PROMOTING INNOVATIVE EDUCATIONAL AND LEARNING PROCESSES WITH AND AMONG FUTURE STUDENTS EDUCATORS AND PEDAGOGISTS

PROMUOVERE PROCESSI EDUCATIVI E DI APPRENDIMENTO INNOVATIVI CON E TRA STUDENTI E STUDENTESSE FUTURI EDUCATORI E PEDAGOGISTI

Gabriella Aleandri[1]
Roma Tre University
Gabriella.aleandri@uniroma3.it

Chiara Fiorentini[2]
Roma Tre University
Chiara.fiorentini@uniroma3.it

Double Blind Peer Review

Citazione
Aleandri, G., & Fiorentini, C. (2024). Promoting innovative educational and learning processes with and among future students educators and pedagogists. *Giornale Italiano di Educazione alla Salute, Sport e Didattica Inclusiva*, 8(2), Edizioni Universitarie Romane.

Doi:
https://doi.org/10.32043/gsd.v8i3.1098

gsdjournal.it
ISSN: 2532-3296
ISBN 978-88-7730-494-0

ABSTRACT
Increasingly complexity, technologies and rapid changes, with both positive and negative impacts, are spreading in current societies. In such a scenario, educational processes need to be rethought. This is urgent particularly for future educators and pedagogists, as they will, in turn, have professional educational responsibilities. We therefore consider appropriate to promote and strengthen reflective and critical thinking, research skills and creativity through innovative pedagogical models.

La sempre più pervasiva complessità, tecnologie e rapidi mutamenti, con impatti sia positivi che negativi, si stanno diffondendo nelle società attuali. In un tale scenario, i processi educativi e formativi necessitano di essere ripensati, specialmente per i futuri educatori e pedagogisti, per il ruolo e responsabilità professionali. Riteniamo pertanto opportuno promuovere e implementare le competenze riflessive, critiche, di ricerca e la creatività, attraverso modelli pedagogici innovativi.

KEYWORDS
Education, critical thinking, development of reflective thinking.
Educazione, pensiero critico, sviluppo del pensiero riflessivo.

Received 29/04/2024
Accepted 13/06/2024
Published 24/06/2024

[1] The whole research project and the article had been designed and directed by G. Aleandri, who is the Author, specifically, of 1, 3, 4, 6 and 7 paragraphs.
[2] Author of 2 and 5 paragraphs.

"The education of man is a human awakening"
Jacques Maritain, 1963

1. The complexity of contemporaneity: re-thinking educational processes

In addition to the undeniable positive contributions of progress, especially in scientific and technological fields, it is important to also take into account negative contributions and the ever-increasing complexity and rapid changes of contemporary societies that can contribute to triggering various negative repercussions, including a widespread climate of uncertainty and sense of precariousness (Bauman, 2006; Aleandri, 2007; Morin, 2011; Margiotta, 2011; Aleandri & Refrigeri, 2021).

The complexity that characterises scenarios of contemporary life, in any case, merits a two-way interpretation, because, while, on the one hand, it is perceived as something negative, risky, uncertain or chaotic, on the other hand, the potential must not be ignored. Edgar Morin (2017) has emphasised its dual value, urging people to value not only order but also disorder, as has Balandier (1991), who has encouraged reflection on the need to acquire and use a holistic, as well as inter- and multi-disciplinary, approach in considering man, in order to effectively address the innumerable dynamisms of complexity. Changes are fast-coming and numerous, and their interactions often make them difficult to understand and manage. At the same time, however, it is necessary to consider that within and during the evolution of this complexity, humanity has continued to make, for many years now, notable progress on various fronts, favouring the definition of a "knowledge and information society" to describe contemporary, modern and post-modern reality, in which knowledge and information represent the main resources for the creation of value and not only economic and social, but also educational and cultural development (Aleandri, 2011, 2019a).

In this scenario, education and training therefore become increasingly crucial, in the perspective of life-long, life-wide and life-deep learning, to be acquired as a lifestyle, since they are able to guide and support people throughout their entire existence, in the dynamics of personal, professional and social life.

In a society in which technology and artificial intelligence are increasingly pervasive, education takes on a fundamental role in relation to the conscious, competent and responsible use of technological devices, robotics and artificial intelligence (Aleandri, 2019a; OECD, 2023).

For decades now, major institutions and bodies at a European and international level have included, in the priorities of their current agendas, the objective of an increasingly sustainable, fair, inclusive, supportive and democratic society, for the common good and well-being of both present and future generations, underlining with emphasis the role of education as a key factor in socio-economic, political and cultural development on a global scale (Council of the European Union, 2000; European Commission, 2020; OECD, 2023).
Therefore, it is essential to rethink and design new pedagogical strategies aimed at developing educational and training processes capable of orienting and supporting man throughout the entire course of his life (Schwartz, 1987; Mortari, 2004; Morin, Ciurana & Motta, 2004; Cambi, 2017; Boffo, Iavarone & Nuzzaci, 2022).
As regards university education, for future educators and pedagogists, particularly regarding three-year and Master's degree courses, and following the recent approval by the Italian Parliament of the establishment of Orders of Pedagogists and Educators (Law No. 55/2024), we believe it is important to develop innovative and diverse educational strategies based increasingly on the theory-practice circularity of pedagogical research as a key category in the changing evolution of human existence (Dewey, 1965; Santomauro, 1967; Piaget, 1971; Flores d'Arcais, 1987; Cambi, 2008; Laporta, 2016; Baldacci, 2019; Malavasi, 2023).

2. The role of technologies and the advancement of artificial intelligence: what are the (dis)advantages and responsibilities for pedagogy?

Among various innovations are, as anticipated above, the developments of computer networks and technologies, whose personal and social implications for human life and the human condition have been recognised for many years now (McLuhan & Powers, 1989). Indeed, the digital transformation, which is integrated with and expanded on by artificial intelligence, increasingly pervades every aspect of daily life, offering multiple opportunities and positive implications, yet, at the same time, implying worrying and numerous risks for our personal and social lives (Boffo, 2021; Aleandri, 2022; Panciroli & Rivoltella, 2023).
There are many opportunities, for example, for sectors of education, training, work, culture, medicine, healthcare, surgery, economics, and manufacturing, as well as for many aspects of daily life, using a wide variety of tools, such as ever more widespread home automations. Furthermore, adding to these, are the contributions artificial intelligence has made to the management, application and variety of teaching and learning practices, introducing methods, spaces, means of

delivery, management and planning, in support of both learners and teachers (Galliani, 2009; Rivoltella, 2021; Costa, 2022; Cambi & Pinto Minerva, 2023). However, as mentioned above, there are also negative repercussions associated with the increasing use and development of technological devices, the internet and robotics, which entail risks such as greater difficulties in safeguarding and protecting privacy and personal data, the use of such data by people with malicious or destructive purposes, for themselves or for others, impacts on employment, and consequences that are hitherto unknown or unforeseeable.

There are numerous and ever new questions that, stimulated by these and other reflections, are being asked more and more frequently in the educational and pedagogical field. In contemporary post-modernity, can artificial intelligence be considered tout-court as one of the best strategies to introduce and develop for the advancement and enhancement of various aspects of human life? What do people and intelligent machines have in common and what makes them different? Artificial intelligence has begun to "learn" the emotions, expressions and relational aspects typical of human beings, and therefore one can wonder, from a qualitative point of view, what can actually be "assimilated" to human feelings and behaviours. If artificial intelligence continues to be increasingly similar to humans, how can humans not only be "preserved", but also "enhanced", not only to cope with artificial intelligence, but also to be able to manage it in an active manner? Certain questions can find possible answers if we consider that human beings are endowed with abilities, thoughts, feelings, emotions and many other characteristics that make them unique and inimitable, compared with tools, machines and algorithms that are replicable or in any case desired and developed through the creative work of man (Pinto Minerva, 2021).

In this regard, the education and training of people are, at the same time, the condition and the basis for allowing technological and robotic development to continue, thus limiting as far as possible the risks of compromising the autonomy and independence of the human being. It follows that human education, today and above all in the future, could benefit from new and renewed educational processes that are able to set out and support, if already existing, important purposes, some of which previously listed, considering that education can contribute to build and strengthen self-awareness and a sense of community by promoting more participatory and proactive training strategies (Aleandri, 2019b; Iori, 2020; Dozza & Cagol, 2020).

3. Pedagogical planning for meaningful learning

It is in such a scenario that new questions are also emerging in the pedagogical field, certain of which aimed at trying to understand what it can mean, in post-modern society, in the education, training and teaching of children, adolescents and adults. What are today's most suitable means, tools and methodologies to promote fruitful learning? What human being or professional are we aiming to educate? What are the current short and long-term objectives that pedagogists, educators, trainers and researchers in the educational and pedagogical field are setting themselves? What characteristics should education have in order to support, guide and orient adults in day-to-day dynamics?

In trying to answer the questions posed above, it is useful to reflect on the widespread recognition of education as one of the major key tools in addressing and adapting to contemporary rapid changes and even more so to future evolutions and transformations (Aleandri & Girotti, 2010).

Given this assumption, education and, even more so, continuing education take on a central value, since they are able to support and guide man, throughout his entire existence, not only in personal life choices, in the educational field and in professional life, but also in a competent, active, responsible and conscious use of various technological devices and the related algorithms that underlie them. More generally, life-long education can contribute to supporting us in following paths thus far under-explored, and in understanding new personal and community needs, so that effective innovative solutions can be designed for a balanced, sustainable, democratic and well-being-oriented future development of humankind, at the service of the community (Lengrand, 1973; Mencarelli, Richmond & Suchodolski, 1983; Schwartz, 1987; Delors, 1997; Alberici, 2008; Aleandri, 2007; 2019b; Di Rienzo, 2013; Loiodice, 2014; Striano, 2019; Malavasi, 2020; European Commission, 2023).

Furthermore, to provide other answers to the questions posed above, we must consider the matter of experience and the need to organise and think about pedagogical and educational knowledge, starting from theory and passing through action and practical activities to return to theory that is enriched, expanded, conscious, informed and formed with respect to the changes that have occurred or are underway (Boffo, 2021).

Indeed, studies and research in the pedagogical field, through action, experiential practice and a constant study of reality, can contribute to developing "an empirical and critical anthropology [closely interconnected with politics] that, since its *anthropos* is developmental and possible, needs to be constructed in society, which

needs structures, institutions and stages to come and build it" (Cambi, 2003, p.17), in order to create an authentically formative educational process capable of orienting and supporting people in the various situations that will arise throughout life. The epistemic tension of pedagogy, considered active knowledge, allows us to go beyond horizons that are known, sometimes disused or outdated, promoting new instances of development and new pedagogical models in line with the present reality and oriented to the future. This cognitive approach to educational research allows us to avoid the risk of a crystallisation or impoverishment of all those spheres that make up the person (Visalberghi, 1965; Pinto Minerva & Galelli, 2004; Baldacci, 2011; Frabboni, 2012), and to encourage teaching and learning methods, practices and ways of thinking and acting congruent with the historical and social reality in which each person lives and coexists with others (Mortari, 2020).

In contemporary life, among various skills, it is necessary to also promote digital skills, in line with certain objectives of countries on a global level (OECD, 2023), and with regard to educators and pedagogists. Such skills are necessary not only to passively adapt to their use, but to be able to manage them and to guide changes. In this regard, for some time now, in the pedagogical field, there has been an awareness that the "logic of technology and the logic of life now appear increasingly destined to intertwine" (Pinto Minerva, 2004, p.11).

As researchers and scholars in the pedagogical field, we have the task of reflecting, rethinking and redesigning, where necessary, educational and learning processes with a view to increasing their effectiveness and significance, to the benefit of individual students and the professionalism of teachers, educators and pedagogists. How can those involved in education pursue these goals? With what means, tools and methods of intervention? Starting from the assumption that education is a human resource not to be wasted, and thus avoid many of the pitfalls unfortunately present in the twenty-first century, pedagogy must tend towards change and therefore "cannot procrastinate or avoid the pursuit of its scientific foundation, otherwise it would turn into a lifeless antique" (Baldacci & Frabboni, 2013, p.17).

What are the ways to stimulate certain occasions and opportunities for change? Why is it necessary for certain educational opportunities to be carried out in study contexts in the pedagogical-educational field? Why does the future educator, trainer or pedagogist need to experience these educational opportunities, and what can and should they learn from them? In reference to our field of investigation, what skills should an educator or pedagogist acquire today and for the future? Which pedagogical models should be promoted in university courses, so that they

encourage the development of skills preparatory to research skills? And which models can help develop research skills?

Knowing and stimulating more opportunities for research training, as regards pedagogy, as a reflective, critical and transformative science, can contribute to the formation and development of new models and practices that are capable of rethinking the educational and training complex, so that it remains constantly focused on personal well-being as well as social and democratic development (Sen, 2000; Mezirow, 2003; Appadurai, 2011; Birbes, 2012), without neglecting the integral aspect of this development in relation to the relationship of the person with his or his surrounding environment (Brofenbrenner, 1986). Among the most effective strategies to consolidate and propagate, in order to achieve the aforementioned objectives, are increasing or strengthening awareness, reflexivity, critical thinking, creativity, divergent thinking, respect for others, reciprocity, empathy, and inclusion (Schon, 1999; Tramma, 2003; Mortari, 2003; Riva, 2008; Costa, 2020; Aleandri & Consoli, 2020; Boffo, Iavarone & Nuzzaci, 2022).

Some of these strategies can be learned or strengthened in adulthood, by integrating into university education innovative pedagogical and educational processes that are capable of going beyond typical methods linked to purely theoretical modus operandi, and emphasise, on the contrary, methods linked to educational methodologies that are capable of actively engaging students and their ability to reflect, carrying out critical thinking and develop meta-cognition. In line with this assumption, it follows that, particularly in the contemporary world, training and life-long learning take on central roles and responsibilities since they are able to make individuals, throughout their entire life span, aware and capable of reflecting, educating themselves and learning in depth, in order to improve, develop and manage, in a flexible, conscious and active way, the changing society (Cunti, 2014; Aleandri, 2019a; Aleandri, Llevot & Bernad, 2021; Costa, 2022).

The complexity of educational reality has certainly influenced, to an increasing extent, the birth of studies that have in some way led educational reflection itself to be considered increasingly linked to individual and social reality and action, according to a multidisciplinary vision that has now become typical of educational sciences, despite the specificity of each scientific discipline (Cambi, 2017; Iori, 2018; Federighi, 2018; Boffo, 2020; Cunti, 2020).

In wanting to trace new paths to develop in the pedagogical-educational field, a new recognition of skills is also necessary, skills that are often little considered, including, for example, experiential education practices, and opportunities for reflection and training in research.

The autonomy and independence of pedagogy are based precisely on the union of theoretical research and field interventions and experiments. This must also be understood as a learning method, and for resolving problems and issues related to a specific historical and cultural context.
In light of these assumptions, we must ask ourselves which educational and training models can be considered most suitable to address and manage the emerging issues of the current historical and social context in the best possible way?
According to which methods and tools can educational and learning processes be rethought and reorganised in order to build innovative pedagogical approaches to knowledge, useful for dealing with the sudden and unexpected changes that continue to affect society from various points of view? How can we create, promote and disseminate pedagogical strategies that are effectively transformative? In this perspective, what is the role of pedagogy and education? What pedagogical and educational objectives and strategies need to be promoted in university courses aimed at adult students who will be future educators and pedagogists?
These are just some of the questions that form the starting point for a research project carried out in relation to the implementation of a pedagogical model in the university context for future student educators and pedagogists, aimed at stimulating, among various skills, critical and reflective thinking, active participation, creativity, and autonomy.

4. The research project

In light of that which has been illustrated thus far, an exploratory research project was conducted within the context of three-year and Master's degree courses in the pedagogical-educational field, proposed over three academic years (2021/22 to 2023/24). The aim of the project was to investigate, among various objectives, what are the considerations, awarenesses, beliefs and experiences that university students in the pedagogical-educational field possess with regard to the question of "research" understood as an activity that can contribute to facilitating, stimulating, increasing and improving certain skills, including reflection, orientation and self-orientation, and training and self-training.
The tool used for the research was a questionnaire, with closed and open answers, administered online using the Google Forms digital platform.
The analysis methodology was mixed, that is, quantitative for the analysis of multiple responses and dichotomous stimuli, and qualitative, through content analysis, for questions including items with open answers.

4.1. General and specific aims and objectives

Through this investigation, we sought to analyse and understand whether the offer of opportunities to experiment with the area of "research" and research training opportunities promoted by the university could explicitly or implicitly represent a functional educational approach that could contribute to raising an awareness of research skills and skills preparatory to the activity of research.

Among our aims, we must reiterate the importance of research skills for the development of critical and reflective thinking, and creativity and autonomy, which are fundamental, in addition to specific technological and ICT skills, for the reasons set out above.

The specific objectives of the research project were the following:

- To analyse the quantity and type of opportunities for research experience in both Bachelor and Master's degree courses;
- To measure the degree of awareness of the importance of research in the pedagogical-educational field;
- To investigate the research skills that students intend to learn in their degree courses in the pedagogical-educational field;
- To understand whether students are aware of what it means to do research in the pedagogical-educational field, and how important they believe it is for training, orientation and self-orientation, and critical thinking skills;
- To be able to formulate new proposals from a pedagogical-educational perspective that are feasible and significant.

4.2. Participants

132 students enrolled in the three-year degree course in Educational Sciences (L-19) and the Master's degree course in Pedagogical Sciences and Adult Education and Continuous Training Sciences (LM-85/LM-57) at Roma Tre University.

The non-probability sample was selected using a convenience sampling procedure (Lucisano & Salerni, 2002), and, although not representative of the entire student population, allowed the acquisition of data and information useful for responding to the research objectives.

5. Main results

In Table 1, we report some selected items that were deemed significant to the focus of this article.

Selected items	Weighted average %*
1) What is meant by research training?	
Acquiring theoretical and practical skills/competences necessary to carry out research	73.5
No answer	18.2
Acquiring useful skills to implement knowledge, develop critical thinking and reasoning, and train responsible citizens in an ever-changing world	8.3
2) Do you consider it important in your course of study?	
Yes	79.5
No answer	18.2
No	2.3
3) If yes, and if no, for what reasons?	
It is important for everybody, because it allows them to train in a formal, non-formal and informal environment, also by carrying out direct experience in the field, encouraging fruitful and profound learning and the development of critical thinking.	56.1
It allows you to acquire the ability to "learn to learn", and to update yourself and train professionally and adequately, in a constantly changing world	31.1
No answer yes or no, with no explanation	15.9
No, with no explanation	0.7
4) Do you believe that research is also fundamental in professional practice in the educational field? In what way? For what reasons?	
Yes, because it teaches the individual to deal with continuous changes in life, as well as theoretical skills useful for carrying out work in the educational field, and to learn different analytical perspectives	62.1
No answer	17.4
Yes, with no explanation	10.6
Yes, for both the promotion of critical learning by students and in school and training practices	5.3
Yes, because it expands the educator's wealth of knowledge also in an emotional regard	3.03
No	0.7
An internship is sufficient	0.7

5) During the years of study of the three-year degree course, what research opportunities and experiences were offered in the various disciplines?	
Reference to some courses/disciplines	42.4
No answer	34.8
I didn't have any opportunities	24.2
Internship	2.3
I stuck to studying the textbooks	1.5
Development of the degree thesis	0.7
6) In particular, in pedagogical/educational ones? Describe your experiences in detail	
No answer	67.4
Reference to some courses/disciplines	27.6
None/don't know	9.1
7) What personal or social contributions or repercussions could research during the degree course imply?	
No answer	53.9
Positive contributions: personal growth, and greater awareness and competence	31.3
Negative consequences: risk of being less than objective or limiting	9.6
In my opinion, none	1.7
It could be demanding and therefore counter-productive in trying to obtain the degree qualification	0.9
* The percentages were calculated over the total number of actual participants.	

Table 1: Main results

6. Discussion and Conclusions

The analysis of the results of the research project supports our proposal to promote and implement, specifically in university courses, more interactive, dialogic and participatory opportunities for reflection and learning, also in relation to the acquisition of skills related to the field of research.

Below we discuss the answers provided to some specific items proposed in the questionnaire, in order to better clarify the results obtained and hypotheses for future work.

As regards the research area, the higher percentages of responses provided by the participants in all the years considered (73.5%) highlight a still too limited idea of "research", perceived as mere and exclusive field research, often disconnected from theoretical knowledge and/or completely distinct and opposed to it.

Though in smaller percentages, there were still participants who, in their answers, highlighted some of the objectives of research properly understood as life-deep and lasting learning, as the development of critical thinking, and as the importance of being able to "learn to learn" (31.1%).

Even fewer participants proposed broader considerations related to a vision of research as the development of important skills to be able to learn in the context of university education (8.3%).

The answers given to item 2, however, showed a large percentage of participants recognising how important research is during their studies (79.5%).

A high number of participants believe that research is also fundamental in professional practice in the educational field, because it can contribute to the acquisition of skills to deal with life changes, in addition to theoretical skills useful for carrying out work in the educational field and learning perspectives of different analyses (62.1%).

More than half of the participants said that research was important in their course of study, because it allowed them to train in a formal, non-formal and informal environment, also carrying out direct experience in the field, encouraging fruitful and profound learning and the development of critical thinking (56.1%). The responses to subsequent items, in which they were asked to recognise on which occasions they were able to put their research skills into practice, demonstrate, however, a lack of awareness on the part of the students in knowing and recognising the possible and multiple opportunities made available by the university, and a possible poor activation of the students' meta-cognition. Given this information, there emerges a need to resolve such problems and further stimulate reflection, so that students are able to know and recognise all the research opportunities offered, which may also often be implicit.

Such action would also stimulate meta-cognitive skills, which, in turn, are important functional skills to be able to learn in a profound and meaningful way, and also to live actively and consciously as citizens of a changing world.

These results, in line with others that emerged but are not presented in this contribution for reasons of available space, suggest that research is considered enriching and useful in university studies in the educational field, but that there is still too little knowledge and awareness, in both of the degree courses, of its countless functions, methods, tools and applications, as well as of the positive contributions it can have for future professionals in the educational sector, particularly considering the recent parliamentary approval of the professional Orders of Educators and Pedagogists (Law No. 55/2024).

Albeit in a minimal percentage (0.9%), students do not seem to be able to project themselves into the future in a rounded way, but are still only able to do what they consider "the bare essentials" to get a degree, without making any "burdensome" commitments, which may, however, have broader and more long-term effects.

7. Future pedagogical perspectives

Therefore, taking into account, specifically, also the diffusion of technologies and artificial intelligence, as analysed above, university and lifelong education and training have also to be aimed at the empowerment of all people, as active, aware, responsible, supportive and inclusive citizens (Rivoltella, 2021; Aleandri, 2022).
The most recent developments in AI in the educational field have shown countless potential in terms of learning and benefits for the development of educational models and methods, but also risks and fears related to the idea that such intelligent "machines" can escape the control of human beings and therefore cease to be at their service or to their benefit. Within such a historical, social and cultural climate, the recent SARS-CoV-2 pandemic also deserves to be mentioned, which has acted as a trend accelerator, significantly impacting personal, work and study routines as well as social relationships (Aleandri, 2022). Among the various effects, there has been an impressive increase in the use of technological tools and the internet as functional and effective devices to continue working, studying and maintaining contact with family and friends. This has further highlighted that, for all citizens, among the priority skills to acquire and consolidate in the near future are digital skills (OECD, 2021), understood not only as hard but also soft skills. From the depth of this pedagogical-educational perspective come various key elements for meaningful learning, favoured and supported by active, reflective and critical educational processes.
An educational model of this type is capable of placing the person front and centre, of going beyond the "mechanical" acquisition of pre-packaged concepts and theories, and of being able to develop various skills, including those mentioned above, which are necessary for the resolution of potential and different problems, not only cognitive, that an individual may encounter in his or her life (Jonassen et al., 2007). Given the problems and risks already present and alluded to above, and others that have not even been thought of yet, we believe it is opportune to propose, therefore, to continue to plan and implement life-long, life-wide and life-deep training, aware that the development and diffusion of this model of education will not occur in a mechanical and deterministic manner (Aleandri, 2019a).

In conclusion, the results discussed and analysed here, despite being limited, can be considered significant from the points of view of both pedagogical research and research training, particularly for the student-participants, since, in carrying out the research, they were able to stimulate their reflective and critical skills, as well as contribute further data to an emerging field of inquiry. Furthermore, the participants were given the opportunity to be actively and proactively involved in a part of their university education and to experiment and acquire important skills, including the ability to reflect and think critically, as well as autonomy and self-orientation, to name but a few.

Despite having carried out the research in the context of university courses aimed at future educators and pedagogists, it is important to recognise that research skills are not limited only to the pedagogical-educational field, but apply to research in general. Such opportunities are, in fact, aimed at raising new awareness and promoting pedagogical-educational strategies that can go beyond the ordinary educational processes belonging to the course of study.

From this perspective, the goal is not only the training of educators and pedagogists, but, in a broader sense, of people, adults and therefore citizens, and members of a family, a community and a society, so that they introject and actively espouse certain essential values, including the recognition of the subjective right to training for active and responsible citizenship (Riva, 2018; Baldacci, 2019; Bertagna, 2020; Malavasi, 2023). We therefore believe it is important and effective to continue to design and implement educational models based on moments and experiences of personal and shared reflection with university students in the educational and pedagogical sector, and on numerous and systematic opportunities to acquire and exercise research and critical skills for the adequate training of women and men in a world where artificial intelligence can be a resource and not a risk.

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