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Exploring student perceptions of formative research on undergraduate students: Insights and implications for higher education

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Abstract

The purpose of this study was to understand the appreciation of pedagogy students at the Universidad de Atacama regarding the formative research model offered by the university, specifically in the development of new research skills. The study aimed to analyze the common experiences narrated by students in relation to this model. The research employed a qualitative and exploratory approach following a phenomenological orientation based on Heidegger's hermeneutic phenomenological approach. Data collection instruments included semi-structured interviews and a focus group discussion. The results indicated that students' experiences with the formative research model were predominantly positive, describing the process as enriching and transformative. However, students also identified certain aspects that they perceived as hindrances that limited possibilities for improvement. These perceived limitations highlight the need for continued refinement of the model to better address student needs and expectations. The analysis of the results uncovers significant implications suggesting that the phenomenon studied holds potential for the integral development of future professionals through curricular transformations. The findings underscore the necessity for ongoing adjustments and enhancements in the formative research model to better equip students with the skills required for research, thereby contributing to the broader educational landscape and fostering a more robust educational framework.

Keywords: Curriculum, Formative research, Higher education, Phenomenological approach, Research seedbeds, Student experiences.

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Contents

Contribution of this paper to the literature

This study explores Chilean pedagogy students' experiences in formative research programs exposing transformative learning outcomes and perceived limitations. This addresses a research gap in the Latin American educational setting by examining students' perspectives within regional higher education contexts. This study contributes to discussions on improving research training in teacher education.

1. Introduction

Teachers must be prepared as researchers to adjust to the ever-changing environment and advancements in science, particularly when it comes to new scientific discoveries in the field of education. The development of a research culture lays the foundations for improving teaching practices where the individual must respond to problems that arise in their professional practice (Bennasar, 2020; Ramírez & Moreno, 2016; Rojas Arenas, Durango Marín, & Rentería Vera, 2020). However, how well prepared are future Chilean teachers as scientific researchers? Do research opportunities contribute positively to their teaching? Higher education institutions must provide the necessary tools to develop research abilities during initial teacher training and promote a research culture as a transversal element in their curricula (Criado Dávila, Sánchez García, & Inga Arias, 2020; Gutiérrez Rojas, Peralta Benítez, & Fuentes González, 2018). These skills allow education professionals to contribute with new perspectives and solutions according to the constant transformation of reality (Molina, 2017; Puerta, 2020). Formative research is understood as an educational strategy used by teacher-researchers to build knowledge and develop such skills in the students. This is key for teacher training. However, tools or adequate preparation are often not provided making it difficult to interpret classroom situations to carry out methodological transformations. Apart from this requirement, institutions' courses should have a transversal element. In this context, it is necessary to assess formative research opportunities in Chilean universities to respond to the social and training needs of future researchers. "Research Seedbeds" introduced in Colombia during the nineties (Flores, Mendoza, & Loaiza, 2019; Molina, 2017) are a primary method of introduction to research for undergraduate students. In Chile, there are research seedbed programs in at least 30 of the 74 existing universities in the country (Ministry of Education, 2022) which corresponds to 40.5% of Chilean universities.

Nevertheless, it is difficult to find scientific studies about them and no studies have been found on the experiences of students within these groups despite the existence of such programs. In addition, the information collected pertains just to universities and excludes technical training facilities and professional institutes. This suggests a lack of development of these programs in these types of institutions. In a nutshell, there is a lack of studies and information about them and a lack of these programs in other higher education institutions despite there is presence of formative research programs in Chilean universities.

1.1. Background at the University of Atacama

In 2017, the Faculty of Humanities and Education of the University of Atacama launched the 'Initial Teacher Training Seedbed' (FID) CM-FID ATA1758' project in Chile. This program began working with students in 2018. This project aligns with the Social Sciences and Education Research Institute of the university (called IICSE for its acronym in Spanish) which was created in 2013. The institute's objectives include promoting the study and spreading of regional cultural values, researching the cultural expressions of the communities of Atacama (the university's region), detecting assets that constitute authentic cultural values, promoting monumental restoration and conservation of cultural property, and conducting scientific, social and educational research (University of Atacama, 2023). The creation of research seedbeds allowed pedagogy students to strengthen their research skills and provided a foundation for future professional opportunities. The formative research program is created based on the work done previously within the IICSE, as a separate program to the research seedbeds of the Faculty of Humanities, and this has its starting point in 2019. This program has established new networks with Latin American institutions to promote research opportunities for the university's students. Additionally, an interdisciplinary journal in the field of humanities was created to provide an opportunity for students to publish their work (Revista ProPulsión, 2025). This research work aims to understand the perception of students about formative research training culture at the undergraduate level since formative research has a direct effect on the progress of scientific research and professional dedication to improve education. It is essential to know what opportunities are available in higher education and how much students value research training.

1.2. Significance of the Study

The impact of the study is based on the necessity to investigate the research culture present in undergraduate training processes, especially at a non-centered regional level in the country.

These processes have an impact on the progress of scientific research in general and on the professional commitment to improving educational processes in our country.

It is necessary to know the opportunities provided in higher education institutions and the importance attributed by students to research training.

1.3. General Objective

To detect the perception of student teachers at the Universidad de Atacama about the formative research model offered by the university for the development of new teaching research skills.

2. Literature Review

For this research, studies that address the dimensions and elements of this phenomenon were selected and organized into two thematic sections: the university space and the subject and its context.

Studies were searched in databases such as Scielo, Sage Journals, and Google Scholar using key terms such as student experience, research seedbed, formative research, and innovation in education.

Regarding the university space, the importance of the context in the development of research processes is highlighted. Three common elements were identified in the literature: formative research as a transversal strategy,

the strengthening of a research culture and the agents involved in formative research programs. In different studies, the role of universities as generators of educational spaces that allow the transmission of knowledge through research is stressed. The need to invest in research and development for social progress is pointed out and it is affirmed that research must be a transversal element in training processes. Furthermore, the importance of providing research spaces for students to generate new talents and knowledge as well as to prepare them for various fields of work is emphasized (Bennasar, 2020; de Lourdes Cantos-Figueroa, Cañarte-Quimis, Baque-Cantos, & Pluas-Barcia, 2020; Lozano, 2020; Numa-Sanjuan & Márquez Delgado, 2019). Lastly, it is mentioned in these studies that research must not be addressed as a subject to be studied and completed within a given time or stage but must be a constant in students' way of thinking to respond to the needs of society. Dilas-Jiménez, Ascurra-Toro, and Mendoza-Pumapillo (2020) point out the importance of formative research in the training of new researchers. This is typically developed through research seedbeds which are generally extracurricular autonomous spaces that complement university curricular training (Vega-Monsalve, 2019). Colombian experiences in their educational system have shown that this type of strategy can achieve a successful integration between undergraduate studies and postgraduate studies and networking with other universities (Dilas-Jiménez et al., 2020). Vega-Monsalve (2019) stresses the importance of institutional support and investment in these spaces. The author recommends that students from initial semesters should be invited to the seedbeds and be provided with clear information about the process. However, Latin America has a low investment in research and development compared to other regions which could explain its low position in the rankings (de Lourdes Cantos-Figueroa et al., 2020). The lack of human capital and resources and the use of obsolete methods are problems that hinder academic research, including reading and writing problems of teachers and students (Rojas Arenas et al., 2020). Bennasar (2020) suggests that these realities must be addressed to consolidate research culture as something transversal. Criado Dávila et al. (2020) point out that the promotion of research activities is also crucial although monetary resources are essential. There must be adequate management to inform the university community about formative research spaces. The research culture develops from a set of individuals with common values, attitudes, and expectations for conducting research. This culture influences the behavior of individuals and vice versa (Criado Dávila et al., 2020; Puerta, 2020). It is important that professors teach the processes that lead to questioning instead of just transmitting methodological content (Numa-Sanjuan & Márquez Delgado, 2019). According to Puerta (2020) some of the practices that strengthen the research culture are the consolidation of the scientific community of collective construction, the formation of research groups that deepen topics of common interest, discussion groups, research seedbeds, communicative strategies for the dissemination of knowledge, the publication of research results, the training of professors and students, participation in knowledge transfer events, and the development of courses on research. To understand the focus of this research, we consider it necessary to establish an understanding of its origin. Phenomenology is a philosophical movement that originated approximately at the beginning of the 20th century. It has as its central interest the experiences of individuals regarding a phenomenon in their everyday life, the "lifeworld" described and analyzed directly by the individual's interpretations of that phenomenon (Eddles-Hirsch, 2015). Phenomenological studies seek to make explanations (rather than an analysis) based on specific methods belonging to this branch. Heidegger was mostly concerned with "Dasein" with understanding being existing (Laverty, 2003; Peoples, 2021). A phenomenon is not reduced only to a manifestation in itself, concrete but can also manifest itself as an absence of something. The author describes phenomenology as a method of philosophical inquiry based on "how" rather than "what" and concerned with "how" an object presents itself. The structure of the hermeneutic circle where our interpretations change our understanding constantly reinterpreting. This is structured by Dasein (Dyer, 2010; Peoples, 2021) to give way to the analysis (or rather, explanation) of data, the whole is understood and then its parts, and understanding the parts modifies our understanding of the whole. Figure 1 has been elaborated to illustrate the generation of the hermeneutic circle from the interaction of Dasein with a new experience around a concrete phenomenon also showing the possibility of questioning to develop new interpretations that generate a deviation from the "vicious circle".

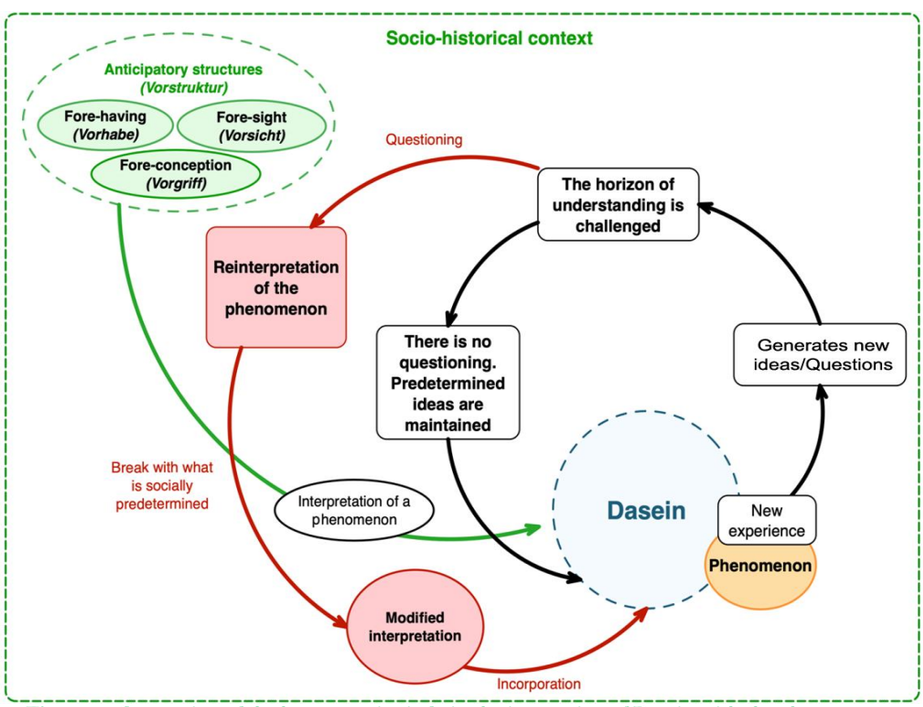

Figure 1. Generation of the hermeneutic circle in the interaction of Dasein with the phenomenon.

The Dasein's own understanding opens possibilities to share its new interpretations with its surroundings, generating feedback instances to deepen its existing comprehension.

3. Material and Methods

3.1. Research Design

This qualitative and exploratory research was situated in the interpretative paradigm with a phenomenological approach based mainly on Heidegger's hermeneutic phenomenological approach and was developed in two stages. The use of this approach seeks to capture participants' experiences of a phenomenon in depth (Eddles-Hirsch, 2015; Grossoehme, 2014; Moustakas, 2010; Nieswiadomy & Bailey, 2018; Peoples, 2021; Sloan & Bowe, 2014). The first stage consisted of gathering information on the formative research model offered by the University of Atacama in the Faculty of Humanities and Education. In the second stage, information on the experiences of students participating in this research model was collected and analyzed.

3.2. Population

The study sample was purposive composed of 3 participants recently enrolled in the formative research program who were part of the English pedagogy program at the University of Atacama and who were part of or had recently participated in the faculty's formative research programme in the moment when the study was carried out. No distinction was made by age or gender.

As a phenomenological study, a large number of participants is not required to study the phenomenon in-depth (Eddles-Hirsch, 2015; Grossoehme, 2014). The main focus of this type of study is to achieve data saturation in as much detail as possible (Peoples, 2021).

3.3. Validity and Reliability

The validity of the study was based on quality criteria such as credibility, transferability, dependability, and confirmability following the method proposed by Peoples (2021) based on Lincoln and Guba (1985). Regarding credibility, in phenomenological studies, different observers or methods may result in different descriptions of the same events. However, this does not threaten the validity of the study since there is no single objective reality. To test the validity of this study, expert judgment and a verification process with participants were used.

A thorough reading of the narratives, verification with the participants and expert judgment were carried out to confirm the reliability of the study. Participants agreed with the interpretations of their accounts and did not request any modification or deletion of information. An education expert also reviewed and approved the progress of the study. In terms of transferability, this study provided a research context and described a methodology that can be used in other research studies.

For dependability, detailed information on the context and participants of the study has been provided to assess its applicability to design it to be reproducible with a detailed and peer-reviewed methodology.

Regarding confirmability, the results and interpretations come from the data obtained from the participants, not from the researcher's assumptions. Following a hermeneutic phenomenological approach, the researcher's assumptions and prior knowledge were worked through and noted to understand the decisions made during the study. In this approach, the author's assumptions should not be completely set aside unlike transcendental phenomenology.

The study sought to modify or co-create new interpretations through the study of the participants' experiences through the hermeneutic circle and no inventions were made based on the researcher's assumptions. The review of the previous assumptions allowed searching for appropriate questions for the instruments to be designed and allowed observing and detailing new emerging interpretations for the search for meanings without these having affected the results, reflecting the experiences of the participants. A process of triangulation of the literature studied and the methods to be used was also carried out.

3.4. Data Analysis

There is a diversity of forms of data analysis in phenomenology. Nonetheless, their common goal is the holistic understanding of a phenomenon from the experiences of the participants. It is worth noting that Peoples (2021) points out that some authors prefer the use of other terms such as explanation rather than analysis for phenomenological work since the word analysis implies the decomposition of the parts of something, and phenomenological work seeks to maintain the essence of the "whole". Heidegger (as cited in Laverty (2003)) considers that "all understanding is linked to a certain set of prior structures, including historicity itself which cannot be eliminated".

Therefore, one must be as aware as possible and account for these interpretive influences (p.9). This is why the parts inform the whole and the whole informs the parts in a hermeneutic circle (within phenomenological hermeneutics). Besides, the researcher must be empathically immersed in the descriptive world to understand the participants (Laverty, 2003; Peoples, 2021). The conception of Dasein within its own capacity for questioning, as an individual or a group of individuals can inform its understanding (of itself or a phenomenon) to generate instances of new interpretations. These interpretations or understandings developed in the hermeneutic circle allow us to reveal the essence of the phenomenon, including detail of everyday life.

According to Creswell and Creswell (2007) the following steps are to be followed for phenomenological data analysis:

- Develop textural and structural descriptions: meaningful themes are generated to write a description of what participants experience (textural description) and are also used to write a description of the context that influenced how participants experienced the phenomenon (structural description).
- Inform the "essence" of the phenomenon through a compound description: A compound description of the phenomenon is written focused on the common experiences of the participants from the structural and textural descriptions developed which presents the "essence" of the phenomenon (essential and invariable structure).

- Present the understanding of the experience's essence in written form: the research is communicated in a way that reflects a deep understanding of the phenomenon. There are different ways to carry out this but a general structure includes
- An introduction to familiarize the reader with the phenomenon. Moustakas (1994 as cited in Creswell and Creswell (2007)) notes that, in some cases, the researcher makes a personal statement and/or records his or her experiences.
- Research procedures provide a rationale for the use of phenomenology and philosophical assumptions and details about data collection and analysis.
- A report on how the phenomenon was experienced with significant statements.
- A conclusion with a compound description of the essence of the phenomenon.

According to Peoples (2021) a series of steps are to be followed in the general development of phenomenological research includes

- Read in detail and delete irrelevant information (such as repetitive ideas or filler words).
- Generation of preliminary units of meaning (Giorgi, 1985, p. 10 as cited in Peoples (2021).
- Development of final units of meaning from a thorough understanding of the participants' descriptions.
- Development of situated narratives: Analysis of participants' stories organizing their specificities or experiences thematically under the specific interviews. The meanings of each participant's experiences are thematically highlighted through direct quotations.
- General narrative development: General narratives are created from the situated narratives linking the participants' narratives in a general description. The data of the situated narratives are organized highlighting all the meanings of the participants' experiences.
- General description: The implicit themes found in all or most of the descriptions are discussed.

For the analysis of this study, we consider relevant the steps for phenomenological data analysis of Creswell and Creswell (2007) and Peoples (2021) which coincide in several of their aspects. These will be presented below in Figure 2 and will be used as guidelines for phenomenological data analysis for this stage.

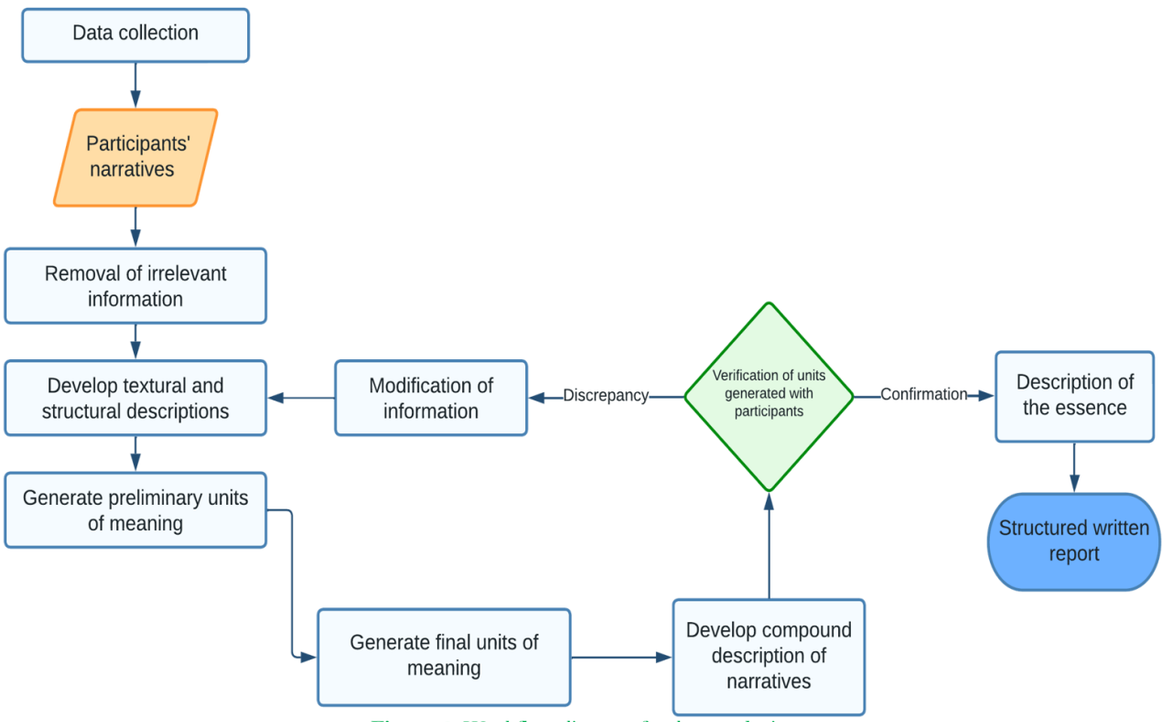

Figure 2. Workflow diagram for data analysis.

3.5. Instruments

The techniques used for data collection were semi-structured interviews and focus groups supported by audiovisual recordings. A follow-up with the participants was also conducted to confirm or clarify the information obtained. Participants provided informed consent before data collection and their anonymity was maintained by assigning them an individual code.

For this research, the instruments created were based on previous studies about formative research and the experiences of students and teachers in research programs. According to Rojas Arenas et al. (2020) several studies were reviewed to obtain relevant information that focuses on the impact of formative research in professional training. Cárdenas (2018) investigates experiences in research seedbeds. Suárez, Ceballos, and Obispo (2013) who explore the students' perception about formative research. Osorio (2008) examines the formative research processes in the University of Antioquia, Colombia. From these studies, surveys, interviews, and focus groups were adapted to research the motivation of the students, institutional support, work dynamics, emotional and social skills necessary for research and the scientific competencies needed for this field.

The design questions and instruments have been adapted following the three categories of questions of Larsen and Adu (2021) based on the work of Bevan (2014).

- Spatial and temporal horizon clarification questions: These questions intend to understand how the participants lived a particular experience. For example, one can ask how a patient coped with an illness to understand how they make sense of their situation.

- Explanation of the encounter with the phenomenon questions: They refer to direct experiences with something real. The researcher can ask about emotions associated with the experience or the actions taken by the subjects to cope with the experience.
- Interpretation of meanings questions: They offer participants the opportunity to clarify their experiences in terms of their meaning. Hypothetical questions can be asked to present a scenario different from the one experienced.

The adapted questions were classified according to the following categories shown in Tables 1 and 2.

Table 1. Interview guide questions by category.

Category	Questions
Contextual	What motivated you to join the formative research/ Seedbed program? What expectations do you have about the program? Did the pedagogy program's teachers promote research? How?
Direct experience	How has your personal experience with the implemented strategies for formative research been? Have you acquired or improved competencies and skills with the program? If so, which ones? Did they teach you what you learnt in the program in the other classes?
Creation of meanings	What emotional and social skills do you deem relevant for training as a researcher? How would you describe your experience of participating in the program?

Table 2. Generating questions for the focus group by category.

Category	Questions
Contextual	What were your motivations, expectations and interests in participating in the formative research programs?
Direct experience	Aside from research, what other things did you learn that you can apply in life? What differences can you point out in relation to the classroom dynamics of a regular classroom?
Creation of meanings	How would you describe the participation experience inside the program? What are or were the program's strengths and areas for improvement?

4. Results

The following are the results of the research based on hermeneutic phenomenology including data collection and analysis. Concrete examples are used to explain the analysis process and the situated narratives are presented. General experiences and the general context of the narrated experience are also described.

There are very few students participating in the formative research program and the study involved three participants interviewed via online meeting. Three individual interviews and one focus group were conducted. The interviews were around 15 or 20 minutes long and the focus group was 1 hour long. All the interactions were recorded. After transcribing and analyzing the data, they were sent to the participants for follow-up and verification. They all confirmed that their narratives were reflected correctly.

All the unnecessary data from the transcriptions was removed and an initial reading of the interviews and the focus group was carried out to obtain the results. The goal was to gain an in-depth understanding of the participants' experience and to identify textual and structural descriptions of each answer. Preliminary meaning units were created from the descriptions of each answer in the transcriptions. After several in-depth readings and a detailed review, the fourth step was taken to establish the final meaning units. The final meaning units were determined by classifying the participants' answers into common emergent themes which were used to develop a compound description of the narratives. These themes represent the essential characteristics of the experienced phenomenon from the participants' perspectives. The process is explained visually in Figure 3 and the identified themes are shown in Table 3.

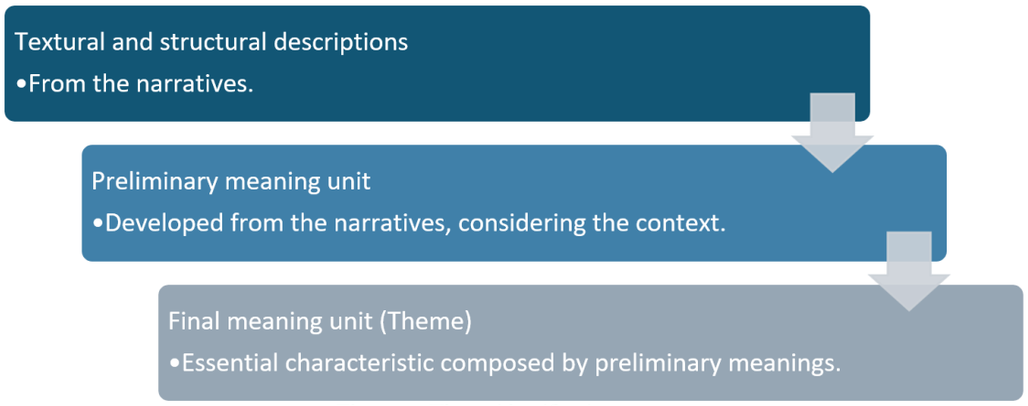

Figure 3. Theme identification process.

Table 3. Identified themes.

Themes	P1	P2	P3
Continuity of studies	X	X	
Expanding the professional field	X	X	X
Improving skills	X		X
Lack of motivation among some teachers	X	X	X
Curriculum focused on classroom teaching	X		X
Effective strategies	X		X
Constant questioning and social development	X	X	X
Late introduction to research	X	X	X
Enriching and continuous learning experience	X	X	X
Exclusiveness	X	X	X

To analyze the experiences, the emergent themes in the narratives were identified first. Afterward, the situated narratives of each theme were determined to get to the general narrative. Finally, a general description of the essence is given.

4.1. General Narrative

The participants joined the programs inside the university for various motivations. These include the aspiration to pursue postgraduate studies, the expansion of their work field, and the search for other areas of performance. Even though they knew something about research, their previous knowledge was limited to the writing of scientific articles. Through research, they discovered specific areas of interest such as the use of Information and Communication Technologies (ICTs) in the classroom and public policy and acquired academic and soft skills.

Nonetheless, the participants perceive a lack of motivation on the part of professors in the undergraduate program in education and English pedagogy to introduce students to research and new digital tools. Although some professors mention the topic of research, few give deeper information and motivate their students to enter the world of research. However, they note that professors who participate in scientific research teach differently and use effective "learning-by-doing" strategies.

The skills acquired through the programs include constant questioning to boost and perfect their performance, the development of social and communicative skills in real professional contexts, and emotional abilities for their personal development which they consider essential for their careers.

The participants in this study expressed that their participation helped them to discover the field of research and different professional areas while developing research skills. Nevertheless, they asserted that the introduction to the world of research in their study program was very late, even losing content due to online classes or other factors. One participant noted that many of her classmates did not know how to conduct research in their fourth year despite being close to working on their theses and had almost zero knowledge about digital tools that could help them. It is perceived that the curriculum of the English pedagogy program is primarily focused on teaching English in the classroom and does not go beyond the formal structure.

The three participants considered that their experience was positive and highly beneficial, promoting continuous learning and professional development. However, one noted that the experience was mixed, not entirely positive but still valuable. The biggest problem that was identified was the perception of exclusiveness within academic research circles which may discourage students from participating especially due to the requirements for joining research groups. According to the participants, this could give the impression that only a select and closed group can aspire to work in scientific research. Although they have already graduated, the participants do not know if this situation persists.

4.2. General Description

Undergraduate students often perceive research as advanced and unknown scientific work, especially during their first years of studies. According to the participants, this type of work may seem complex and exclusive to the natural and formal sciences since its importance is sometimes not emphasized in the social sciences and many students are unaware of the processes involved. The lack of knowledge is not due to disinterest but to limited opportunities and teaching in other fields. Students usually get to know these processes when they start their thesis at which point they lack a formative foundation in research and the modern tools they could use to support their work. Despite this, many of them wish to continue their studies or to specialize in different areas. It is crucial to introduce them to research early and constantly train both professors and students about new ICTs to achieve those goals. The formative research strategy can be effective and even enjoyable for students which can result in enjoying their future profession. Lack of research training can discourage many student teachers and young professionals from exploring areas of interest. In addition, research is essential for teaching so it should be enhanced in training programs.

5. Discussion

This study sought to understand the perception of student teachers at the University of Atacama about the formative research model that the university offers for the development of teaching research skills. The results revealed that the main motivation for entering this type of program is the desire to expand horizons in the teaching field through Heidegger's hermeneutic phenomenological method. However, the participants recognized that they perceived scientific research as a complicated and high-level work limited to exclusive academic circles. Additionally, there was a lack of information about the world of research and joining opportunities through formative research programs and a lack of knowledge on new ICTs. However, once they had passed the entry stage, the students valued their experience positively and highlighted its usefulness for their academic profile and the expansion of their work vision. Another concern raised was the tutors' responsibility to encourage their students' enthusiasm and drive for research and education. In conclusion, formative research programs and seedbeds provide a space for the integral development of the participants including academic, social, and emotional skills. These results were compared with the existing literature on the topic and a discussion was carried on.

5.1. Interpretation of Results

This section presents a dialogue with the literature reviewed and studied to carry out the research. The themes identified in the data analysis are compared with themes identified in other studies to gain a deeper understanding of the formative research experiences of student teachers.

The study reveals that intrinsic motivation, personal goals and the desire to continue studies are significant drivers for student participation in research. According to de Lourdes Cantos-Figueroa et al. (2020) and Cantú Munguía, Medina Lozano, and Martínez Marín (2019) participants expressed interest in expanding their professional fields, recognizing that involvement in research during undergraduate studies opens up more career opportunities which different authors state. One participant developed a strong interest in ICTs which enhanced her professional experiences while others believed that acquiring new skills and tools through research would allow them to specialize and improve their life projects (Bennasar, 2020; Cantú Munguía et al., 2019; Cárdenas, 2018; Vega-Monsalve, 2019). These specializations support the idea that research is a lifelong process, which encourages

continuous professional growth (de Lourdes Cantos-Figueroa et al., 2020).

Formative research programs are essential in developing skills that broaden career opportunities and inspire further interest in scientific research. Participants expected to enhance their academic reading and writing skills and gain new research tools, but the experience took them beyond that. Their successes in these programs influenced their academic and career goals while also fostering a culture of continuous learning and commitment to research. However, there is a lack of motivation among professors to encourage participation in research and more autonomous work. Many students felt that their professors lacked interest in research, perceiving that they failed to inspire them, which was exacerbated by a curriculum focused primarily on classroom teaching.

The participants also criticized the limited information provided about formative research which hindered their engagement.

Effective teaching strategies that promote formative inquiry and autonomy such as on-the-go learning (as mentioned by the participants) were highly valued by participants. They noted that such approaches were uncommon in their classes. Successful implementation of formative research requires a strong research culture, prepared faculty and attention to individual student interests.

The research participants also highlighted the development of social skills alongside academic skills. Experiences like attending conferences and engaging in teamwork enhanced their communication abilities and allowed them to address social needs effectively. Through social research, participants discovered career paths and identified themselves as agents of change, capable of making meaningful societal impacts.

One major criticism was the late introduction of research in their programs. Participants argued that research should be integrated throughout their education, rather than being limited to the undergraduate thesis. They emphasized the importance of constant exposure to research knowledge and digital tools to prepare students for contextual needs (Bennasar, 2020).

Similarly, as a key negative theme, participants noted that formative research spaces were perceived as *exclusive*, only for a certain type of student with high entry requirements that limited participation for others. They recommended that these spaces be made more accessible to all students. This would prevent curricular fragmentation and ensure comprehensive preparation for future teachers. Introducing research as an opportunity for skill development regardless of career aspirations is essential for a well-rounded education.

Despite the challenges, participants had positive experiences with formative research at the university noting its role in continuous learning and professional improvement (Bennasar, 2020; Cantú Munguía et al., 2019). The study also found that a supportive environment where tutors considered students' expectations and engaged in open dialogue contributed to increased motivation and commitment.

6. Conclusion

This research examines the perceptions of university students who participated in formative educational research programs highlighting both personal and professional growth. Participants reported acquiring skills that surpassed their expectations viewing the experience as an opportunity to explore new academic and career paths. The learning process, particularly through non-traditional methods like "learning on the go," was predominantly positive and led to a shift in their understanding of research and academia. These experiences prompted changes in their aspirations and self-conception.

The study identifies key positive aspects valued by participants and suggests improvements for future program implementation. Insights from participants offer potential solutions for curricular reforms that could enhance the institution's research culture. The findings suggest that fostering their researcher profile is crucial due to their significant social role in education emphasizing the experiences of student teachers during their initial training.

The study underscores the importance of improving formative research programs to broaden career opportunities and help students discover their interests. Higher education institutions should design programs that align with student needs offering diverse work opportunities and integrating formative research into the curriculum. The notion of "exclusive" academic spaces should be reformed to provide all students access to research opportunities, facilitating personal growth and the development of social skills essential for their roles as agents of social change.

Additionally, the research highlights the need for universities to train and motivate professors as key facilitators in formative research processes. Effective mentorship is vital for the success of these programs making it essential to prepare future teachers as researchers regardless of their career objectives.

The study not only contributes to understanding the phenomenon of formative research but also suggests that substantial curricular changes are necessary to integrate research more broadly across disciplines. The findings advocate for transforming the academic culture to make research accessible to all students, supporting their personal and professional development as impactful members of society.

7. Implications

The study has social connotations in addition to the research contribution to the phenomenon in an exploratory way. We have inquired about the phenomenon of formative research and the experiences of students who have been part of it. The main implication of the study is the transformations that could be made in the formative research models within universities improving their implementation based on the appreciation of those who have been part of these processes. Higher education institutions consider actions and changes appropriate to the research culture and the growth of formative research spaces. Substantial curricular transformations must be made regarding the transversal implementation of formative research. In addition, the vision of "exclusive" spaces of the academy and the reduced access to research must be changed, giving opportunities to develop new skills to all students who wish to be part of these processes. Similarly, it has been stated that formative research means a space for personal growth and the development of social skills for students, consolidating their professional and individual identity as agent of social change.

7.1. Suggestions

The results of this study corroborate the themes studied in the existing literature. Therefore, it could contribute to future studies regarding the students' appreciation of the formative research programs within their

universities. In addition, it is presented as a contribution to the scarcity of literature with a phenomenological approach to the study of experiences, so it could open a space of interest for this type of study. The main recommendation is based on the limitation of the number of participants in the study. In the future, it would be beneficial to collect information from more participants, for example, from other pedagogy programs or from other faculties to delve even deeper into the students' experience through their narratives. It would also be interesting to conduct a study at a university that has implemented formative research programs much earlier than the university studied, serving as a contrast with the experience at a university that has recently implemented this type of work.

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Appendix

Appendix 1 presents the translated version of the informed consent form provided to the study's participants.

Appendix 1. Informed consent form.

INFORMED CONSENT FORM
Formative Research in Pedagogy Programs at the Universidad de Atacama

I. INFORMATION

You have been invited to participate in the investigation Formative Research in Pedagogy Programs at the Universidad de Atacama. Its objective is to know the appreciation of the pedagogy students of the Universidad de Atacama regarding the formative research model offered by the university for the development of new teaching research skills. You have been invited because you have been a participant in the formative research program of the Universidad de Atacama.

The researcher responsible for this study is Ms. Javiera Martínez Díaz, from the master's program in Education with mention in Curriculum and Educational Community of the Faculty of Social Sciences of the University of Chile. The research is sponsored by the National Agency for Research and Development (ANID).

In deciding to participate in this research, it is important that you consider the following information. Feel free to ask any questions that are not clear to you**:**

Participation: Your participation will consist of an individual interview and a focus group regarding your experiences as a student in the university's formative research program. The interviews and groups will be recorded for later study, and these may be interrupted and/or resumed at any time.

Risks: This research does not pose any risks to participants.

Benefits: You will not receive any direct benefit or reward for participating in this study. However, your participation will generate information for the study and possible improvements to the programs offered at the university level.

Voluntariness: Your participation is absolutely voluntary.

Confidentiality: All your opinions will be kept confidential and held in strict confidence. In the presentations and publications of this research, your name will not be associated with any particular opinion. Anonymity will be maintained by assigning a code to each participant (e.g., P1, P2, P3, etc.).

Knowledge of the results: You have the right to know the results of this research. You will be able to access them once published, by contacting the responsible researcher.

Contact information: If you require more information or to communicate for any reason related to this research, you may contact the researcher responsible for this study:

Javiera Martínez Díaz
Phone number: [redacted]
Address: Facultad de Ciencias Sociales, Universidad de Chile. Av. Ignacio Carrera Pinto 1045, Ñuñoa, Santiago.
E-mail: [redacted]

You may also contact the Research Ethics Committee that approved this study:
Comité de Ética de la Investigación
Facultad de Ciencias Sociales
Universidad de Chile
Phone number: (56-2) 29772443
Address: Av. Ignacio Carrera Pinto 1045, Ñuñoa, Santiago. Facultad de Ciencias Sociales. Universidad de Chile.
E-mail: comite.etica@facso.cl

II. INFORMED CONSENT FORM

I, ..., agree to participate in the study Formative Research in Pedagogy Programs at the Universidad de Atacama, under the terms stated herein.

I declare that I have read (or have had read to me) and (have) understood the conditions of my participation in this study. I have had the opportunity to ask questions and these have been answered. I have no doubts in this regard.

_____ _____
Participant's Signature Responsible Researcher's Signature

Place and Date: _____

E-mail for information return _____

This document consists of three pages and is signed in two copies, with one copy remaining on each side.

Appendix 2 presents the selected guiding questions for the interviews and focus groups.

Appendix 2. Interview and Focus Group guiding questions.

Interview questions

- What motivated you to enter the formative research programme/seedbed programme?
- What expectations do you have/had from the programme?
- Do teachers in the pedagogy programme motivate/motivated you to do research? In what ways?
- How was/is your experience with the strategies used for formative research?
- Have you acquired or improved competences and skills through the programme? If so, which ones?
- What you have learned in the programme, were you taught that in the other classes?
- What emotional and social skills do you think are relevant to research training?
- How would you describe your experience of participating in the programme?

Focus group guiding document and questions

1. Welcome the participants, introduction to the topic.
2. Presentation of participants.
3. Presentation of the work dynamics.
4. Generating agreements and rules for the activity.
5. Generating questions:

- What motivations, expectations and interests did they have in participating in the formative research program?
- What differences can they point out in relation to the classroom dynamics of a regular classroom?
- How would you describe the experience of participating in the program?
- What are/were the strengths and areas for improvement of the program?