro-curriculum, the development of classroom projects or other activities that benefit the process of learning how to do research” (ZARATE; VILLALBA; RUIZ, 2013, p. 50).

Given its complexity, training for research not only presupposes a programmatic proposal on the descriptive, analytical and critical tasks related to research, but also the involvement required by the task, a journey that places the student in better starting conditions, by working with people who have “[...] greater experience, and an institutional practice in which social and humanistic research is promoted” (SÁNCHEZ, 2014, p. 20). It is a matter of generating processes of immersion into the rationale of research, to submerge them in the understanding of social and natural phenomena from a scientific standpoint.

The debate regarding formative research acknowledges its pedagogical essence and its impact on the development of research competencies. For Rojas and Aguirre (2015) as well as for López-de-Parra, Polanco-Perdomo and Correa-Cruz (2017), such competencies include dimensions associated with curricular processes and research training strategies, as well as the key actors in the process (university community) and institutional conditions. It also involves some axes of intervention and articulation around: i) know-learn, suitable performance, organized behavior, proactive interaction, ii) know-how, efficient use of research skills and capacities, and iii) know-be, display of attitudes conducive to research.

Formative research configures a space of training aimed at inquiry, problem-solving, reflection, etc., and therefore of initiation in research. In such scenarios, the aim is to equip students with the skills and abilities necessary to understand the processes and construct scientific knowledge (CORTÉS et al., 2008). This interpretation expresses a fruitful relationship between research and teaching and the university’s research mission, a teaching dynamic linked to the embodiment of professional performance based on evidence derived from scientific research.

The understanding of formative research gives rise to a diversity of interpretations, but also to some coincidences. Regarding the latter, Montoya and Peláez (2013) and Kelly (1969) refer to an interpretation of the facts themselves, involving approaches that use research methods as teaching-learning strategies, and a flexible and global design that implies a conscious, reflexive and regular use of the actions conceived to achieve the objectives of the teaching process, and therefore, the educational process (MONTES DE OCA; MACHADO, 2011).

The didactic function of formative research involves learning to learn, by promoting the active participation of educational subjects in the apprehension and reconstruction of scientific knowledge (UCP, 2003). Consequently, it represents a pedagogical event that must be inserted into the curriculum, and stems from a set of problem-solving activities. In this

way, the teaching activity is geared towards the development of strategies, opportunities and environments to involve students, and progressively researchers, in learning goals that involve the use of the scientific method. A challenge that implies certain instructional proficiency to organize and structure research questions alongside the stages for their resolution (GONZÁLEZ, 2006).

Formative research, as a pedagogical device, constitutes an organized mechanism for instruction aimed at the acquisition of new knowledge and skills. Specifically, it configures a pedagogical approach that encourages reflection about its nature, styles and purposes, requiring the illustration of epistemological horizons. Following Aguilar (2017), they are established from: i) the cultural, social and political character, governed by a process linked to invisible learning, and its supporting ecology, to recover knowledge that is loosely addressed in the understanding of social complexity (COBO; MORAVEC, 2011); ii) the scientific-pedagogical construction, based on articulated pedagogical orientations, along with training and professional practice, grounded in the interactions of personal development (MONTES DE OCA; MACHADO, 2011); and iii) cognitive processes, essential foundations for the construction and understanding of knowledge, and the development of thought, as well as “[...] epistemic methods and positions for transforming research objects” (AGUILAR, 2017, p. 132) into axes of reflection.

The adopted definitions and principles imply that the intentions of formative research do not lie in the construction of new scientific knowledge, but in its use as a “[...] research method in order to develop competencies aimed at acquiring knowledge about a subject” (MONTOYA; PELÁEZ, 2013, p. 21). In other words, the construction of knowledge is inherent to scientific research, while its acquisition responds to formative research; such a relationship with teaching implies a pedagogical theme (RESTREPO, 2011), which requires the use of research as a strategy for learning that is geared to the search for scientific knowledge. It is a process that promotes the capacity of amazement at discovery and the effective transfer of information, as well as the day-to-day tasks related to teaching and memorization.

Adherence to the formative research model, as a strategy for pedagogical intervention, assumes aims and contingencies based on a method that enhances its learning possibilities. This model also aids in its application to the professional dimension, enhancing its consideration as a means of training researchers (VARGAS; CAYCEDO, 2011). According to Guerrero-Uceda (2007), formative research involves a set of actions aimed at promoting the assimilation and development of knowledge, skills and attitudes necessary for successful performance; by including practices that generate descriptive, explanatory and predictive knowledge for permanent training (MALDONADO et al., 2007).

For Finol and Pirela (2013), formative research includes strategies and processes aimed at the acquisition of knowledge, through the dialogue of knowledge that is connected to reality and articulated as interactions and mediation scenarios in the critical appropriation of information sources and media. Along these lines, Fong, Acevedo and Severiche (2016) propose the design of curricula based on “[...] projects, problems, nuclei, modules and competencies, [which] allows breaking the scheme centered on disjointed contents and modules” (p. 116), in order to materialize formative mobility and, therefore, results and impacts that are favorable to educational purposes.

At present, formative research has become the basis for the training of researchers, as well as in the setup of incubators, teams and research groups; constituting the substratum on which those who contribute to the construction of scientific knowledge are trained and teamed together. This formative task deserves special attention. Its continuity involves inquiry about the processes of professional training based on formative research and aimed at fulfilling one of the fundamental missions of the university (GAMBOA, 2017). Essentially, it seeks to “[...] lay the foundations of critical and reflective thinking, necessary to demonstrate the strategic mastery of the approaches, methods and techniques that make it possible to problem-solve, conceptually substantiate and generate results from research exercises” (PIRELA; PULIDO; MANCIPE, 2015, p. 50).

A significant aspect of formative research, in addition to training in research competencies, is the ability to identify potential researchers, to link them to scientific research processes, either through incubators, or as part of projects by research groups or institutes. Arriving at these scenarios is a widely valued opportunity, as a promising result of formative research, not only for the key stakeholders in research, but also for a “[...] space for permanent training in research” (TAMAYO, 1999, p. 39).

In the understanding of the didactic process of research training, formative research is established as evidence of educational achievement, resulting in competent students, equipped with research capabilities and with an evident interest in scientific research. Said facts reveal its transcendental character in research and researcher training, and an expression of the results of a timely and efficient implementation of this pedagogical task.

Along these lines, formative research lays the foundations for a systemic relationship between teaching and research, an interaction that includes, alongside professional training, the production of knowledge, “[...] both in terms of the results to be achieved and the processes to be deployed for that purpose” (UNSA, 2016, p. 15). It includes, strictly speaking,

[...] a macro-strategy that allows university students [...] to develop competencies to successfully and meaningfully tackle the inquiry processes, by means of which they are questioned and conceptually grounded, generating results from the realities and phenomena studied. (PIRELA; PULIDO; MANCIPE, 2015, p. 52).

Formative research at the National University of San Agustín of Arequipa (UNSA)

The relationship between the teaching practice, research training and the research mission leads the UNSA Educational Model to incorporate “[...] in its formulation of international standards for the professional training of its students, [which] should lead UNSA to become a reference for the Public Universities of Peru” (UNSA, 2016, p. 3). The outlined process establishes precise principles and links related to formative and scientific research:

- Freedom of thought and teaching.
- Critical thinking and research orientation.
- Creativity and innovation.

- Flexibility in teaching and learning processes.
- Correspondence of teaching and research with social reality.
- Entrepreneurship, competitiveness, cooperation and leadership.
- Internationalization” (UNSA, 2016, p. 15).

The pedagogical operativity of UNSA’s principles assumes: (i) the establishment of institutional spaces (institutes and research groups) that address real-world problems in order to understand, explain and solve them; (ii) the inclusion of methodologies that promote freedom of thought, based on ethical and democratic principles, in the curriculum; (iii) the creation and operation of project incubators, assuming social responsibility for solving specific problems; (iv) the development of flexible teaching systems, through relevant curricula and technological resources focused on professional development, research and social outreach and, essentially, on citizen development; (v) programs for the participation of educational stakeholders in competitive funding calls for access to events, research, equipment, publications, internships and practices that support the construction of a research culture; and (vi) adherence to agreements for the internationalization of academic and research projects for the university community (UNSA, 2016).

Within this framework, the faculty of the Department of Educational Sciences at UNSA implements its instructional activities, aimed at training in and for research, “[...] with flexibility and belonging, based on a professional profile that responds to the current reality, geared towards ethical and humanist training, the development of critical thinking, identity and the exercise of citizenship” (UNSA, 2016, p. 23). Therefore, the curriculum becomes the axis for the construction of teaching-learning strategies, which, alongside instruction and research experience, contribute to the development of research competencies.

Given the academic practices related to formative research, it is important to identify the meanings assigned by the faculty of the Education Department. A discourse recovered from teachers’ rhetoric and knowledge about what they think and how they intervene in the interactions generated in educational settings. This approach was aimed at retrieving their views about their pedagogical and research work. It implied an understanding generated from their assigned meanings, stemming from their reflective dialogues. For which, an exploration was conducted into the subjectivity of those who experience it (RALEIGH, 1994), describing their training experiences as inseparable from the configuration of their pedagogical self. Such appreciations were formalized as pedagogical, malleable and always shifting understandings; given that they do not imply a static task, but on the contrary, they constitute inherent transformations in the subjective configuration of educational action (GONZÁLEZ, 2013).

Method

The approach to delve into the subjective views of professors regarding formative research instruction was achieved through semi-structured interviews with seven professors from the Faculty of Education Sciences at the National University of San

Agustín in Arequipa (Table 1). The participating professors are affiliated to the Department of Education and were selected on the basis of their willingness to participate. They are in charge of training processes in educational research and are also involved in research projects, either as principal investigators or associates.

In terms of the data collection process, an interview script was defined to facilitate the discursive interaction. It was conducted by two researchers on the basis of four aspects defined around formative research: i) what it is, how it is approached and what it comprises; ii) the difference between formative and scientific research (basic and applied); iii) the research characteristics required by beginners; and iv) the educational reflections generated by formative research.

Scheduled interviews were conducted individually. The dialogue took place during breaks and in arranged meetings. Each interview lasted approximately half an hour. Everyone signed an informed consent, both for the recording and subsequent transcription.

Table 1- Profile of interviewed professors

Professor	Age (years)	Sex	Status/ Teaching category	Teaching experience (years)
Doc1		Male	Under contract/Full time	3
Doc2		Male	Appointed/Full time	20
Doc3		Male	Under contract/Full time	2
Doc4		Male	Under contract/Full time	7
Doc5		Female	Appointed/Full time	1
Doc6		Female	Under contract/Full time	1
Doc7		Male	Under contract/Full time	1

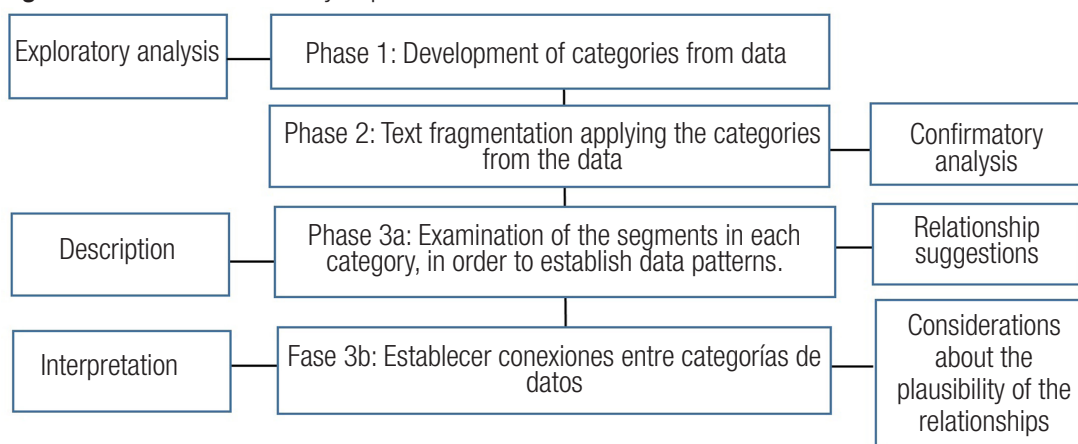
Source: Prepared by the authors.

The sample displays a predominance of male professors, very typical of the Department, which, in its years of existence, has never had a female Dean. These faculty members are within an average age of professional practice and have a potential teaching career up to age 75 (retirement or cessation age). Although they show little experience in the field of university instruction, because they come from other professional experiences (teaching in basic or higher non-university education or professional practice), their academic background is quite extensive, they have postgraduate studies (master and doctorate), which are minimum requirements for teaching at the university.

Once the dialogues had been transcribed, an analysis of the professors' answers was carried out, establishing categories and subcategories, independently, for each one of the researchers. Subsequently, the discrepancies were collectively agreed upon, based on joint agreements and new re-readings. The process facilitated the establishment of categories, codification, relationships, etc. (RALEIGH, 1994). It was assumed that in the *translation*, nothing is absolutely certain, but it responds to the interpretation of the extracted categories.

The data analysis procedure sought to recognize instructional knowledge around formative research, in order to “[...] account for the empirical ‘subject’ of scientific practice [and] situate it at a particular point in social space-time and to provide it with a sharper awareness” (BOURDIEU, 1999, p. 158). The approach led to the understanding that the “pre-established opinion” configures a formalized reconstruction of a “universal right” (BOURDIEU, 1999, p. 95), expressed by teachers in their daily social and educational life.

Figure 1- Qualitative data analysis process



Source: TESCH (1990 as quoted by GARCÍA; GONZÁLEZ; BALLESTEROS, 2001, p. 113).

The scheme used in the data analysis (Figure 1) allowed us to determine the positions occupied by the teachers interviewed in the relational framework of formative research, from which the different social aggregates and educational perspectives are determined. In this way, the subjects reconstructed a set of dispositions and expectations constituted on the object of study (formative research) and, in turn, they (re)structured their interpretative discourse and, therefore, their practices (BOURDIEU, 1994). Such discursive frameworks made it possible to establish the different subjective links on their pedagogical activities around formative research.

Results

Textual analysis made it possible to explain the internal or subjective dialogues of the professors interviewed, which, according to Foucault (1988, p. 28), expresses “[...] the exteriority of the accident”, revealing the organized conceptual history, narratively recreated, from the situations that evoke their assessments and perspectives regarding formative research.

The study subjects, selected on the basis of their availability, are mostly professors under contract, bearing most of the academic workload, given the greater

number of teaching hours assigned to them. As a whole, they represent a teaching body inclined to share experiences and eager to advance in their pedagogical advancement.

Table 2- Teaching experiences in research and instruction

Type of experience	Doc1	Doc2	Doc3	Doc4	Doc5	Doc6	Doc7
Teaching about Formative Research	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Intervention in Formative Research	Yes	Yes	No	Yes	Yes	No	Yes

Source: Prepared by the author.

The professors interviewed combine experiential work in formative research instruction and scientific research. This approach places subjects in a position of awareness and promotion of a research culture (RESTREPO, 2011), which will promote greater involvement in research in the future.

The professors understand that the university has the task of searching for new knowledge, through rigorous methods and processes, creativity and innovation, and the subsequent validation and critical judgement of the results. They assert that “[...] teaching according to the logic of research stimulates the processes of understanding scientific knowledge” (Doc4), and that through research “[...] capacities to continue learning are strengthened” (Doc3). The interviewees also note that scientific research and formative research are different processes, that although stimulating and valuable for professional training, their purposes differ, given that “[...] research instruction and research follow different rationales, although they complement each other, they serve to approach different learning processes” (Doc4), an understanding of which they are fully aware.

For this group of professors, formative research contributes to broadening “[...] the status of scientific, technical and educational careers while making specific efforts to improve working conditions” (UNESCO, 1999), but it does not contribute to the undertaking of research in the strict sense. In that understanding, “[...] ‘playing’ research is very different from doing research, however formative this game may be and however fascinating it may be” (HERNÁNDEZ, 2003, p. 184). They assume that formative research “[...] is preparation to dive into the resolution of real problems” (Doc1).

Having recognized the principles of formative and scientific research by the professors interviewed, it is interesting to know how they base their ideas and concepts around formative research instruction.

Table 3- Educational meanings about formative research instruction

Foundations	Doc1	Doc2	Doc3	Doc4	Doc5	Doc6	Doc7
Understanding of formative research							
Unique approach to research	++	+	+	++	+	+	++
Search for answers	+		+			+	+
Formative complement	+	+		++		+	
Training for research		+			+	+	
Purposes of formative research							
Solve social problems	+		+	+		++	
Dissemination of information		+		+	+		+
Development of skills	+	++		+		+	+
Symbol key							
++: Very positive rating or considerable use							
+ : Positive rating or discrete use							
- : Negative rating or very limited use							
-- : Very negative rating or no use							
Blank: Neutral or no information							

Source: Prepared by the authors.

From the perspective of the professors interviewed, formative research is positioned on axes of understanding that lead to its conception as a “[...] particular form of research that helps to think and reflect on social problems” (Doc1), while “[...] it contributes to the development of research capacities, through the training received” (Doc6). Such reasons are adopted by most participants, positioning them in stances that reflect their training methods, that is to say, thought of as a tool or device for teaching-learning, as well as to favor the incorporation or appropriation of knowledge (PARRA, 2004).

In this distinction they understand formative research as training of researchers or training for research, a dynamic that refers to the development of skills for lifelong learning (MIYAHIRA, 2009), from interpretation, analysis and information synthesis, the search for problems, critical thinking, as well as observation, description and comparison of said problems. They consider that the training of researchers implies the construction of “[...] spaces for discussion and pedagogical reflection, beyond the classroom” (Doc5).

The meanings attributed by teachers prompts a dynamic rooted in continuous interaction, promoted in the teaching-learning process for the “[...] search for answers of a scientific nature, and that encourage a rethinking of what is being done” (Doc4). A relationship that evidences the proximity of “training for research”, conceived as a “[...] formative complement established in the syllabus as programmed content to be developed

during their studies” (Doc4), specifically, from the design of actions programmed and developed in the curriculum, in a systematic manner and leading to an understanding of the day-to-day nature of the educational process.

The meanings assigned to formative research, from their understanding of it as a didactic strategy, enable them to think about their purposes, that is, to estimate that formative research can “[...] solve social and educational problems and help generate social awareness about their civic role” (Doc3), an appreciation that fits with the purposes of training in research, based on consciously valuing the satisfaction of knowing more, and enjoying it, as a reward for effort (HERNÁNDEZ, 2003).

In an expansive sense, teachers encourage the “[...] dissemination of scientific information through various means” (Doc7), including theoretical, conceptual and methodological information, and as an assertion of acquired research capabilities (SÁNCHEZ-CARLESSI, 2017). They argue that research-related activities contribute to the “[...] development of skills that promote analysis, reflection and other abilities” (Doc2) relevant to research, such as “[...] formulating academic reports based on scientific evidence” (Doc6). In this sense, faculty research interests inspire their students to cultivate experiences that encourage the development of skills consistent with systematic work.

Table 4- Instructional meanings on Formative Research (FR) and Scientific Research (SR)

Foundations	Doc1	Doc2	Doc3	Doc4	Doc5	Doc6	Doc7
Similarities between Formative Research and Scientific Research							
They understand the same processes	+	+		+	+		+
They both produce knowledge	+	+	+	+	+	+	++
They both develop skills	+	++	+	+	+	+	+
Differences between Formative Research (FR) and Scientific Research (SR)							
FR is subservient to SR	+		++	+	+	+	++
FR is taught and SR is applied		+	+			+	+
Differences between formative research (FR), basic research (BR) and applied research (AR)							
FR is typical of the classroom, while BR takes place outside the classroom	+	+	+	++		+	
Only BR and AR create new knowledge, FR disseminates it	+		+	+	+	+	+
FR promotes the generation of research problems and AR solves them	+	+	+	++		+	
FR is aimed at the academic community and AR is directed at the scientific community.		+	+	+		+	+
FR trains researchers to perform BR	+		+	++	+		+
FR is aimed at students, while AR is not		++		+	+	+	+

Source: Prepared by the authors.

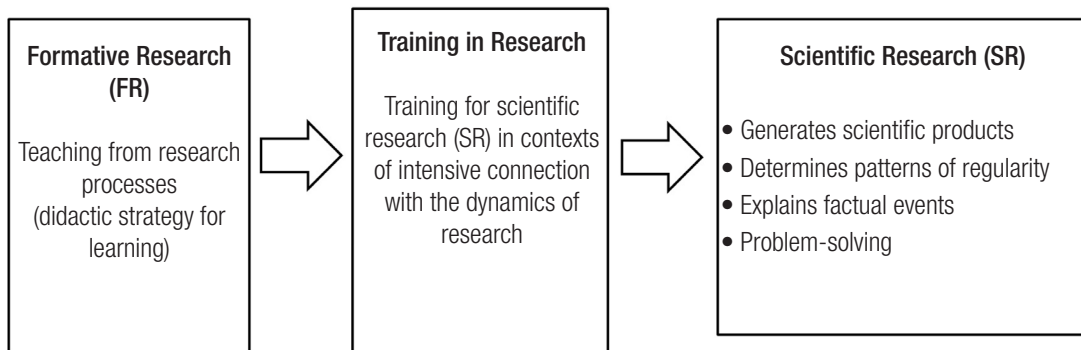
In the framework for the academic assessment of research, the interviewed professors understand that formative research (FR) has similarities with scientific research (SR). For the most part, they understand that they are “[...] concurrent processes, aimed at the production of knowledge and the development of capacities” (Doc3). These meanings situate them within the dynamic interplay, i.e. research, regardless of its nature (FR and SR), and given their “[...] stimulating nature in the acquisition of research competences, they are integrated as actions directed at the same purpose” (Doc7). These estimates lead to overlaps that could trigger academic uncertainty and excessive demands. An aspect that Hernández (2003) notes, to avoid falling into the trap of simulations, when taking the FR to situations of confusion on the task of the SR, the latter is known to emphasize the construction of knowledge, while the former, “[...] is a way of approaching academic work” (Doc1).

In this sense, it is convenient to remember that FR as a teaching-learning strategy has an “[...] initiation role for the acquisition of research competencies” (Doc4), that is, to promote the application of the acquired knowledge in the interpretation of the reality where they are immersed (RIVERO, 2017). FR is designed to “[...] systematically teach research, since it enables the acquisition of knowledge based on scientific evidence” (Doc2), through the resources that research provides. An articulation planned for the curriculum, and whose programming responds to progressive levels (FABIÁN, 2012), in a logic completely dissimilar to that assumed by SR.

Among the highlighted distinctions the subordination of FR to SR is noted, although it highlights the formative essence of research. FR has a structure and direct relationship “[...] with the didactic purpose of teaching to conduct research” (FUENTES, 2014, p. 240), which encourages “[...] thinking about pedagogical environments conducive to learning and the social construction of knowledge” (Doc1). Strictly speaking, FR promotes the development of research capacities throughout an educational process (RESTREPO, 2003); while SR refers more directly to the creation of knowledge, agreed upon and validated by an academic community (HERNÁNDEZ, 2003). Such differences are more considerable when contrasted with the levels of the SR (basic and applied). In this sense, the professors interviewed maintain that FR is specific to the educational environment, “in the classroom” and “directed to the academic community” and “to the students”. They conceive FR constructs as “formative scenarios to learn to do research, by exchanging experiences with the involved agents” (Doc7). They also understand that SR, through BR and AR, refers to other spaces of accomplishment, essentially, of doing science in a strict sense, from generating scientific products and patterns of regularity that explain the interdependencies between factual events (TURPO GEBERA et al., 2019).

An extensive synthesis of the meanings expressed around the relations between FR and SR illustrate how, more than contrasts, they evidence their tendency towards integration.

Figure 2- Integration of formative research and scientific research



Source: Prepared by the authors.

The model recreated poses continuities, rather than stages of development, or from a project perspective, complementarities. These possibilities invite us to think of training designs that facilitate the acquisition of knowledge, which for Barbier (1999) would imply facilitating its appropriation through teaching, through the development of competencies for research. In any sense, FR fulfills a mediation function that, ultimately, dynamizes the process of identifiable potential evolution; through the manifest capacities as ends assigned to teaching (appropriation of knowledge) and to professionalization (development of competences) (BARBIER, 1999).

In order to initiate students in the tasks of scientific research, teachers demand the development of certain characteristics that FR must provide, and that are outstanding for training. Table 5 structures such requirements.

Table 5- Educational demands for initiation into formative research

Foundations	Doc1	Doc2	Doc3	Doc4	Doc5	Doc6	Doc7
Know-learn in formative research							
Analytical capacity	++	+	+	++	+	+	+
Reflective capacity		+		+	+		++
Access to information sources	+	+		+	+	+	
Know-how in formative research							
Experimenting	+	+		+	+	+	+
Observing	+	++	+	+		+	+
Know-be in formative research							
Critical spirit		+	+	+		+	+
Willingness to learn	+		+		+	+	

Source: Prepared by the authors.

The pedagogical practice of professors emphasizes certain requirements for training in research. They recognize that cognitive skills are fundamental, while they assign a strategic domain, Cby providing analytical-reflective and informational management skills” (Doc4), which favor the generation of “[...] learning, building useful knowledge and actively participating as actors in the construction of the social and cultural fabric” (PIRELA; PULIDO; MANCIPE, 2015, p. 67). For the teachers involved in the study, the cognitive appropriation of knowledge provides a global meaning for research, as well as “[...] strategies for learning scientific integrity, that is, respect for ethics and scientific rigor” (Doc5), as well as “[...] acquiring the skills to organize and systematize knowledge” (Doc3), and “[...] academic reports and the dissemination of knowledge” (Doc1), that is, having the resources and skills to communicate scientific results.

Besides cognitive abilities know-how and know-be are fundamental. For teachers, experimenting and observing are highly significant research procedures, “[...] requiring a critical sense in their application and an attitude compatible with continuous learning” (Doc7). Such knowledge constitutes “[...] essential mechanisms for achieving improvements in the development of their practice, enriching their knowledge and characterizing the service that will be rendered to society” (FAJARDO RAMOS; HENAO CASTAÑO; VERGARA ESCOBAR, 2015, p. 562).

These processes contribute to dissenting, criticizing and valuing the formative experiences that occur in research, and that as they occur, “[...] they refer to manifest actions in the reality lived by the new researchers, and from which the training processes for research are conceived” (TURPO GEBERA; ACUÑA, 2019, p. xiii).

In their teaching practice, teachers recognize that they require some skills that allow for better practices in the implementation of formative research processes. In this sense, they present them as expectations that they hope to realize progressively.

Table 6- Instructional Expectations regarding Formative Research

Foundation	Doc1	Doc2	Doc3	Doc4	Doc5	Doc6	Doc7
Updates in research		+	+	+	+		
Greater dissemination of their purposes	+	+	+	+	+	+	+
Process that is inherent to training	+	+	+	+		+	

Source: Prepared by the authors.

Teaching about formative research elicits a series of insights. It represents a process that invites change, the “[...] strategic planning of a type of instruction that, depending on the recipient and the level of education, has unique purposes and functions and, therefore, particular learning contents, methods and techniques, according to each case” (SÁNCHEZ, 2014, p. 71). The expectations of the professors interviewed are aimed at this task, as they feel “[...] the need to be up-to-date, to participate in academic events and to have the

resources to advance in my teaching and research role” (Doc4). A demand compatible with the changes foreseen in university life, to achieve objectives and goals that strengthen and develop competencies for responsible decision-making and exercises in educational interaction (UNSA, 2016).

Discussion and conclusions

Research experience has made it possible to verify the similarities and emphasis between formative research –understood as training in and for research– and scientific research, in the strict sense, while the former is recognized as a teaching strategy; the latter is based on what is expressed in scientific products (articles, theses, technical reports, etc.). The examination of the meanings based on the interviewed professors’ subjectivities revealed not only their differences in the interweaving of meanings, but also the confusion around the use of the word research. In the university environment, following Hernandez (2003), this term is the object of a constant refinement, a task inherent to the formative character of research.

Along these lines, the antinomy between formative research and scientific research has been moderately illustrated. Although its specificities are assessed as two distinct forms of academic work, there is also a sense of continuity between the two, as dynamics that lead to a better response to the challenges posed by society. The thin line that divides them leads to “[...] the need to qualify research training processes from practical exercises to confront theory” (ARROYAVE; LONDOÑO, 2017, p. 122). A concept that encourages the strengthening of teaching processes, as well as the creation of academic or practice communities for the exchange of knowledge that benefits the training of professors and researchers. Consequently, there is an urgent need to revitalize the educational relationship with research instruction. It is essentially a matter of fostering institutional spaces in which the generation of scientific knowledge is creatively promoted, from training in the *classroom* and research scenarios (BARROS; TURPO-GEBERA, 2017).

Research, due to its nature as an extensive and highly regarded type of work, is highly stimulating and motivating, so moving between the FR and the SR can lead to confusing transitions between one orientation and the other, to an interplay that, although seductive, does not allow the allocation or positioning of their real value (HERNÁNDEZ, 2003). Each of these research approaches has its own interaction dynamics and, therefore, involves specific responsibilities. Therefore, both contribute to the consolidation of university students’ research skills from the very scenarios in which they are generated. Attention to student expectations and, fundamentally, the needs of professors around the instruction of formative research, entails considering: the educational character *of* and *for* research, the specific contents to be developed, the didactic modalities that make learning possible, among others, that involve a teaching practice in accordance with institutional guidelines (SÁNCHEZ, 2014).

Within the logic of training, it is important to distinguish the roles of professor and researcher, and also the role of the disciplines, among them, education, as a social science, to enable their establishment as “[...] agents of change, and at the same time as generators

of an understanding of change” (CUBIDES; DURÁN, 2002, p. 12). In this perspective, research acquires a crucial role in the construction of knowledge and, consequently, in social and educational transformation. An interpretative construction anchored in social paradigms, characteristic of *ways of looking at* reality, and an invitation to *see research* objects in certain ways, and within particular frameworks. A task associated to both scientific research and formative research, rooted in the ethical and hermeneutic aspects that distinguish and characterize them, leads to a review of their implications and to the recognition of their otherness, which entails the consideration of the effects between both paradigms (BUSTAMANTE, 1999). In view of these motivations, UNSA’s educational model is faithfully ascribed to the construction of the most favorable scenarios.

The study enabled the recognition of the fact that subjective meanings assigned by professors to formative research are incomplete unless their perceptions are compared with those of students and other educational agents. This recognition is an invitation to expand the space of analysis of the teaching perceptions with other academic subjects’ opinions. Undoubtedly, considering them opens the door to rethinking other aspects of research and also reconsidering our ways of understanding. Likewise, it will be relevant to assess the impact of the actions undertaken by UNSA, through FR, on the training of future researchers and professionals with research capacities.

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