TEACHING BEYOND THE MACHINE: A THREE-YEAR MODEL OF AFFECTIVE EDUCATION

Antonio Cuccaro[1]
Niccolò Cusano University
antocuccaro@gmail.com

Chiara Gentilozzi
Pegaso University
c.gentilozzi@unipegaso.it

Sara Pellegrini
Link University
s.pellegrini@unilink.it

Riccardo Sebastiani
Link University
r.sebastiani@unilink.it

Filippo Gomez Paloma
University of Cassino and Southern Lazio
filippo.gomezpaloma@unicas.it

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ABSTRACT

Generative AI is reshaping education and increasing the need to protect its affective and relational foundations. This study examines a three-year lower-secondary programme integrating Embodied Cognition, Social and Emotional Learning and the ICF model. Findings show more relational, reflective and value-oriented student discourse, alongside greater teacher autonomy.

KEYWORDS

Affective education; embodied cognition; digital affective literacy; teacher professional transformation; socio-emotional competences; mixed methods.

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1. Introduction

Within this context, Digital Affective Literacy cannot be reduced to recognising emotional vocabulary or using interactive technologies competently. It involves the capacity to connect affective signs with bodily experience, relational contexts, critical interpretation and ethical judgement. Such literacy requires an understanding that emotions are not isolated mental labels but processes situated in the interaction among body, cognition, relationships and environment. The distinction is educationally significant because a message can reproduce the linguistic form of empathy without participating in the reciprocal and embodied conditions through which human affective experience acquires meaning.

The present contribution examines a three-year school-based affective education programme launched in the 2023/2024 school year in lower secondary education. Its relevance to Digital Affective Literacy lies in the pedagogical infrastructure it makes visible: continuity, bodily and expressive experience, reflective mediation, relational reciprocity, ethical problematisation, teacher judgement and community involvement. The programme was not designed as a direct intervention on artificial intelligence. Rather, it addressed the socio-affective competences that become increasingly necessary when students must interpret affective communication in hybrid environments.

The conceptual framework integrated Embodied Cognition, Social and Emotional Learning, ecological approaches to development and the ICF bio-psycho-social perspective. Embodied Cognition challenges the separation between mind and body by conceiving cognition as grounded in perceptual-motor systems and situated action (Barsalou, 2008; Varela et al., 1991). From this perspective, emotion is not an accessory to cognition but a constitutive

dimension of attention, memory, motivation and decision-making. Affective learning therefore cannot be limited to transmitting definitions or rules; it must involve the body, action, perception and the interpretation of lived situations.

The Social and Emotional Learning framework further identifies self-awareness, self-management, social awareness, relational competence and responsible decision-making as interconnected areas of development (CASEL, 2020). These dimensions are particularly relevant during early adolescence, when emotional intensity, peer evaluation, identity formation and the search for belonging become increasingly salient. Emotional competence involves recognising, understanding, expressing and regulating affective states, while relational competence includes listening, cooperation, conflict management, empathy and respect for interpersonal boundaries (Denham, 1998; Gross, 1998; Hoffman, 2000; Saarni, 1999).

An ecological interpretation prevents these competences from being treated as exclusively individual attributes. Human development emerges through interaction among family, school, peer groups, institutions and cultural expectations (Bronfenbrenner, 1979). Similarly, the ICF framework conceptualises functioning as the outcome of relations among personal characteristics, activities, participation and environmental factors (World Health Organization, 2001). In educational terms, competence is not simply something a student possesses; it is a situated capacity that may be facilitated or constrained by classroom climate, adult communication, opportunities for participation and the quality of relationships.

The three-year pathway followed a developmental architecture. The first year focused on emotional literacy, recognition and verbalisation of feelings, bodily awareness and the construction of a positive classroom climate. Theatre, music, narrative production, bodily activities and guided discussion were used

to make emotional experience observable and discussable. The second year moved towards relational competence, focusing on communication, cooperation, conflict management and interpersonal boundaries. After specific training in EC-based methodologies, teachers assumed increasing responsibility for designing and conducting activities. The third year developed value-oriented reflection on respect, equality, consent, unhealthy relationships, violence prevention and social responsibility. Students produced artefacts and materials intended for other classes, thereby moving from participation to re-elaboration and communication.

At the same time, the programme activated a second developmental trajectory concerning teachers. During the first year, teachers mainly observed and supported activities led with external professionals. In the second year, they designed and implemented activities within their own classrooms, while experts shifted towards supervision and specialist support. In the third year, teachers acted as facilitators and reflective mediators, co-constructing learning environments with students and guiding the production of shared outputs. This transition was intended to strengthen sustainability and embed affective education within ordinary teaching rather than leaving it as an external or episodic initiative.

The study therefore addresses two interconnected questions. First, how did students' emotional, relational and value-oriented discourse develop across the three-year pathway? Second, what transformations emerged in teachers' professional positioning as responsibility shifted from external facilitation to internalised practice? These questions are examined through longitudinal textual analysis, final comparative questionnaire data and qualitative analysis of teacher feedback. The discussion then considers how the observed processes contribute to a conception of Digital Affective Literacy centred on

embodied awareness, relational judgement and the critical interpretation of affective communication.

Table 1. Three-year architecture of the affective education programme

Phase	Main aims	Core activities	Teacher role	Monitoring
Year 1: foundations	Emotional literacy; positive classroom climate	Theatre, music, bodily activities, narratives, guided reflection	Participant observer and classroom support	Student productions; teacher observations
Year 2: consolidation	Communication, cooperation, conflict and boundaries	Teacher-designed EC-based classroom activities; small-group work	Designer and lead facilitator; experts supervise	Student texts; lexicometric and categorical analysis; teacher feedback
Year 3: systematisation	Respect, equality, consent, unhealthy relationships and responsibility	Value-oriented discussion; co-design; artefacts for other classes	Reflective mediator and director of the process	Final questionnaire; open responses; comparative analysis

1. Methodology

The study adopted a longitudinal, multimodal mixed-methods design. This choice reflected the complexity of socio-affective development, which cannot be adequately represented through a single indicator or a single moment of measurement. The research strategy combined textual materials produced by students, observations and reflective feedback from teachers, structured questionnaire data and open-ended responses. The integration of sources was intended to provide a multidimensional account of processes, meanings and perceived competences (Creswell & Plano Clark, 2018; Greene et al., 1989).

During the first year, the monitoring corpus consisted of students' written responses at the end of activities, reflective notes, narratives and expressive productions, together with teachers' observations and reports. These materials documented immediate reactions, emotional vocabulary, perceived learning,

relational experiences and criticalities. During the second year, a comparable corpus was collected, allowing a longitudinal comparison of lexical distributions, semantic fields, polarity and indicators of linguistic complexity.

Lexicometric analysis examined recurrent lemmas, relative frequencies, semantic-field distribution, polarity, total tokens, number of lemmas, average sentence length, type-token ratio and the coverage of the twenty most frequent words. These indicators were used descriptively. They did not measure competence directly, but provided evidence regarding the organisation, diversification and concentration of students' language.

Categorical analysis was conducted through repeated reading, coding and aggregation of units of meaning. The analysis followed an inductive and iterative orientation inspired by the data-driven logic described by Charmaz (2006), while not claiming full adherence to a formal Grounded Theory design. Categories were developed through continuous comparison between empirical materials and emerging interpretations. In the first year, the analysis focused on experiential participation, affective experience, perceived learning, resistance, classroom climate and differences in the level of re-elaboration. In the second year, categories concerned emotional awareness, relational construction, reflection on self and others, group difficulty, relational values and educational climate.

The qualitative analysis of teacher feedback included exploratory reading, open coding, comparison among codes and progressive construction of macro-categories. Five principal categories emerged: active student participation, relational dynamics, active methodologies and expressive languages, didactic transferability, and teacher reflexivity. Feedback was interpreted not only as evidence of what occurred in classrooms but also as evidence of how teachers

perceived and incorporated the experience into their professional practice (Stake, 1995).

In the third year, a structured questionnaire was administered between March and April 2026. It included five-point Likert scales, multiple-choice questions, situational items and open-ended responses. The instrument investigated five broad domains: emotional functioning, relational competence, cognitive representations of relationships, value orientation and contextual perception. Specific topics included emotional recognition and verbalisation, anger regulation, help-seeking, listening, respect for different opinions, conflict management, peer respect, group work, equal opportunities, violence, online messages, jealousy, consent, universal respect, equal rights, inclusion, offensive behaviour, defence of people experiencing injustice, responses to mockery and personal offence, support networks, recognition of unhealthy relationships and perceptions of the school environment.

The total questionnaire sample comprised 121 students. The participating group included 52 students who had attended the three-year programme. The comparison group included 69 students of the same age and territorial context who had not participated. For the qualitative comparison of open-ended answers, the available corpus comprised 52 participants and 64 valid respondents in the comparison group.

Quantitative analysis was descriptive. It included item means, response frequencies and the proportion of high responses, defined as scores of 4 or 5 on the Likert scales. Knowledge and scenario-based items were reported as percentages selecting the relevant response. No inferential statistical tests were performed because the study was exploratory, the groups were not randomly assigned and a structured pre-intervention measure was unavailable.

The results are therefore interpreted as contextual evidence rather than causal estimates.

Open-ended responses from the third-year questionnaire were examined lexicometrically and categorically. The analysis focused on emotions, positive relationships, unhealthy relationships, respect, gender equality and school as a relational context. Frequencies and percentages were calculated within each semantic field, while categorical interpretation examined the internal organisation of the vocabulary. The integration of quantitative and qualitative results made it possible to compare declared competence, lexical representation and experiential articulation.

The methodological logic was based on triangulation. Student texts provided evidence of meaning-making across time; questionnaire data offered a structured comparison; open responses revealed semantic organisation; and teacher feedback documented professional interpretation and perceived classroom processes. Convergence among these sources was considered more significant than isolated differences in individual indicators.

2. Findings: Longitudinal Development of Students' Socio-Affective Discourse

The longitudinal textual analysis showed a progressive reorganisation of students' discourse. First-year responses were predominantly centred on immediate experience, enjoyment and the activities performed. Students frequently described whether they liked an activity, whether they had fun and what they had done. Emotional language was already prominent, but it was often embedded in simple evaluations and short accounts.

The first-year corpus contained approximately 4,500 tokens and 900 lemmas. Average sentence length was 8.1 words, the type-token ratio ranged approximately from 0.16 to 0.20 and the twenty most frequent words covered around half of the corpus. These indicators suggest a relatively concentrated language, shaped by repeated references to the activity and by concise responses.

Semantic-field analysis showed that emotional vocabulary represented 35% of the corpus, experiential references to music and the body 30%, relational vocabulary 15%, cognitive and metacognitive language 10%, critical or negative references 6% and value-oriented language 5%. The positive polarity reached 82%, while neutral and negative formulations represented 12% and 6%, respectively. This pattern indicates a strongly positive reception, but also a discourse still closely tied to the immediate experience of the activities.

During the second year, the corpus expanded to approximately 7,000 tokens and 1,300 lemmas. Average sentence length increased to 9.2 words, the type-token ratio ranged from approximately 0.18 to 0.22 and the coverage of the twenty most frequent words decreased to about 45%. The language therefore became moderately longer, more diversified and less repetitive.

The emotional field remained central, decreasing slightly from 35% to 32%, but its function changed. Emotional terms were more often connected to interpersonal situations, understanding and reflection. The relational field increased from 15% to 28%, while the experiential field decreased from 30% to 10%. Value-oriented references increased from 5% to 12%, and cognitive-metacognitive language from 10% to 13%. Critical or negative references increased slightly from 6% to 7%.

The change in polarity was equally informative. Positive formulations decreased from 82% to 78%, while neutral responses increased from 12% to 15% and negative responses from 6% to 7%. This should not be interpreted as declining appreciation. Rather, the second-year discourse was less idealised and more capable of recognising difficulty, conflict and ambivalence. Students appeared increasingly able to describe not only what worked, but also what made cooperation difficult and how relationships affected participation.

The most frequent second-year terms included emotions (4.8%), classmates or companionship (4.5%), activities (4.2%), affection (3.9%), together (3.6%), work or group (3.2%), friendship (2.9%), respect (2.7%) and expression (2.5%). Emotional and relational language jointly accounted for around 60% of the corpus. These data indicate that emotions were no longer represented mainly as internal states; they were increasingly embedded within group experience and interpersonal meaning.

Several developmental transitions emerged. The first was a movement from experience to emotional awareness. Activities remained important, but students increasingly used them to interpret what they felt and how they reacted. The second was a movement from participation to reflection. Verbs associated with understanding, thinking and recognising became more frequent, suggesting that experience was becoming an object of thought.

The third transition concerned the relationship itself. During the first year, classmates and groups were mainly the context in which activities occurred. During the second year, cooperation, listening, friendship, conflict and mutual help became explicit topics. Students began to describe the relational conditions that facilitated or inhibited participation.

The fifth transition concerned difficulty. Initially, resistance and conflict were expressed sporadically or indirectly. Later, students more explicitly identified exclusion, lack of cooperation, disagreement and group-management problems. This development is educationally significant because competence does not consist in eliminating difficulty; it includes the ability to recognise, describe and discuss it.

The longitudinal findings are consistent with experiential learning perspectives, in which experience becomes learning through a recursive relation among action, observation, reflection, conceptualisation and subsequent experimentation (Kolb, 1984). They also support an embodied interpretation: bodily and expressive activities generated experiences that could later be verbalised, compared and reorganised. Affective competence therefore emerged not as the acquisition of emotional labels alone but as the growing capacity to connect emotion, action, relationship, language and interpretation.

Table 2. Longitudinal comparison of students' textual corpora

Note. Percentages describe the distribution of semantic fields and polarity within the corpora. They are not direct measures of programme effectiveness

Indicator	Year 1	Year 2	Interpretation
Emotional semantic field	35%	32%	Stable centrality; stronger relational integration
Experiential field	30%	10%	Reduced activity description; increased interpretation
Relational field	15%	28%	Relationships became an explicit object of reflection
Value-oriented field	5%	12%	More references to respect, friendship and responsibility
Cognitive/metacognitive field	10%	13%	Growth of understanding, reflection and interpretation
Critical/negative field	6%	7%	Greater recognition of difficulty and conflict
Positive polarity	82%	78%	Less idealised and more differentiated accounts
Neutral polarity	12%	15%	Increase in descriptive and reflective formulations
Negative polarity	6%	7%	Slight increase in explicit criticality
Tokens / lemmas	~4,500 / ~900	~7,000 / ~1,300	Larger and more diverse corpus
Mean sentence length	8.1 words	9.2 words	Moderately greater articulation
Type-token ratio	0.16-0.20	0.18-0.22	Increased lexical differentiation

3. Teacher Professional Transformation

Teacher professional development represented a parallel and interconnected outcome of the programme. The intervention was deliberately structured so that external professionals would not remain the sole carriers of expertise.

Instead, responsibility gradually shifted towards teachers, supported by training, supervision and collegial reflection.

In the first year, teachers mainly acted as participant observers and classroom support. They accompanied laboratory activities, observed emotional and relational dynamics and took part in training. External experts retained primary responsibility for conducting expressive and psychological activities. This phase contributed to the construction of shared language and to the familiarisation of teachers with embodied, participatory and reflective methodologies.

In the second year, teachers became protagonists of implementation. After training in EC-based methodologies, they designed and conducted activities addressing communication, cooperation, conflict and interpersonal boundaries. External experts moved towards supervision and accompaniment. Teachers adapted proposals to the characteristics of their classes, integrated activities within curricular work and made context-sensitive decisions.

This phase marked a shift from methodological reception to professional appropriation. Teachers did not merely reproduce techniques. They selected, reformulated and combined activities, drawing on their knowledge of students and classroom history. This kind of situated adaptation is central to teacher learning, because professional knowledge develops through the interaction of concepts, experience and context rather than through decontextualised prescription (Putnam & Borko, 2000).

In the third year, teachers consolidated their role as facilitators and directors of educational processes. They co-designed activities with students, mediated reflection on respect, equality, consent and violence, and guided the production of artefacts intended for other classes. Their task increasingly involved connecting experience with language and values.

The analysis of teacher feedback identified five principal categories. The first was active student participation. Teachers repeatedly described involvement, willingness to share and emotional engagement. Participation was not interpreted as the simple completion of a task but as readiness to enter a relational and expressive process.

The second category concerned relational dynamics. Teachers observed cooperation, mutual respect, exclusion, resistance and uneven participation. Particularly significant was the shift from describing behaviour to interpreting the processes beneath it. Teachers began to ask how group positions, alliances and tensions affected students' capacity to speak and participate.

The third category concerned active methodologies and expressive languages. Small-group work, theatre, music, writing and bodily activities were perceived as increasing accessibility and participation. Teachers noted that some students expressed themselves more easily than in traditional lessons and that small-group organisation created more balanced opportunities for speech. These observations reinforced the value of embodied and non-transmissive learning.

The fourth category was didactic transferability. Teachers described the activities as resources that could be reused and adapted. Expressions such as "useful ideas for professional practice" or references to activities that could be proposed again indicated movement from evaluation to appropriation. Transferability was a key condition of sustainability because it embedded innovation in ordinary teaching.

The fifth category was teacher reflexivity. Feedback forms prompted teachers to take distance from immediate action and to interpret what had occurred. They considered why some methods supported participation, how relational dynamics shaped outcomes and what modifications were needed. Feedback

thus functioned as a space in which experience was transformed into professional knowledge.

The feedback showed that teachers increasingly viewed themselves as builders of contexts. Their role was not limited to transmitting content or managing behaviour. They created conditions for participation, interpreted vulnerability and exclusion, and connected student experience with shared language and collective values. This transformation corresponds to a broader understanding of educational professionalism grounded in judgement rather than standardised execution (Biesta, 2015).

Criticalities remained visible. Teachers reported students who participated less, difficulty expressing emotions, resistance to bodily or personal activities and persistent group tensions. These elements were not treated as project failure. Instead, they became indicators requiring further educational interpretation. The visibility of difficulty was itself an outcome, because relational problems that ordinarily remain implicit became objects of professional attention.

This movement is especially relevant to affective education. Emotional and relational processes cannot be managed through scripts alone. Teachers must interpret silence, embarrassment, conflict, resistance and the history of the group. Supervision, training and feedback provide the support required for such interpretative work.

The final professional profile emerging from the pathway is that of a reflective practitioner and context builder. This teacher integrates embodied and expressive methodologies, monitors relational dynamics, adapts activities, collaborates with colleagues and assumes responsibility for the educational meaning of the process. Such a profile is central to the sustainability and replicability of the model.

Table 3. Categories emerging from teacher feedback

Note. Categories were constructed through inductive coding and iterative comparison of teacher feedback

Category	Evidence in feedback	Professional significance
Active participation	Involvement, willingness to share and emotional engagement	Participation interpreted beyond task completion
Relational dynamics	Cooperation, support, exclusion, resistance and uneven participation	Shift from behaviour description to process interpretation
Active methodologies	Theatre, music, writing, bodily activities and small-group work	Recognition of embodied and non-transmissive learning
Didactic transferability	Activities adapted and reused in ordinary teaching	Progressive professional appropriation
Teacher reflexivity	Feedback connected action, conditions and educational meaning	Experience transformed into professional knowledge
Collegial learning	Observations discussed within teams and supervision	Development of shared language and professional culture
Professional autonomy	Teachers planned and implemented activities with increasing responsibility	External expertise repositioned as supervision and support
Criticality recognition	Marginal participation, expressive difficulty and persistent tensions	Difficulties treated as pedagogical evidence

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4. Quantitative and Qualitative Findings from the Final Questionnaire

The final questionnaire provided a structured description of perceived socio-affective competence, relational representations, value orientation and

support networks. The comparative data showed a differentiated profile rather than uniform superiority of the participating group. Basic emotional, relational and value-oriented competences were present in both groups, confirming that socio-affective development occurs across multiple contexts of socialisation.

In the emotional domain, participating students reported a mean of 3.38 out of 5 for recognising their emotions, with 40.4% selecting high responses. The comparison group reported a mean of 3.46, with 53.6% high responses. The comparison group therefore expressed greater confidence in immediate emotional recognition.

The pattern was reversed for emotional verbalisation. Participating students reported a mean of 2.73 and 25.0% high responses, compared with 2.55 and 20.3% in the comparison group. Although both levels were modest, the participating group showed slightly greater perceived ability to put emotional states into words.

Emotional regulation remained a difficulty in both groups. The ability to calm down when angry reached a mean of 2.58 and 23.1% high responses among participants, compared with 2.72 and 29.0% in the comparison group. Help-seeking showed similarly moderate levels: 2.77 in the participating group and 2.61 in the comparison group, with approximately 29% high responses in both.

Relational competence showed stronger results. Active listening was one of the clearest strengths of the participating group, with a mean of 3.90 and 73.1% high responses, compared with 3.81 and 65.2% in the comparison group. Respect for different opinions, however, was higher in the comparison group: 3.84 and 72.5% high responses, compared with 3.65 and 51.9% among participants.

Conflict management remained intermediate in both groups. Participants reported a mean of 3.17 and 36.5% high responses, while the comparison group reported 3.09 and 39.1%. Group-work competence was similar: 3.48 and 51.9% high responses among participants, compared with 3.43 and 55.1% in the comparison group. Perceived peer respect reached 3.19 and 40.4% high responses among participants, compared with 3.33 and 47.8% among comparison students.

The strongest differences emerged not in general relational competence but in the interpretation of specific dynamics. Equal opportunities were correctly identified by 90.4% of participating students and 88.4% of comparison students. Violent behaviour was recognised by 92.3% and 91.3%, respectively. These items showed broad agreement.

Jealousy and consent revealed greater differentiation. Jealousy was recognised as potentially dangerous by 88.5% of participants and 72.5% of comparison students. In the comparison group, 27.5% interpreted jealousy as affection or interest, indicating greater ambivalence. Consent was recognised as always requiring respect by 67.3% of participants and 60.9% of comparison students. In both groups, a substantial minority selected context-dependent responses, indicating that the concept was not fully consolidated.

Value-oriented items were generally high. Universal respect reached a mean of 4.42 and 84.6% high responses in the participating group, compared with 4.38 and 82.6% in the comparison group. Equal rights for males and females reached 4.29 and 76.9% among participants, compared with 4.52 and 85.5% in the comparison group.

The recognition of differences as a resource was more moderate and nearly identical: 3.73 and 59.6% high responses among participants, compared with

3.67 and 59.4% among comparison students. The strongest value-related difference concerned the statement that offending others is never right. High responses reached 67.3% among participants and 46.4% in the comparison group. Willingness to defend people experiencing injustice was also high, reaching 75.0% and 71.0%, respectively.

Scenario-based responses revealed further complexity. When someone was mocked, 78.8% of participants and 85.5% of comparison students reported that they would intervene or seek help. In this scenario, the comparison group showed a stronger declared prosocial response.

When students themselves were offended, patterns were less positive. Among participants, 38.5% reported that they would talk to someone, 28.8% would keep the experience inside and 19.2% would react angrily. In the comparison group, 30.4% would talk to someone, 33.3% would keep it inside and 21.7% would react angrily. Participants therefore showed somewhat greater willingness to verbalise personal offence, while both groups displayed substantial tendencies towards internalisation or impulsive reaction.

The support network was strongly concentrated on parents and peers. Parents were identified by 40.4% of participants and 37.7% of comparison students; friends by 28.8% and 34.8%, respectively. Teachers were selected by only 3.8% and 2.9%. Moreover, 21.2% of participants and 17.4% of comparison students reported having no one to turn to.

The marginality of teachers as sources of help represents one of the most critical findings. It indicates that the school was not widely perceived as an emotionally accessible support environment, even among students who participated in the programme. The result does not negate the value of the intervention, but identifies a structural area requiring further development.

Open-ended responses added qualitative depth. In both groups, emotional vocabulary was organised around happiness, sadness, anger and fear. In the participating group, happiness represented 18.2% of the emotional field, sadness 16.5%, anger 15.3% and fear 11.2%. In the comparison group, the corresponding values were 20.5%, 19.3%, 16.5% and 12.5%. The comparison corpus was denser in basic emotional terms, but participants gave relatively greater space to verbs such as understanding.

Positive relationships were similarly central in both groups. Respect, friendship, trust, listening and mutual help constituted the core vocabulary. The cumulative incidence of this category was approximately 68% in the participating group and 67% in the comparison group, indicating a shared relational repertoire.

Unhealthy relationships were represented through explicit indicators such as arguing, insulting, violence, offence, fear and control. The cumulative frequency was higher in the comparison group, but the relative incidence was similar at approximately 59% in both. The difference therefore concerned corpus density more than categorical structure.

Gender equality was predominantly represented as formal equality. Terms such as equal, same rights and males/females dominated both corpora. Relative incidence was approximately 66% in both groups, while more specific terms such as discrimination were less frequent. This suggests broad agreement but limited semantic diversification.

The convergence of quantitative and qualitative findings supports a non-linear interpretation. Participation in the programme was not associated with higher scores on every competence. The most plausible contribution concerns the way students connected emotional, relational and value-oriented meanings,

particularly in relation to listening, jealousy, consent, offensive behaviour and emotional verbalisation.

Table 4. Selected descriptive results from the final questionnaire

Note. M indicates the mean on a five-point Likert scale; high responses correspond to scores of 4 or 5. No inferential statistical tests were conducted.

Indicator	Participating group (n=52)	Comparison group (n=69)
Recognising emotions	M 3.38; 40.4% high	M 3.46; 53.6% high
Verbalising emotions	M 2.73; 25.0% high	M 2.55; 20.3% high
Calming anger	M 2.58; 23.1% high	M 2.72; 29.0% high
Asking for help	M 2.77; 28.8% high	M 2.61; 29.0% high
Active listening	M 3.90; 73.1% high	M 3.81; 65.2% high
Respecting different opinions	M 3.65; 51.9% high	M 3.84; 72.5% high
Conflict management	M 3.17; 36.5% high	M 3.09; 39.1% high
Working in groups	M 3.48; 51.9% high	M 3.43; 55.1% high
Universal respect	M 4.42; 84.6% high	M 4.38; 82.6% high
Equal rights	M 4.29; 76.9% high	M 4.52; 85.5% high
Differences as a resource	M 3.73; 59.6% high	M 3.67; 59.4% high
Offending others is never right	M 3.81; 67.3% high	M 3.38; 46.4% high
Jealousy recognised as dangerous	88.5%	72.5%
Consent always respected	67.3%	60.9%
Teachers as source of help	3.8%	2.9%
No one to turn to	21.2%	17.4%

Table 5. Comparison of semantic categories in open-ended responses

Note. Percentages refer to the cumulative incidence of the principal lemmas within each semantic field. The comparison-group qualitative corpus included 64 valid respondents.

Semantic category	Participating n; %	Comparison n; %	Interpretative pattern
Emotions as experienced states	104; ~61%	121; ~69%	Basic emotions dominate both corpora
Positive relationships	118; ~68%	117; ~67%	Strongly shared relational repertoire
Unhealthy relationships	71; ~59%	88; ~59%	Similar internal structure; different corpus density
Respect as behavioural norm	78; ~65%	88; ~71%	More explicit normative references in comparison group
Gender equality	73; ~66%	87; ~66%	Predominantly represented as formal equality
School as relational context	62; ~80%	64; ~82%	Similar emphasis on school, talking, listening and teachers

5. Discussion

The convergence of longitudinal texts, questionnaire data, open responses and teacher feedback does not support a simple model of linear improvement. The participating group was not consistently superior across quantitative indicators, and some self-perceived competences were higher in the comparison group. The programme's principal contribution appears instead to concern the articulation, connection and contextualisation of socio-affective meanings.

The longitudinal data are especially important in this respect. Students moved from brief, experience-centred accounts towards language that more explicitly connected emotion, relationship, values and reflection. The decline of the experiential field and the growth of relational, value-oriented and metacognitive language suggest that activities were progressively transformed into objects of thought.

The findings therefore support an embodied conception of affective education. Emotional competence cannot be taught solely through explanations or decontextualised vocabulary. Students need situations in which emotions are experienced, observed, discussed and connected to action. The meaning of an emotion depends partly on how it emerges in a relationship, how the body responds and what possibilities for action are available (Barsalou, 2008; Varela et al., 1991).

The results are also consistent with research indicating that socio-emotional competences develop through systematic and continuous educational interventions rather than occasional activities (Durlak et al., 2011; Taylor et al., 2017). Continuity allowed the programme to move from emotional recognition to relational competence and then to value-oriented problematisation. It also allowed teachers to internalise the model gradually.

The difference concerning jealousy is particularly informative. Both groups possessed vocabulary for unhealthy relationships, but participating students were more likely to recognise jealousy as potentially dangerous. The programme may therefore have contributed less to the acquisition of a new word than to the reinterpretation of its meaning within relational dynamics.

Consent showed a similar pattern. Although the participating group performed better, only about two-thirds recognised that a refusal must always be respected. This indicates that consent remained an area requiring further work. Affective education cannot assume that general agreement with respect and equality automatically translates into a stable understanding of boundaries.

The contrast between high declared values and more fragile behavioural or situational responses recurred across the data. Both groups strongly endorsed universal respect and equal rights, yet conflict management, help-seeking and

responses to personal offence remained problematic. This gap between declarative and enacted competence is a central educational challenge.

Professional judgement was central. Relational situations are not fully predictable, and standardised procedures cannot determine how to respond to silence, resistance, conflict or vulnerability. Teachers must decide when to invite expression, when to protect privacy, how to manage group exposure and how to connect an activity to the broader educational purpose (Biesta, 2015).

Supervision supported this judgement by providing a space for analysing experience. In affective education, supervision is especially important because teachers work with emotionally charged and symbolically complex material. Without reflection, active methodologies risk becoming isolated techniques; with supervision, they can become components of a coherent pedagogical practice (Mortari, 2009; Schön, 1983).

Nevertheless, the support-network findings show that systemic participation did not automatically make teachers emotionally accessible to students. The very low proportion selecting teachers as sources of help indicates a gap between programme participation and perceived relational availability. This is not a minor result. It suggests that school-based affective education must include explicit work on trust, help-seeking and the visibility of adult support.

These findings provide a foundation for Digital Affective Literacy. In hybrid educational environments, students increasingly encounter affective language that may be produced, selected or amplified by technical systems. The essential question is not only whether a response sounds empathetic, but what kind of relationship it constitutes and what responsibility it carries.

A computationally generated message may be linguistically coherent and emotionally appropriate without being grounded in bodily experience,

reciprocal vulnerability or responsibility towards the other. Digital Affective Literacy therefore requires the capacity to distinguish emotional expression from affective simulation, interaction from reciprocal relationship and automated responsiveness from accountable care.

The programme contributes to this literacy indirectly but substantially. Emotional verbalisation supports the interpretation of affective language; relational competence supports evaluation of reciprocity and boundaries; value-oriented reflection supports judgement about respect, consent and responsibility; embodied experience provides a reference point for distinguishing lived affect from linguistic form.

Teacher transformation is equally relevant. In AI-mediated education, the teacher's role cannot be defined primarily by information delivery. Teachers construct contexts, interpret classroom histories, notice exclusion and vulnerability, and connect individual experience to collective values. These functions require situated judgement and ethical responsibility.

Teaching beyond the machine therefore does not imply rejection of technology. It means refusing to treat technical responsiveness as the measure of educational relationship. Technologies may support access, expression and reflection, but their use must remain oriented by human purposes and interpreted within embodied and social contexts.

The concept of Digital Affective Literacy proposed here includes at least five dimensions. The first is embodied awareness: recognising the bodily and situational character of emotions. The second is semantic interpretation: understanding how affective language constructs meanings and expectations. The third is relational judgement: evaluating reciprocity, boundaries and power. The fourth is ethical responsibility: considering the consequences of

communication and action. The fifth is contextual mediation: relating digital interaction to the histories and relationships within which it occurs.

The model's strongest contribution lies in demonstrating the conditions under which such literacy can be cultivated: longitudinal progression, embodied methodologies, guided reflection, teacher education, supervision, collegial feedback, student participation and community involvement. None of these conditions can be replaced by a single digital tool.

The findings also caution against overclaiming. The programme did not directly investigate interactions with AI systems, and the connection to Digital Affective Literacy is interpretative and prospective. Yet this limitation does not make the connection arbitrary. The competencies developed and the professional conditions identified are precisely those required to evaluate affectively framed communication critically.

The study therefore contributes to a human-centred understanding of educational innovation. Innovation is not defined by the novelty of the technology but by the quality of the educational relationships, meanings and capacities it supports. The teacher's role, far from becoming obsolete, becomes more demanding: to mediate between technical possibility and educational purpose.

6. Limitations and research perspectives

The study presents several methodological limitations. The absence of a structured pre-intervention measure prevents direct causal attribution of observed differences to the programme. Although the participating and comparison groups were similar in age and territorial context, they were not

randomly assigned and individual, family, classroom and school variables were not fully controlled.

The final questionnaire relied mainly on self-reported perceptions and declared behaviours. Students' confidence in a competence does not necessarily correspond to observed performance in emotionally demanding situations. Social desirability may also have influenced responses to items concerning respect, equality, violence and prosocial behaviour. Open-ended responses were often concise. Lexicometric analysis made it possible to identify patterns, but brief answers limited the depth of interpretation. Semantic percentages describe the organisation of the corpus and should not be treated as direct measures of educational effectiveness or individual competence. The teacher-feedback analysis documented perceived professional transformation. It did not include independent classroom observation or standardised measures of instructional change. Teachers' positive interpretation of the experience may have been influenced by participation and investment in the project.

The sample was territorially circumscribed, and no inferential statistical analyses were conducted. Findings are therefore contextual and exploratory rather than generalisable. Replication in different schools and territories is necessary to examine whether the model maintains coherence across organisational, social and cultural conditions.

The connection with Digital Affective Literacy is interpretative and prospective. The programme did not directly test artificial-intelligence tools, compare human and machine affective interactions or measure digital behaviour. Its contribution lies in identifying pedagogical competencies and professional conditions considered necessary for critical participation in AI-mediated environments.

Future research should adopt pre-post and longitudinal designs, include larger and more diverse samples, and integrate self-report with observation, teacher ratings and performance-based scenarios. Follow-up measures would help determine whether competencies remain available after the conclusion of the programme.

Research on teacher transformation should combine feedback analysis with classroom observation, interviews and analysis of planning documents. This would make it possible to distinguish perceived appropriation from stable changes in practice.

The support-network findings require particular attention. Future studies should explore why teachers are rarely selected as sources of help and which organisational and relational factors increase perceived accessibility. Student interviews could clarify whether the issue concerns trust, privacy, role expectations or uncertainty about available support. An explicit Digital Affective Literacy extension could introduce carefully designed activities based on digital and AI-generated messages. Students could analyse emotional framing, source attribution, simulated empathy, manipulation, consent and responsibility. Such activities should be evaluated without conflating technical fluency with affective competence. Finally, the model requires research on implementation. Continuity, training, supervision and community involvement are likely to influence outcomes, but their relative contribution remains unclear. Process evaluation could identify which components are essential, which can be adapted and what level of support is required for sustainability.

7. Conclusions

The three-year model shows that affective education depends on continuity, embodied experience, reflective mediation, teacher education, supervision and active student participation. Its outcomes cannot be adequately represented by a single measure or by the expectation of uniform improvement across all competences. The longitudinal evidence indicates a reorganisation of students' discourse. Immediate and activity-centred accounts gradually became more relational, value-oriented and reflective. Emotional language remained central, but it was increasingly connected to cooperation, respect, conflict, responsibility and interpretation. The final questionnaire showed that participants did not outperform comparison students consistently. The most meaningful differences concerned emotional verbalisation, active listening, recognition of dangerous jealousy, understanding of consent and rejection of offensive behaviour. These findings suggest that the programme's contribution lies in the integration and contextualisation of meanings rather than in a general increase in self-perceived competence. Teacher professional transformation was equally important. Teachers moved from supporting externally led activities to assuming responsibility for design, interpretation and mediation. Feedback, supervision and collegial exchange strengthened reflective practice, methodological transferability and professional judgement. The model also revealed unresolved challenges. Emotional regulation, conflict management and help-seeking remained fragile. Teachers were rarely identified as sources of support, indicating that the school's relational accessibility requires further development. In the context of generative AI, the findings support a conception of Digital Affective Literacy grounded in embodied awareness, relational reciprocity, critical interpretation and ethical responsibility. Educating beyond the machine means enabling students to engage with technologically generated affective language without confusing simulation with lived emotion or responsiveness with relationship. It also

means supporting teachers as mediators of meaning, builders of educational contexts and guarantors of the human purposes of education. Technologies can participate in learning environments, but they cannot determine the values, responsibilities and relational conditions that make education meaningful. The contribution of the model lies in connecting student development and teacher transformation within a sustainable educational architecture. Affective literacy becomes both a student competence and a professional capacity of the school: the capacity to create contexts in which emotions can be experienced, named, interpreted and related to shared forms of life.

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