



Affective pedagogy in pre-service teacher education: a twofold approach combining explicit and vicarious learning

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What happens when affection and the awareness of affectivity, in the sense of ‘love’ or ‘tenderness’, become the objects of training and evaluation in pre-service teacher education? Our theoretical framework describes the link between positive emotional arousal and learning, the role played by the emotional dimension in the construction of a professional teaching identity, and the relevance of a teacher’s historical-emotional background for the cognitive construction of heuristics. We developed a teaching program designed to energize the experience of pre-service teachers in the university classroom. Through positive emotional arousal, we aimed to provoke a series of creative reflection processes regarding the teaching profession. Our research goal was to describe and interpret the program’s potential effects on the learning process and the construction of these pre-service teachers’ professional identity. The method applied in this paper was action-research carried out during three academic years of fieldwork with a total of 365 students. We coded the students’ narratives regarding their learning process and teaching identity into several conceptual nodes representing their insights and feelings concerning those topics. Our results and discussion highlight the importance of affective teacher education as a means of enhancing pre-service teachers’ learning, contributing toward the growth of their professional identity, and cultivating a culture of care and love in the classroom.

Keywords: pre-service teacher training, teacher-student interaction, emotions, cultural models, action-research

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Introduction

“Teaching, like other caring professions, is emotional” (Schutz, 2014, p.1). Emotional experience is an intrinsic component of all academic activities and plays a key role not only in learning, but also in academic performance over time (Pekrun & Schutz, 2007). Perceived emotional intelligence (EI) has been found to be

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related to improved psychological and social adjustment in educational contexts and in everyday life (Grewal & Salovey, 2005). The ultimate purpose for teacher educators should be to inspire and stimulate students in class, to emotionally encourage them to continue to learn outside of class, and to help them gain an awareness of the essential importance of their emotional state in the pedagogical role they will play in the classroom as in-service teachers.

Two publications of considerable research interest have reinforced these ideas. The first publication is of a philosophical nature and addresses a transdisciplinary concept referred to as *Affective Pedagogy* (Patience, 2008). According to Patience, the best teachers are those who equally value affective processes and academic performance when they seek to inspire and accompany their students in the teaching-learning process. They propose a series of challenges in class that ensure an ideal emotional equilibrium, creating a fruitful breeding ground for profound, creative learning. The second publication is a study based on robust methodology, with marked practical implications. Introducing the term *Visible Learning*, it specifies a series of factors that exert a determining influence on the learning process (Hattie, 2008). Teachers who activate students by stimulating them cognitively and affectively are more effective than those who facilitate learning through didactic approaches alone. Further publications seeking to ascertain which factors exert an influence on learning, maintain this same line of thinking by confirming that the teacher education process needs to be reconsidered from the ground up (Keeley et al., 2016). When a teacher has the capacity to establish a socio-emotional relationship with the students and to communicate actively and constructively with them, students pay closer attention, and their academic performance improves.

Our action-research project was designed to observe what happens when pedagogy that places emotional activation and affective awareness at the core of the training process is applied in pre-service teacher education. Our teacher training purpose was twofold, namely to offer university students an experience combining *explicit* and *vicarious* learning, and that would be helpful to them in their future professional activity (action-plan nucleus). Our intention was for these pre-service trainees to become competent, happy teachers, not only for the sake of their self-fulfillment but also for the benefit of their prospective students.

More than ever, attention needs to be paid to the well-being of teachers, trainers and educational staff in education and training systems, which is an important factor also for the quality of education and training, as it affects not only teacher satisfaction but also the quality of teaching. (Council of the European Union, 2021, p. C66/6).

Learning and emotion

As they progress in their academic training, students tend to lose the capacity to pay full attention when the teacher is talking. Most often this happens because teachers tend to drift ever further away from a teaching model that combines teaching with affection in the sense of ‘love’ or ‘tenderness’ (Patience, 2008).

Piaget (1962) states that no act exists that is purely cognitive and emotion-free. In the same way, no affective states exist that do not integrate cognitive elements. Vygotsky (1986) explains that the desire to separate cognition from affect is a marked weakness of traditional psychology, as it is not possible to conceive a flow of thought segregated from the thinker’s personal needs, interests, inclinations, and impulses. Any

conception of human nature that neglects the power of emotions is erroneous and narrow-minded, given that actions depend more on feelings than thoughts (Goleman, 1995). Learning is a transformative process that modifies our neurophysiological structures, provided such learning is transmitted through an act of communication that creates an affective interpersonal connection between human beings (Damasio, 2021). As a consequence of substantial research developments in psychology and neuroscience, authors in the field of education are finally beginning to take notice of the power that emotions can potentially exert on the promotion of learning (Cavanagh, 2016). Neurological activity integrates what is cognitive with what is emotional, and *vice versa*: the two are inseparable (Cross et al., 2019; Holmes, 2019). The physiological and functional relationship between cognition and emotions is evidenced in the definition of awareness of feelings (Damasio, 2021). Whenever a given learning context succeeds in activating personal inclinations and feelings, information is transformed into learning, ideas flow and connect, and cognitive-emotional internalization takes place through an awareness that a state of well-being is being achieved. A robust relationship exists not only between well-being and learning but also between affective equilibrium and academic performance (Hughes, et al., 2019). Indeed, one of the most important recent findings is related to unconscious learning mechanisms that operate through emotional experience and improve long-term memory. Such mechanisms supplement conscious (explicit) cognitive learning (Dorantes & Balsa, 2020).

Most references to emotions associated with learning have focused on the concept of achievement emotion (Pekrun & Perry, 2014). However, a series of *epistemic emotions* also exist, and they are provenly associated with learning itself: curiosity, interest, uncertainty, experiencing pleasure in gaining knowledge, enjoying a love of discovering the truth, and having positive feelings related to self-awareness of a subject domain (Carruthers, 2017). It is therefore necessary to focus on the impact that teaching styles and training program design can have on the generation of epistemic emotions (Cavanagh, 2016). Ainsworth and Bell (2020) recommend using explicit knowledge about a subject (in their case, grammar) to create systemic affective processes; emotions can even be perceived at the somatic level. Their findings demonstrate that if educational action is designed along these lines, a subject such as grammar can become a potential source of intense pleasure and surprise. Optimal use of subject matter can be enhanced when the student becomes aware of curricular content through emotional stimulation associated with the learning process. Epistemic or intellectual emotions have a vital and irreplaceable function in cognitive and metacognitive processes. They play a crucial role in reinforcing students' attempts to gain confidence, in nurturing the motivation to maintain it, and even in triggering a reasoning process that helps students understand *why* they maintain it (Morton, 2010). Therefore, the intra- and interpersonal processes that lead to authentic learning are of a twofold, positive, cognitive-emotional nature, implying that there should be an emotional connection between teachers and students that gives rise to well-being and encourages high mutual expectations (Hattie, 2008; Yael, 2017). When faced with daunting learning challenges, students can experience a positive sensation of commitment/flow if they perceive that they can reestablish their cognitive equilibrium by means of reflection and problem-solving. If, however, certain obstacles block their train of thought, this will trigger frustration, boredom, or abandonment of the subject altogether (D'Mello & Graesser, 2012).

Historical-emotional background and the development of a teaching identity

Bandura (1965) argues that observational learning enables individuals to imitate and acquire new actions and behaviors. Observation can be enmeshed in the action itself, engaging the teacher and the student in reciprocal dialogue (Orland-Barak & Leshem, 2009). Under the assumption that vicarious learning is acquired from observational experience, a mental modeling of teaching can already start to emerge during childhood through the experiences gained in school. Mental modeling is thus a solid, stereotyped, vicarious (unconscious) kind of learning marked by historical-emotional memory (Shaughnessy & Boerst, 2018). The act of building a professional identity during pre-service teacher training has been studied by reflecting on teaching models and the competencies associated with them (Carmi & Tamir, 2020).

From a metacognitive perspective, the reasoning involved in this particular sort of vicarious learning process involves three aspects: (a) the contextualization of educational situations such as those based on personal beliefs and values; (b) students' acquisition of skills to develop their maximum potential based on observed models; (c) students' search for new experiences, including the process of familiarizing themselves with new models of behavior as they encounter new mentors. All of these aspects contribute to the construction of an individual, original teaching identity (Schwartz & Sharpe, 2010). This theoretical framework is relevant because it encourages pre-service trainees to reflect on the emotional processes associated with their life history, enabling them to construct a teaching identity that will be valuable and unique.

The conceptualization of vicarious learning and the cognitive process that allows trainees to convert such unintentional learning into conscious, explicit learning is associated with the concept of professional judgment (Scales et al., 2018). During schooling, each student builds a set of rapidly acquired beliefs and conceptions based on their ethical vision and according to their particular social context – without having to reflect in-depth on “what a teacher is”. This phenomenon has been explained as the power of apprenticeship of observation (Lortie, 1975). Thanks to this apprenticeship, the act of teaching can seem natural and familiar. This, in turn, highlights the importance of eliciting pre-service teacher trainees' thinking. If pre-service teachers become aware of this pre-existing knowledge during university training, it helps them build their own professional judgment (Shaughnessy & Boerst, 2018).

Finally, the key concept in developing a professional identity is that of the *social-observational model*: people learn to act in an exemplary way by following exemplary behavior models (Valle, 2018). Developing an effective teaching model remains a constant challenge in professional teacher education, as it consists in paying equal attention to curricular content (subject matter) and to the pedagogy required to teach it (Carmi & Tamir, 2020). Further research regarding the social model transmitted by pre-service teachers' educators is necessary. To answer our research question, we specified several objectives:

- 1) to discover the pre-service teachers' insights into the construct of affective pedagogy, with the aim of describing and interpreting the impact of placing affection at the core of the training process.
- 2) to discover how pre-service teachers verbalize and conceptualize their pre-existing thinking about teaching by helping them become aware of known and observed teaching models.

3) to study the effect of reconsidering and re-evaluating the socio-emotional aspects of explicit and vicarious learning through the fieldwork within our training program.

4) to check for eventual changes in the students' academic performance once a teaching plan based on affective pedagogy has been applied. Quantitatively measured learning outcomes (scores) are to be used as quality control of the teaching plan, although the eventual improvement of scores is not one of this study's specific aims.

Methodology

The present study was designed using action-research methodology (A-R). Its phases were based on the model developed by Kemmis, McTaggart and Nixon (2014). Our study design is outlined in Figure 1.

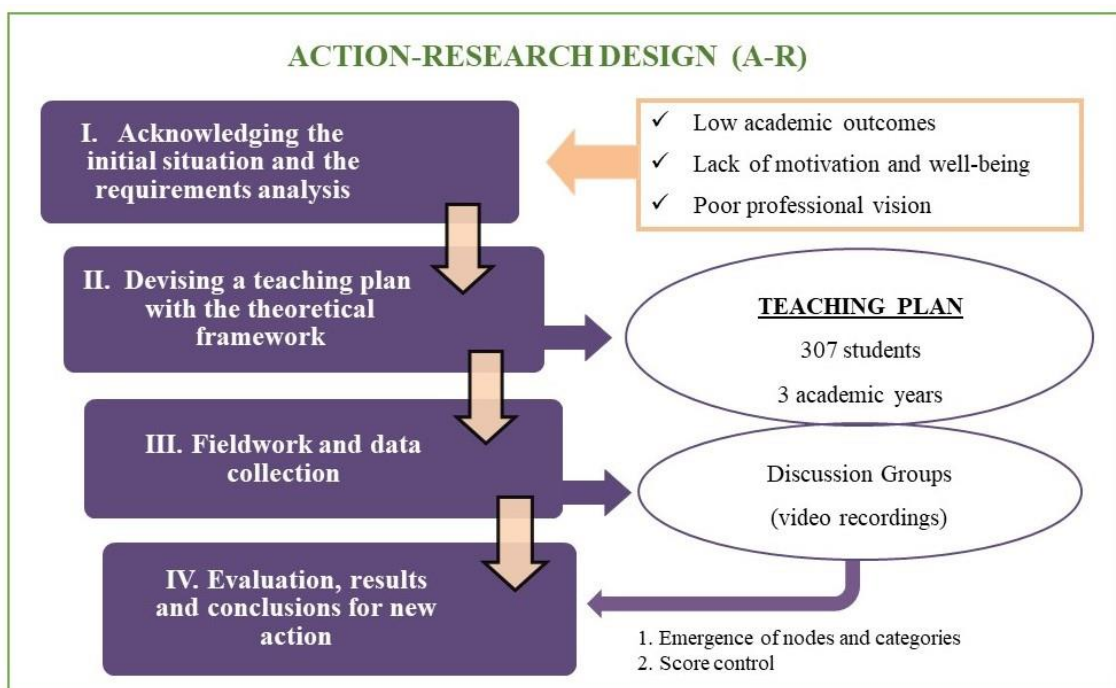


Figure 1. The design of this action-research project

Acknowledging the initial situation and specifying the needs

This A-R project was initiated after having taught trainees enrolled in the Early Childhood and Primary Education Degrees from 2010 to 2017 at a Spanish university. The students' needs were identified in courses on evaluation, innovation, tutoring, educational relations and epistemology of educational sciences.

. Our conversations with students suggested that quite a number of them find considerable difficulty in relating to their mental image of a teacher's professional performance. Their achievement expectations eventually decrease, and they start to invest more effort in other courses and subject matters. To acquire objective performance data for purposes of comparison, we retrieved the final exam scores of 255 students (4 groups) who studied these subjects between 2014-17 and classified them as: not present (NP), Fail, Pass, B, and A.

Frequency distributions were calculated to represent academic performance before this action-research study was initiated. That outcome was called ‘Previous Data’ (PD), and these data were left for phase 4 of the A-R (see below in section 2.4). In summary, two specific needs appeared in Phase 1, namely motivation, emotional activation, positive expectations, and seeking to acquire a sense of well-being with the intention of engaging in a learning process; and awareness of exemplary teaching models that are coherent in theory and practice.

Devising an action plan based on the theoretical framework

After specifying the observed needs, we designed an innovative teaching action plan based on the transversal construct of affective pedagogy. ‘Transversal’ is understood as affecting all content areas and should be developed throughout the entire learning process. A double learning mode was proposed: *explicit* and *vicarious*. We developed three strategic lines to generate a didactic structure that would allow us to treat the theoretical subject matter in class while at the same time fulfilling the requirements of the action-research project (Figure 2).

Fieldwork and data collection

Participants

This action-research project was implemented during the academic years 2017-18, 2018-19, and 2021-22 at the University of Zaragoza, Spain. The program (Figure 2) was applied to six groups in subjects pertaining to the research context. Each group attended the course for one full semester, following the action plan designed for A-R. Teaching was implemented by the researcher. Table I shows how the 365 students were distributed.

Table I. Distribution of participants

	Teaching groups	Participants
2017-18	G1	53
	G2	79
2018-19	G3	57
	G4	54
2021-22	G5	63
	G6	59
Total		365

ACTION WITH A TWOFOLD LEARNING APPROACH: EXPLICIT AND VICARIOUS	
<p>Affective Pedagogy:</p> <ul style="list-style-type: none"> ✓ Positive emotional activation. ✓ Emotional awareness raising. ✓ Ethical coherence in relation to the teaching discourse. ✓ Optimism and positive humor. ✓ Closeness and trust ✓ Positive reinforcement by means of flattery and affection. 	<p>Scheduling strategies and revitalizing face-to-face sessions:</p> <ul style="list-style-type: none"> ✓ Start each session paying full attention - positive feeling – curiosity. ✓ Divide sessions into 15 to 20-minute activities to preserve engagement ✓ Observe and empathize with the group: seek attentional feedback. ✓ Alternate individual tasks (individual challenges) with cooperative tasks (group challenges). ✓ Work on both curiosity and intuition: dilemmas, open questions, prospective challenges, guided data searches, chained question games, etc.... ✓ Bidirectional training evaluation: teacher-students, peer-to-peer, and students-teacher.
	<p>Strategies for associating epistemic emotions with course subject matter:</p> <ul style="list-style-type: none"> ✓ Activities that demand a high level of socio-emotional and creative implication. ✓ Thought and emotional experimentation routines: raising emotional awareness in PBL activities and case studies. ✓ Introduce vocabulary about emotions in contexts ranging from the most abstract content to concrete academic practice. ✓ Compensate the reluctance that students might naturally display regarding the new training model (uncertainty and mistrust), pointing out these situations as <i>in vivo</i> examples of the typical conservatism of educational contexts.
	<p>Strategies for awareness about exemplary teaching models:</p> <ul style="list-style-type: none"> ✓ Reflecting and rising awareness of the possibility of learning through narrative and emotional memory. ✓ Integrate the teaching of transversal competences explicitly and evaluatively: emotional management, personal growth, creative leadership, communication, and social commitment. ✓ Specific work on the subject matters being taught, specifically. ✓ ‘Initiative and innovation in the teaching profession’. Developing an attitude of observation, reflection and action in educational contexts. ✓ Associating subject matter contents with the possibility of transferring them to the profession: conscious learning (direction, sense, value) transfer and integration of knowledge. ✓ Debates about the vicarious learning of teaching models and the feelings related to those models.

Figure 2. Theoretical-practical structure of the action plan

Data sources and analysis

At the end of each course, an evaluation task was included in the students' assessment portfolios which counted 30% toward their final grade. This evaluation was compulsory and consisted in organising discussion groups of four to five people, without the teacher being present. The teacher offered advice, explaining the scoring rubric and proposing a script with the themes that were to be covered in the course subject: a description of the learning process, an interpretation of what had been learned in terms of curricular content in relation to the university degree, a learning evaluation from a personal and collective standpoint, possibilities for future training in the subject, an assessment of how to make the most of activities, and a short description of what is meant by 'professional values' and 'the teaching vocation'. Data were collected through the recording of a video in Spanish, lasting approximately 20 minutes, with each group editing its own video. In all, 62 videos, featuring a total of 307 participants and amounting to 20 hours of recordings, were used for qualitative analysis. Twelve videos were discarded because the students did not authorize their use for research purposes. Narrative data were analyzed according to the grounded theory of Bartlett and Payne (1997). Significant fragments were extracted, grouped into conceptual nodes, and assigned to different categories. Analysis was carried out with NVivo 10. Three macro-categories emerged (C1, C2, and C3), which, in turn, included nine subcategories on the second hierarchical level.

To comply with the quality control purpose defined in Objective 4, the 365 participants' scores in the subject matter were classified into the following categories: NP, Fail, Pass, B, and A. For purposes of comparison with 'Previous Data' (see Section 2.1.), they were subsumed under the heading 'Research Data' (RD). Based on the resulting quantitative data, we compared averages and frequencies by category.

Evaluation and results

Synthesis of narratives stemming from the discussion groups

This process was first analytical, and secondly, inductive, as it combined grounded theory with a realistic/critical perspective. Therefore, to preserve the emergence of outcomes, no predetermined assumptions were adopted. Taking the research of Bunt (2016) as a model, our synthesis procedure began by eliciting key themes associated with the students' narrated learning experiences. Possible connections among the emergent categories were then explored until we obtained a two-level coding, which was subsequently subjected to review by two external evaluators. As an example, the first theme category (CT1) was subdivided into three subcategories (CT1_1, CT1_2, and CT1_3). A selection of textual extracts was cited, with one code per each teaching group (G1, G2, G3, G4, G5, and G6) and one code per each video (V1 to V16). For instance, a text fragment would be called "G2_V5" if it stemmed from Video 5 of Group 2. In the following paragraphs, we attempt to illustrate our results with text fragments originating from as many different videos as possible.

(CT1) Vision of the teaching profession

A large proportion of the students' reflections had to do with their view of what makes a good teacher, such as how teachers had taught them in the past, and why some had been good teachers while others were not. The

participants' discourse often reflected the need to pay attention to student diversity and complexity, displaying a considerable amount of empathy while exhibiting varying professional profiles interpreted according to their own life stories. Theoretical-practical relationships were expressed within a training framework that emphasized a hermeneutics of the teacher's vocation, such as believing in the meaning of education *per se*, in themselves as future teachers, and in the fulfillment of their occupational expectations. In this category, we found three different 'ways' of training, reflected in three subcategories (CT1_1, CT1_2, and CT1_3):

(CT1_1) *Hermeneutical approach*. A hermeneutical vision of the teaching profession is not merely technical but elevates a teacher's reasoning to an ethical level that gives meaning to their educational action. We noted a marked presence of narratives that questioned the temporary and contextual validity of particular practices as well as the purpose of certain methods. Other participants attempted to pinpoint what is essential in the educational relationship between teacher and student.

Objective readings about what goes on beyond the teacher's or student's awareness don't make sense; instead, the idea is to understand what, exactly, is subjective, because that's what really matters to people. (G2_V2)

Sometimes people are trained during educational processes to do, and not to be. The difference lies in that they perhaps acquire many skills, and that they end up knowing how to apply many resources or methodologies in a profession. Even so, they can still turn out to be teachers who do more harm than good and have no vocation or commitment. (G3_V7)

...they tend to work in projects, and technology is used quite a lot, which is something children really like ..., but if I were a teacher and didn't know how to use these means to educate them to be happy, care for the planet, and become good people, I wouldn't be a good teacher. (G6_V10)

(CT1_2) *Humanistic approach*. This approach identifies the teaching profession within humanistic values and focuses on the aspect of social transfer. Teachers can be empathetic to students' personal needs and their individuality. In educational relationships, the most important aspect is knowing, fostering, and transmitting trust.

We have studied tutorial action, trying to strike a balance and finding well-being in all aspects. (...) The best tools we can teach are those that allow students to learn autonomously and acquire skills to think critically. (G1_V4)

...it made me think quite a lot about the teacher-student relationship, particularly if I'm a tutor and if what I can transmit with my action might influence children's values. (G2_V14)

...we can make education something personal, and not reductionist, and school can be made to become a place where children are acknowledged as integral beings, each one with their own potential. (G3_V5)

(CT1_3) *Personal viewpoint*. Personal narratives show the internalization of contents in an individual socio-affective context. Ideas are quite diverse in this area; what they all have in common, however, is an emerging construction of professional awareness through personal motivation, coupled with a series of gradually emerging emotional reflections.

...it was as if my eyes had been opened at that time and my perspective had changed (...). I answered truthfully and remembered why I had chosen to be an Early Child Education teacher, I know ..., actually, I want to be an example of compassion and care as a teacher. (G4_V4)

I'm going to tackle my career from a more active, fearless perspective, without being afraid of getting involved or of feeling something when I note that there are needs... (G1_V8)

The exercises we've been doing have helped me to discover that I chose a profession that perfectly matches my way of being, one that matches my values... I now feel more trust and have greater confidence in my possibilities. (G5_V11)

(CT2) Professional development

This category comprises the factors required for professional development: continuous training, direct experience, remaining in contact with experts or mentors, and being sufficiently open and flexible to perform learning activities. Beliefs in how past teachers have modeled and present teachers continue to serve as role models and exert an influence on students' professional profile. For this theme, we proposed three subcategories that represent 'the processes' required for training as teachers (CT2_1, CT2_2, and CT2_3):

(CT2_1) Recognizing what teachers' tasks are. This subcategory accounts for specific moments and activities during the course when students start to become aware of certain teacher tasks and the learning processes they need to follow. Student discourse in this subcategory featured in concepts such as innovation, evaluation, creativity, multiple types of intelligence, curricular adaptation, and learning through discovery.

I mistakenly believed that we would be given strategies and materials for us to work with students (...) no resources exist that serve everyone and in any school. Our work consists in a great number of evaluations, adaptation, innovation... (G3_V1)

When we worked on several versions of the didactic project about turtles, I learned how to adapt the same material to the theory of multiple intelligences and to adopt a more practical and open-minded perspective of inclusion. (G5_V6)

Our most difficult role is to teach knowledge to students while allowing them to flow at the same time, so that they learn for themselves... But I need to know much more about their development and characteristics. (G2_V4)

(CT2_2) Raising awareness of the complexity of professional judgment. This subcategory included the students' discussions about how they could evaluate open options and make decisions based on the comprehensive learning they had developed. It also involved recognizing a wide variety of possible education contexts and the need for teachers to have tools at their disposal that allow them to work at a high level of technical excellence while fulfilling high ethical standards. Students emphasized the importance of becoming aware of their own reflections and reasoning process in order to be able to make responsible professional judgments.

...other courses focus more on specific aspects of children, such as how they develop, how they learn, read, and write, which are obviously important. In this course I've learned how important it is to grasp what really goes on in class, and how making observations and getting used to asking myself questions will help me evolve. (G2_V16)

I find that having educational authority is most important. I say this because I'm also a father, and I never stop paying attention to the repercussions that my way of evaluating them will have. (G1_V7)

For me, the most demanding aspect was having to make decisions. We often thought we had analyzed everything, but then we had to consider new questions, and uncertainty appeared again. (G4_V4)

(CT2_3) *Analytical-critical cooperative learning*. Knowledge acquisition is experienced on the part of individuals and groups. Students reflect on how training provides them with intellectual, emotional, and social stimuli. They recount shared learning actions as a result of successful communication.

We negotiated, talking with one another when we didn't know all the answers. And I felt more comfortable cooperating with one another than knowing answers. This sets a tone for relationships that inspired me to commit more fully to tasks (...) When you know you have to co-create something useful, you start to share and make a personal connection [with others]. (G6_V8)

...we have debated a lot when we were carrying out tasks. This has helped me not only with knowledge, but also with my way of thinking. (G2_V1)

...my mother is a teacher, and I have known her work all my life. (...) this has been the first time that my curiosity has been awakened to get to know her experience so I can analyze what we're learning (G4_V6)

(CT3) *Qualitative evaluation of teaching actions*

Students are further motivated when class sessions are galvanized through cooperative activities or gamification. Based on raising emotional awareness, the analytical-reflexive method inspires students to examine in-depth learning and to tackle formidable educational challenges by remaining highly engaged and in full control of the situation. This process also reveals which mechanisms work least well; indeed, in some cases, particular strategies can cause uncertainty or provoke resistance. The category involves an ample acknowledgment and appreciation of affective communication and the emergence of epistemic emotions. A highly valuable activation of emotions occurs at the beginning of a class session.

(CT3_1) *Positive opinions about strategic teaching plans*. An overall feeling of confidence in being able to rise to demanding challenges and exploit their inherent potential was associated with statements on the subject of improving performance. Some groups talked about what they had experienced during the course, including elements outside the course subject matter. Training experiences that are aligned with personal/professional ideals were regarded as being more motivating than others. Students particularly noted the positive role played by personal tutorials and the accompanying classroom activities, which helped them to improve their performance.

We have learned that not only must we teach children by playing with them, but we can also learn by enjoying ourselves. I think I've given more of myself thanks to games [designed] to propose ideas and to think. (G1_V5)

...we've analyzed modes of action that have an influence on class, such as cooperation as opposed to individualism (...) and we have learned by doing this ourselves. (G4_V1)

...the way we evaluated ourselves. I understood it and, nowadays, I could apply it in the future with my students because I check these assessment tools out for myself. (G6_V3)

(CT3_2) *Negative factors for methodological efficiency.* Methodological innovation generates confusion and concern regarding the one element that students find most important: passing the course. This is an added load and leads to reluctance, procrastination, or difficulties in understanding. Participants also mention having problems when tasks are not automatic, or familiar, as well as difficulties in managing their time schedule when challenges are perceived as particularly daunting. Open questions, the invitation to explore their creativity, and games that generate doubts and critical analyses are all factors that demand more of student teachers than what they are accustomed to. This is when negative evaluations are made.

It was hard knowing how I would do with this subject matter because the system was new for me, and I felt mistrust and laziness. (G1_V1)

I've invested a lot more time in this course than in others (...), it's also true that I've not known how to be well-organized because it's something new. (G3_V4)

(...) the subject would have been easier if we were more used to this system. It has been more difficult and stressful for me. (G5_V9)

(CT3_3) *Explicitly acknowledging the benefits of affective pedagogy.* A number of students expressed feelings of satisfaction and well-being while learning. They became more aware of affective teaching and emotional stimulation; expressions of personal and group recognition were voiced, at times with humor, generating an atmosphere of fluid, empathetic communication.

...I felt more motivated... I've connected with you, and this made me feel much more comfortable about doing exercises in our group. (G1_V9)

I love the time when one can concentrate on being mentally and emotionally present in class. (G2_V14)

When some classes started, my mood changed because I was mentally going over personal matters on the bus and felt a bit down (...) but some simple activities made me change my mood and, ever since then, I've gone flat out. (G3_V7)

I would love to reach out to my students in the same way that C. has done to me. Although university is somewhat cold and teachers don't tend to mix much with us, with C. I've seen that when teachers listen to their students' ideas and feelings, and when they are concerned about them, you like the subject more and find it easier to pass. (G4_V10)

I never expected to laugh this much in class. (...) These sentences have got to me, and some videos have made me cry from reliving emotions in my family. I know it's been very intense, and I don't think I'll ever forget this. (G5_V6)

The feeling at the end of this course is that I am proud of myself, more than I usually am. (G6_V6)

Academic outcomes

We calculated a frequency distribution for the research data (RD) mark categories and compared it with the distribution obtained from earlier academic years (Previous Data). Academic performance in research groups

(RD) was generally superior to earlier academic years (Table II and Figure 3). The increased number of students who did the evaluation tests during the first call of the final exam was striking, increasing from 81.18% (PD) to 92.93% (RD).

Table II. Comparison of academic outcomes

"Previous Data" (PD) N=255			"Research Data" (RD) N=365		
Not presented at the exam (NP)	N=48	18,82%	Not presented at the exam (NP)	N=26	7,12%
Presented at the exam	N=207	81,18%	Presented at the exam	N=339	92,88%
Fail		24,96%	Fail		14,80%
Pass		21,80%	Pass		35,51%
B		28,55%	B		33,03%
A		5,87%	A		9,54%
Average mark (0-10 scale): 5.71			Average mark (0-10 scale): 6.82		

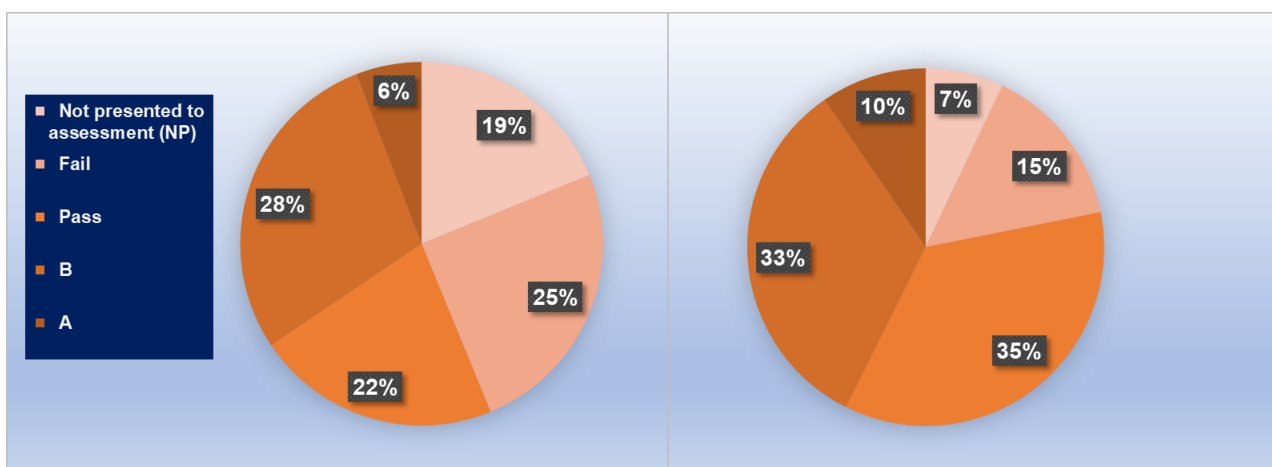


Figure 3. Frequency distributions for mark categories between Previous Data (PD) and Research Data (RD)

Discussion

Research on student-teacher interactions and on classroom management has been highlighting the relevance of socio-emotional dimensions in the quality of teaching and learning (Carrington & Selva, 2010; Korthagen, 2010). However, when compared to cognitive aspects, the affective aspects of learning have continued to remain on the margins of educational science. It is therefore necessary to build a framework of knowledge based on the positive impact that can be achieved by prioritizing affective aspects in pre-service teacher education. Current pre-service teachers will be serving as ethical, caring, paradigmatic models of behavior for

children in the future. As a reflection of the first objective of our research, we note that exploring and maximising the inherent potential in particular subjects is a highly efficient way for students to attain higher levels of affection and sensitivity (Ainsworth & Bell, 2020).

In line with the theoretical framework informing our study, we devised and evaluated a teacher training model based on emotional stimulation, affective communication, arousal of curiosity, elaborating new ideas, collaboratively activating epistemic emotions, and raising student awareness of the important role played by vicarious learning. All of these elements were integrated with the content matter covered in each individual course, giving rise to a transversal methodological leitmotif. To answer the question raised in objective 3, we note that the inclusion of open, dilemma-type activities was important because they triggered historic-emotional memory and epistemic emotions. These, in turn, encouraged the students to become active, reflective agents of their own cognitive, affective, and motivational development. A key teacher training concept is the historical-emotional construction of the teacher role, which, in turn, is associated with emotional processes experienced in the past (Carmi & Tamir, 2020). When a pre-service teacher is undergoing university training, the construction of their role as teacher can predispose and predetermine their acquisition of beliefs about teaching *per se*, as can be seen in the results described.

Constructivist dialogues take place on the basis of personal and group identification. Such exchanges enable students to experience significant learning processes more vividly (Hattie, 2008). The results obtained from the group discussions evaluated in our research showed that the communicative-affective style was in fact assigned the highest value. Moreover, students noted that the conscious emotional activation they underwent at the beginning of a new session was the best way of arousing curiosity, of kindling their motivation, and of making the best possible use of their learning experience.

Raising awareness of the important function of vicarious learning also provided an ideal platform to launch debates on the subject of professional identity and educational models. Students started to become aware of the partial, provisional, systemic, and evolutionary nature of learning to exert one's professional judgment. They also achieved this by combining intellectual reasoning with emotional passion as participants in an affective, humanizing methodology based on Patience (2008), which has served as a powerful vocational driver in many cases. Two particularly productive steps in this process consisted in reformulating the teacher educator's role as an exemplary social model (Valle, 2018) and raising awareness of the importance of vicarious learning (Shaughnessy & Boerst, 2018). These students' internal discourse was modified because they started to associate what they were learning at university with reflections on the past experiences they had had with teachers at school; this, in turn, generated a new awareness about education (Arvaja et al., 2020).

The action-research intervention made it possible for the university professor (researcher) to connect emotionally with the students, who, in turn, affirmed that they had learned more from the interpersonal relationship they had experienced with their teachers than from their explicit discourse. In their statements in the recorded video dialogues, they applied heuristics linked with the professional identity they had thereby acquired (Häusser, Junker & Dick, 2020). They found that training experiences directly associated with personal development and with the re-evaluation of positive affectivity in class can become highly significant

factors, with beneficial effects on academic performance and personal well-being. This, in turn, has important implications for the learning model otherwise generally applied in higher education.

Participants concluded that creative, vocational learning can notably improve when teachers adopt a communication model that reintroduces an authentic form of fairly negotiated participation by *activating* students' learning process rather than merely facilitating it (Hattie, 2008). Although every teaching method can be predetermined by its training context in terms of the basics of the subject matter and the way it is taught, we can refocus our approach on what is essential in the subject matter's didactics. The implications of placing emotions at the core of our pedagogical approach can be truly transformative. This insight has led us to focus daily training practical sessions on affectivity at all possible levels, starting with the smallest gestures and actions. Thanks to this transformation, our routines and conceptions have become substantially modified, the students' curiosity has been aroused, and their awareness and epistemic emotions have been activated in the course of learning activities.

The research method employed herein does have its limitations. Due to its flexibility, this A-R study cannot be readily generalized and would be quite difficult to replicate. Perhaps another limitation might be seen in the researcher's own subjectivity. However, that very perspective constitutes the richness of action-research as an emergent approach (Cochran-Smith, 2005). A possible bias in relation to the videos could also exist, because they were featured as a portfolio element that counted toward the students' final grade in the course. This was partially compensated by the qualitative analysis of video content, which only selected the most well-reasoned statements, along with arguments best supported by mentioning specific examples. The validity of the results was reinforced because the action-research study was conducted over a three-year period, yielding narrative data stemming from a total of 307 participants. Further studies, however, may collect data from a broader, more diverse sample.

With regards to quantitative data (objective 4), we could only obtain comparative results based on exam score categories, comparing the former academic years (2014-2017) with those pertaining to the action-research phase (2017-2022). A global improvement in qualifications was evident, and it would be of great interest to carry out further studies that expand this quantitative analysis. The present study only compared scores with the intention of quality control, with positive results interpreted as notable and promising, but the analysis lacks statistical significance. These conclusions may be validated by further studies quantitative studies which include other course subjects, degrees, and faculties.

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