TO WIN OR TO EDUCATE? AI AND THE ETHICAL TENSION BETWEEN PERFORMANCE AND PROCESS

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ABSTRACT
The digital transition in sport and physical education introduces a profound tension between the algorithmic optimisation of performance and embodied educational processes. This study explores the moral reasoning of physical education teachers in initial training (class A-48) and students on the Master's degree programme in Science and Management of Sport and Physical Activity when faced with AI-driven moral dilemmas. Using Kohlbergian dilemmas within a focus-group-based laboratory setting, the qualitative analysis revealed distinct professional stances. The Master's students adopted a macro-pedagogical stance centred on limiting algorithmic authority and safeguarding inclusion. In contrast, the trainee teachers in class A-48 demonstrated a practical-clinical stance, conceptualising a 'Robot-Student-Teacher Triad' and introducing the principle of technological 'fading' to prevent marginalisation and safeguard human affective feedback. The results highlight the need to integrate Digital Affective Literacy into teacher training.

KEYWORDS
Digital Affective Literacy; Moral Dilemmas; Sport.

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1. Introduction

The digital transition currently sweeping through contemporary educational institutions, theorised in the philosophy of technology as the Fourth Revolution (Floridi, 2014), is reshaping not only the cognitive architectures of learning, but also the very affective, intersubjective and embodied dimensions that underpin the pedagogical relationship. Within this context of radical change, the pedagogy of sport and physical education is undergoing a phase of profound epistemological redefinition, driven by the pervasive introduction of generative Artificial Intelligence systems, predictive analytics algorithms and real-time biometric monitoring devices; recent literature highlights how AI-driven reforms are rapidly transforming traditional methods of physical education into intelligent, data-driven teaching models, designed to improve teaching efficiency and personalise athletic performance (Lee & Lee, 2021). However, this sudden technological metamorphosis creates a clear ethical and practical tension between the demands for objective performance optimisation, structured around the quantification of bodies and data surveillance (datafication), and the safeguarding of historically embedded educational processes oriented towards wellbeing, self-determination and personal inclusion, particularly in the era of surveillance capitalism (Zuboff, 2019). In the specific field of physical education, where the body is not a mere instrument but the primary locus of experience and the construction of meaning, the centrality of lived movement risks being severely reduced to a technical exercise; when algorithmic governance seeks to analyse precise data on movement to generate automated feedback (Danaher et al., 2017), the educational focus is implicitly shifted from the phenomenological observation of the lived body (*Leib*) to the mechanical measurement of the physical body (*Körper*). When the machine intervenes within the educational relationship, claiming to simulate affective responses to satisfy the need for mirroring or prescribing standardised trajectories of biomechanical efficiency, there arises a clear scientific urgency to promote Digital Affective Literacy (Pangrazio & Selwyn, 2019) capable of enabling individuals to recognise, interpret and critically evaluate forms of algorithmic mediation of emotions, whilst preserving the authenticity, reciprocity and complexity of the educational relationship. In the field of sports pedagogy and physical education, this construct requires a domain-specific reartulation that extends its original formulation. Pangrazio & Selwyn (2019) conceive of personal data literacy primarily as a critical-cognitive competence: the ability to understand, question and

challenge the data traces produced through digital participation. Developed within the broader context of media education, this framework does not fully capture the ontological specificity of physical education, in which the body is simultaneously the subject of the educational experience, the means of action and the primary source of data. Since the algorithmic quantification of movement does not simply produce abstract personal data, but a numerical translation of the lived body, critically navigating this reduction requires a deeply embodied critical literacy: the ability to recognise when algorithmic feedback distorts, silences or supplants the affective and relational dimensions of motor learning. For the purposes of this study, Digital Affective Literacy in sports-pedagogical contexts is therefore to be understood as the educator's integrated ability to: (a) critically interpret and contextualise algorithmic outputs (biometric data, efficiency scores, predictive assessments) without granting them immediate evaluative authority; (b) maintain the relational and affective dimensions of human-body interaction as the primary frame of reference for pedagogical judgement; and (c) design learning environments in which digital tools function as temporary scaffolds subordinate to the learner's autonomy, competence and sense of relationality, rather than as substitutes for embodied educational care. To understand how this integrated competence operates in practice, this study examines the ethical stance and perceptions of future sports science professionals and physical education teachers in initial training enrolled on the qualification programme for teaching category A-48, exploring how they modulate their moral reasoning when faced with conflicting scenarios arising from the introduction of AI in the gym. This analytical approach is based, first and foremost, on *Achievement Goal Theory* (Nicholls, 1989), which serves to ascertain whether professional action is oriented towards a performance climate (ego-centred) or a mastery climate (task-centred), since the introduction of AI-based tracking and real-time diagnostic metrics risks heavily skewing the teaching environment towards an exacerbated performance climate in which algorithms classify, assess and continuously model movement according to rigid parameters of standardised optimisation, thereby reinforcing an ego-oriented environment in which being 'better than others' or conforming to a mathematical ideal takes precedence over the intrinsic value of the motor process and the learner's long-term development. To complete this picture, *self-determination theory* (Deci & Ryan, 2000) offers a framework for assessing the extent to which interaction with an algorithmic system may support or hinder the learner's basic psychological needs, namely autonomy, competence and relatedness. This

perspective is particularly relevant considering research conducted in the field of physical education, based on the circomplex model of teaching styles. Studies show that controlling and chaotic styles are associated with less adaptive motivational experiences and greater frustration of psychological needs, whilst more supportive approaches are generally linked to more positive experiences, greater perceived learning and a higher intention to be physically active (Diloy-Peña et al., 2024). AI systems and automated assessment applications can, when adopted without adequate pedagogical mediation and when their outputs are accepted uncritically as authoritative judgements, reproduce controlling and frustrating teaching methods that undermine students' basic psychological needs (De Meyer et al., 2014; Haerens et al., 2015). In particular, the uncritical acceptance of automated assessments or algorithmic predictions can reduce students' agency in the process of trial and error and foster forms of dependence on technological assistance (Darvishi et al., 2024); undermine the sense of competence among learners whose bodies or motor patterns diverge from the models embedded in the assessment system (Baker & Hawn, 2022; Spilz & Munz, 2023); and weaken interpersonal relationships when interaction with the interface replaces, rather than complements, the educational relationship (Crawford et al., 2024). Finally, the Ethics of Care (Tronto, 1993) provides the critical lens necessary to defend the uniqueness of human encounter against the artificial simulation of empathy, since within sports pedagogy the teaching act is not merely informative, but is an act of profound responsiveness and physical presence. In light of recent critical perspectives, which warn of the risk that metrics may end up governing educational processes rather than remaining at their service (Biesta, 2009; Grek, 2009; Williamson et al., 2020), monitoring systems may lead to a prioritisation of quantitative performance indicators at the expense of the quality of educational care. Similarly, artificial intelligence-based interfaces and chatbots, designed to recognise and mirror emotional states, can produce a form of simulated empathy that reduces the educational relationship to a computational response, diminishing its bodily dimension, interpersonal responsibility and ethical depth. From this perspective, reaffirming the contingency, vulnerability and sensitivity of the body in motion becomes essential to counter such reductionism and ensure that digital tools function as temporary supports for the educational relationship, rather than as automated substitutes for relational care.

2. Methodology

2.1 Research design and cultural context

To explore the profound ethical and pedagogical implications of integrating Artificial Intelligence into sports education, this study adopts a qualitative and phenomenological research design based on the social intuitionist model of moral judgement. Rather than assessing abstract ethical knowledge, the methodology seeks to capture *'embodied* moral reasoning': the immediate, intuitive and subsequently rationalised responses of future sports professionals when their pedagogical authority and relational responsibility are challenged by algorithmic devices. The research was conducted within the Italian university system, a context traditionally characterised by a strongly humanistic approach to pedagogy, guided by the National Guidelines (MIUR, 2012; 2018) , which prioritise inclusion, personal wellbeing and the holistic development of the individual over mere competitive results. The sudden pressure to integrate data-driven, AI-guided assessment tools within this framework creates fertile ground for exploring professional resistance, ethical negotiation and ideological shifts.

2.2 Participants and sample stratification

The overall sample comprises thirty-eight professionals in training, reflecting different stages of professional identity formation and varying levels of field experience, stratified into two distinct cohorts as it follows. *Group 1: Master's degree students***:** This group comprises twenty-four (24) students enrolled on the Master's Degree Programme in Science and Management of Sport and Physical Activity. These participants possess advanced theoretical knowledge in sports pedagogy, biomechanics and training theory, but have limited ongoing experience in school settings or institutional governance. *Group 2: Physical education teachers in initial training:* This cohort includes fourteen (14) trainee teachers enrolled on the university qualification programme for teaching category A-48 (Physical Education and Sports in secondary schools). These participants already have a background in sports science and are currently undertaking intensive school placements or active teaching, thereby demonstrating a keener awareness of classroom dynamics, pupils' vulnerabilities and institutional constraints.

2.3 The 'Ethical Dilemma Workshop' protocol and the educational context

The experiential data were collected during a series of controlled focus group sessions, structured in the form of an innovative educational workshop entitled *the 'Ethical Dilemma Workshop*'. The session was structured to last exactly 90 minutes, meticulously divided into four sequential phases designed to guide participants from intuitive reactions to a concrete professional synthesis, mirroring the dynamics of a scientific round-table discussion:

Phase 1: Setting the Scene and Scaffolding (5 minutes): The facilitator introduces the technological and philosophical framework. Crucially, the facilitator does not act as a judge or evaluator, but as a guide whose role is to encourage participants to 'engage with progress' critically, avoiding both technophobic rejection and uncritical techno-optimistic acceptance.

Phase 2: Collaborative analysis (45 minutes): Participants are divided into small working groups (four to five members per group) and are assigned a specific, highly contextualised moral dilemma. Using a structured worksheet, the groups are guided to analyse the scenario along three key axes: a) the authority of data; b) the simulation of empathy; c) the changing role of the teacher.

Phase 3: Dialogic feedback (30 minutes): Each group presents its findings to the plenary session without the use of digital slides. The focus is entirely on articulating the unresolved ethical conflicts and divergent opinions that emerged during the discussion, encouraging critical debate and the co-construction of knowledge.

Phase 4: Conceptual debriefing (10 minutes): The teacher summarises the tensions that have emerged, contextualising them within the fundamental pedagogical dichotomy between *Performance* (the logic of winning, optimisation and algorithmic efficiency) and *Process* (the logic of education, inclusion and the optimisation of care).

2.4 Research tools: The four mediated moral dilemmas

Four distinct narrative texts were developed and used as experimental stimuli. Each text was constructed to represent a conflict between the efficiency promised by an artificial intelligence application and a fundamental pedagogical value, translating onto the narrative plane the two axes of the conceptual framework adopted in the study: the relational, situated and responsive nature of educational care (Noddings,

2013; Tronto, 2013) and the limitations of systems capable of linguistically simulating empathetic responses without necessarily possessing a lived, embodied and morally responsible understanding of others' experiences (Montemayor et al., 2022 ; Kurian, 2025).

Dilemma 1: Algorithmic Heartbeat (Frustration of autonomy and lived bodily experience)

Scenario: The school introduces an advanced AI-driven computer vision system in the gym, paired with wearable biometric sensors. The platform tracks not only technical performance but also physical exertion in real time, cross-referencing heart rate, metabolic rate and reaction times.
The Conflict: During a session, the system flags a student who usually performs well, generating an automatic alert indicating an unacceptably low 'engagement score' and describing the student as 'unmotivated'. The system explicitly suggests that the teacher take punitive action to restore the intensity of the training. However, the teacher observes, from a phenomenological perspective, that the student appears visibly sad, emotionally withdrawn and lacking in energy.
Pedagogical question: Should the teacher trust the 'transparent' biometric data calling for the mechanical optimisation of performance, or assert their role as an intuitive reader of human emotion, risking institutional criticism for appearing less objective than the sensor?

Dilemma 2: The Chatbot Companion (The Impoverishment of Relationality and Care)

Scenario: To manage conflicts between pupils, as well as the anger and emotional distress resulting from defeats in school tournaments, a school is trialling an AI-based psychological counselling chatbot. The system offers 24-hour availability, an imperturbable calm and personalised protocols for emotional reflection.
The Conflict: The PE teacher notices that pupils increasingly prefer to confide their frustrations and seek comfort from the digital interface rather than engage in dialogue with the teaching staff. The AI succeeds in stabilising the emotional atmosphere in the gym and drastically reduces immediate behavioural conflicts. However, it completely bypasses human interaction, which is by its very nature disorderly, embodied and unquantifiable.
Pedagogical question: Should the educator encourage the use of the tool because it maximises administrative efficiency and reduces behavioural disruptions, or limit its use to foster a complex, potentially disorganised, yet ontologically authentic human relationship?

Dilemma 3: Biomechanical Standardisation (Inclusion vs. Adapted Physical Activity)

Scenario: During an athletics session focusing on the high jump, pupils use a tablet app that utilises real-time machine learning-based pose estimation to analyse movement trajectories via the camera. The algorithm instantly assigns a 'mechanical efficiency score' and prescribes rigid, standardised corrections.
The Conflict: A student with a mild motor disability or an unconventional movement pattern consistently receives extremely low efficiency scores and highly repetitive, discouraging automated feedback ("Inefficient movement/Incorrect trajectory"). Despite this, the student's personal effort, determination and subjective progress are exceptionally high.
Pedagogical question: Should the teacher defer to the software's objective, data-driven authority to ensure absolute technical accuracy and prevent injuries, or should they overrule the tool's verdict to safeguard the pupil's motivation and self-esteem by embracing a non-standardised ontology of movement?

Dilemma 4: Predictive analysis and the Frankenstein complex (Algorithmic determinism)

Scenario: The Department of Sports Science implements a predictive analytics software package. By cross-referencing basic anthropometric data, initial motor skills tests and genetic predispositions, the algorithm generates long-term predictive models that forecast each student's ultimate ceiling for athletic success.
The Conflict: The software explicitly predicts that a group of students has a zero per cent chance of achieving a pass mark in the standardised cardiovascular endurance tests scheduled for the end of the term. Several members of staff propose immediately exempting these students from the most rigorous endurance modules, directing them towards low-impact recreational activities to spare them foreseeable psychological frustration and streamline the grading procedures.
Pedagogical question: How does the educator respond to this automated prediction? Do they accept the predictive model as a tool for optimisation and the mitigation of frustration, or do they defend the pedagogical value of exertion, uncertainty and potential failure as indispensable components of human growth?

3. Results and discussion

A thematic analysis of the workshop worksheets and transcripts of the dialogic feedback sessions revealed a marked divergence between master's degree students (Group 1) and trainee teachers (Group 2) in the way they conceptualise algorithmic authority and define the boundaries of their professional identity. These differences emerged in particular in the negotiation of the relationship between human pedagogical judgement and the evaluative, predictive or affective responses simulated by artificial intelligence systems.

3.1 Group 1 (Master's students): The humanistic defence of the 'Heart'

Data collected from students on Master's degree programmes reveal a strongly protective, emotionally engaged and, in some cases, defensive stance towards technological intrusion. This stance is often based on an idealised view of the teacher–student relationship and on the idea of human empathy as an absolute and irreplaceable barrier against machine mediation. In analysing Dilemma 1 (*Algorithmic Heartbeat*), a group of Master's students expressed a radical rejection of data-driven assessment: *"The teacher's empathy remains irreplaceable because the human element is fundamental to nurturing the relationship and supporting the student's growth. The sensor detects the heartbeat, but the teacher sees the soul."* This quote exemplifies a recurring theme in Group 1: the portrayal of the teacher's gaze as a form of deep, immediate and hard-to-replace emotional understanding. In some cases, this gaze is described in almost absolute terms, as if it were capable of directly and infallibly accessing the student's inner world. When faced with Dilemma 2 (*The Chatbot Companion*), Group 1 consistently identified the digital interface as a potential factor in the erosion of the educational relationship, showing little willingness to acknowledge any administrative or logistical advantages it might offer: *"Students must interact with their teacher to comprehend and understand their own emotions, and to feel empathy, rather than engaging with AI that responds in a systematic and superficial manner. There is a risk of a dramatic impoverishment of relationships."* When these concerns were translated into operational guidelines, termed 'Rules of Engagement', the Master's students prioritised the establishment of defensive boundaries, arguing that technology should be strictly confined to a subordinate and advisory role. In Dilemma 3 (*Inclusion*), for example, they formulated the following rules:

a) *"Use the app only for advice: consult the AI's suggestions solely for the safety of movements, but never use them as a mark."*

b) *"Explain the machine's limitations: make it clear to the class that the algorithm is rigid and standardised and cannot recognise physical difficulties."*
c) *"Reward genuine effort: assess pupils on the basis of their progress and motivation, not on the basis of the tablet's automatic score."*

In comparison with the predictive software proposed in Dilemma 4, Group 1 expressed a clear rejection of algorithmic determinism, emphasising the need to promote forms of critical citizenship and emotional literacy: *"This topic teaches students not to be manipulated by algorithms and to remain critical. It's perfect because pupils need to learn not to 'believe' the machine's prediction that they have zero chance of succeeding. We need to use AI as a 'mirror' to get pupils to talk about how they feel when faced with that poor mark."*

3.2 Group 2 (Trainee teachers A-48): The emergence of the 'Triadic Mediator'

In contrast to the predominantly defensive and polarised stance evident amongst students on master's degree programmes, the texts produced by trainee teachers in the A-48 teaching qualification programme reflect a more pragmatic and nuanced pedagogical approach. Their familiarity with some of the conditions characteristic of contemporary schools — including large class sizes, time constraints and an increasingly diverse student body — seems to have led them not to reject out of hand the efficiency promised by AI. Rather, the participants sought to critically examine how it functions and to frame it within a redefined teaching environment based on a 'pedagogical triad' of teacher–student–robot. In this configuration, technology does not replace one of the parties in the relationship, but introduces a third element that requires new forms of professional interpretation and mediation. This approach emerges particularly clearly in the responses to Dilemma 3 (*Biomechanical Standardisation*). Rather than ruling out the use of pose estimation or denying its potential technical utility, the trainee teachers in the A-48 cohort incorporated the technology into an adaptive and inclusive teaching strategy, based on the principle of *'fading'*, understood as the gradual reduction of technological support: *"The group believes it is important to use the robot provided that it does not replace the teacher. The teacher must act as a mediator between the pupil and the robot so as not to create a relational deficit (already present due to social anxiety). The robot does not promote inclusion if it is intended exclusively for the pupil in question; it must be made available to the whole class."* This quote expresses a conception of the teacher as a mediator of the

interaction between the pupil and the device. The inclusivity of the tool is not regarded as an intrinsic property of the technology, but rather as the outcome of the ways in which it is introduced, distributed and integrated into classroom life. From this perspective, the robot serves as a temporary aid to participation and learning, without taking on a role that replaces the teacher or peer relationships. The trainee teachers therefore outlined a teaching sequence divided into three phases, aimed at utilising the precision of the tool without sacrificing the relational dimension of educational care: 1. Phase A (*Scaffolding*)**:** The student with unconventional or neurodivergent movement uses the digital device as a low-impact, non-judgemental interactive mirror to develop basic motor confidence. 2) Phase B (*Mediation*)**:** The teacher intervenes in the interaction, using the data produced by the device not as a final mark, but as a shared object of reflection, co-interpreting the movement together with the student. 3) Phase C (*Fading*)**:** The technological device is gradually phased out, enabling the student to transfer their newly acquired confidence into the network of human peer relationships within the classroom. Furthermore, in addressing *Dilemma 1 (Algorithmic Heartbeat)*, the teachers in Class A-48 avoided emotional rhetoric, instead offering a rigorous technical and pedagogical critique of biometric reductionism: *"Data is an end in itself if it overlooks the pupil as a whole. In this specific case, we cannot use the Algorithmic Heartbeat to assess commitment, as the initial heart rate cannot be the sole parameter for the pupil. Performance at that moment cannot be analysed from an exclusively mathematical perspective. The teacher intervenes by providing the interpretative framework."* The operational rules formulated by the A-48 candidates focus on the structural transformations of the teaching profession, reinterpreting the educator as an epistemological shield:

a) *"Every algorithmic output must be interpreted through human scrutiny."*
b) *"The teacher's role is to stimulate critical thinking."*
c) *"To ensure the student's active and critical engagement with their performance."*

3.3 Comparative discussion: Algorithmic Efficiency vs. Human Responsibility

Interpreted through the lenses of *Achievement Goal Theory* and *Self-Determination Theory*, the workshop's findings highlight a central tension between algorithmic efficiency and pedagogical responsibility. The uncritical use of artificial intelligence

in physical education may, in fact, foster a more controlling and performance-oriented teaching environment, in which movement risks being recognised and valued primarily to the extent that it can be measured, processed and validated through automated metrics. In this context, data tends to shift from being an informative tool to a normative criterion, constraining the diversity of bodily experiences within pre-established standards of efficiency and correctness. The responses from the two groups, however, reveal different ways of addressing this risk. Students on master's degree programmes predominantly react by adopting a protective and polarised stance. In their arguments, the human educational relationship is often portrayed as intrinsically authentic, empathetic and capable of accessing the student's complexity, whilst the intervention of the machine is described as reductive, standardising and potentially alienating. The teacher's gaze thus takes on the value of a form of profound understanding of the student's inner world, sometimes described in almost absolute terms. This position reflects a strong sensitivity to the affective and relational dimensions of education and allows for a clear recognition of the risks of depersonalisation and the delegation of assessment associated with the use of technology. At the same time, the construction of a rigid dichotomy between human care and technological mediation may limit the ability to develop realistic strategies for managing the digital transformation. Rejecting technology, in fact, does not in itself guarantee that automated systems will not be introduced into educational practices; rather, it may leave future professionals lacking the conceptual and practical tools to challenge, reinterpret or limit the authority of such systems. Trainee teachers in class A-48 demonstrate a different approach. Their responses do not attribute to technology either an intrinsic educational value or a necessarily alienating function. The inclusivity, neutrality and effectiveness of the tool are not regarded as properties inherent in the device itself, but as outcomes dependent on the ways in which it is introduced, distributed and mediated within the teaching environment. AI is therefore accepted as a potential technical resource, but is denied autonomous evaluative authority. The main differences between the two stances are summarised in Table 1.

Analytical dimension	**Group 1:** **Master's degree students**	**Group 2:** **A-48 trainee teachers**

Perception of AI	Technology perceived predominantly as intrusive, reductive and potentially alienating	A potentially useful technical resource, but lacking independent pedagogical legitimacy
Conception of the educational relationship	Human relationships are regarded as authentic, irreplaceable and in stark contrast to technological simulation	The educational relationship is regarded as the context within which technology must be interpreted and regulated
Authority attributed to data	A tendency to reject algorithmic data when it conflicts with human judgement	Conditional acceptance of data, provided it is contextualised and professionally interpreted
The role of the teacher	Guardian of relational and emotional authenticity	Epistemological mediator between the student, the educational context and the algorithmic system
Prevailing strategy	Definition of defensive boundaries and limitation of technological intervention	Integration guided by *scaffolding*, mediation and *fading*
The concept of inclusion	Protecting pupils from the rigidity and standardisation of the system	Redesigning the use of the tool so that it is accessible to the whole class and does not lead to isolation
Key strength	High sensitivity to the risks of depersonalisation and relational impoverishment	Ability to integrate technical utility, pedagogical responsibility and critical engagement

Potential issues	Polarisation between human and machine, and a lack of practical strategies to manage their integration	Risk of overestimating the capacity of teaching mediation to compensate for the system's structural limitations

Table 1: *Comparison of the two groups' attitudes towards algorithmic authority*

The difference between the two groups cannot therefore be interpreted as a simple opposition between rejection and acceptance of AI. Rather, it concerns the way in which the relationship between professional judgement and algorithmic authority is conceived. Group 1 defends the irreducibility of the educational relationship through a clear separation between human and machine; Group 2, on the other hand, seeks to preserve the centrality of pedagogical judgement through a controlled, temporary and critically mediated integration of technology. In this second perspective, the figure of the 'Triadic Mediator' emerges. The teacher does not merely facilitate interaction between the student and technology, but assumes the role of epistemological mediator between algorithmic output and the complexity of the educational situation. Biometric, predictive or evaluative data is not rejected, but contextualised, interpreted and related to the pupil's history, circumstances and objectives. The teacher's professional role therefore consists in preventing the machine's output from being taken as a self-sufficient and decontextualised verdict. The sequence of *scaffolding*, mediation and *fading* proposed by Group 2 expresses this concept with particular clarity. The tool is initially used to support access and participation, subsequently transformed into a shared object of reflection, and finally phased out gradually, with the aim of fostering the student's autonomy and their participation in the network of human relationships. Technology thus takes on the character of a temporary pedagogical scaffold, whose legitimacy depends on its ability to support, rather than replace, the educational experience. These differences take on further significance when interpreted through *Achievement Goal Theory* and *Self-Determination Theory*. A prescriptive use of AI can reinforce a performance- and ego-oriented climate, in which the learner's value is subordinated to conformity with an external standard. At the same time, algorithmic outputs presented as non-negotiable prescriptions may undermine the student's autonomy, whilst standardised feedback may weaken their sense of competence, particularly when individual bodily modes of expression do not correspond to the models embedded in the system. The

replacement of human interaction with the interface may also reduce opportunities for interaction with the teacher and peers. Table 2 summarises the relationship between these risks, the different responses of the two groups and the pedagogical conditions proposed for the responsible use of AI.

Theoretical dimension	**Risk associated with uncritical use of AI**	**Predominant response from Group 1**	**Predominant response from Group 2**	**Proposed pedagogical condition**
Performance-oriented environment	Performance is assessed primarily through scores, comparisons and automated standards	Rejection of metrics as a legitimate criterion for educational assessment	Transformation of metrics into partial and contextualisable information	Subordinating algorithmic indicators to educational objectives and professional judgement
Ego-centred approach	A student's worth depends on conformity to an external performance model	Defence of the student's uniqueness and inner self	Using data to support individual progress rather than normative comparisons	Prioritising criteria of mastery, personal improvement and participation
Autonomy	The algorithmic output takes the form of a prescription or a non-negotiable verdict	Protection of autonomy through the exclusion or severe restriction of technology	Involving the student in reading and discussing the output	Making algorithmic criteria transparent and ensuring opportunities for choice, challenge and reinterpretation

Competence	Standardised feedback may devalue bodily expressions that do not conform to the models embedded in the system	Recognising effort, motivation and progress as observed by the teacher	Temporary use of feedback to support learning and build motor confidence	Use informative, adaptive and improvement-oriented feedback
Relationships	Interaction with the device may replace interaction with the teacher and peers	Reaffirmation of the irreplaceable nature of empathy and human presence	Integration of the device into the triadic relationship between teacher, student and technology	Avoid individualising and isolating uses, and incorporate the tool into shared activities
Motivational regulation	Automatic control may foster extrinsic motivation, conformity and dependence on scores	Contrast between authentic motivation and technological control	Gradual withdrawal of support to encourage self-regulation and autonomy	Apply a sequence of *scaffolding*, mediation and *fading*
The teacher's role	Possible delegation of professional judgement to the system	Defence of the exclusive primacy of human judgement	Assumption of the role of 'hermeneutic filter' and epistemological mediator	Ensuring that no algorithmic output is automatically transformed into a pedagogical decision

Table 2: *Interpretation of the results using Achievement Goal Theory and Self-Determination Theory*

From this perspective, the responses of the A-48 trainee teachers appear to reflect a more nuanced form of *Digital Affective Literacy*. This competence is not merely a willingness to adopt digital tools, but consists of the ability to simultaneously

recognise their technical utility, epistemological limitations and affective and relational implications. It requires a critical reading of algorithmic outputs, preventing them from acquiring immediate authority and making their use conditional upon the promotion of students' autonomy, competence and relational skills.The algorithm can thus be transformed from a potential mechanism of control into an object of shared interpretation. This transformation does not stem from the presumed objectivity of technology, but from the teacher's responsibility to select relevant data, make its limitations explicit and involve the student in its interpretation. Inclusion therefore does not lie in the machine itself, but in the pedagogical and relational framework within which it is used.

4. Conclusion

The empirical evidence gathered through the Ethical Dilemma Workshop protocol suggests that the moral dilemma methodology may represent an effective educational and heuristic tool within university sport science curricula and in the initial training programmes for teachers in the A-48 teaching qualification category. By creating a structured cognitive imbalance, this approach can foster the development of Digital Affective Literacy – understood as the ability to critically assess the affective, relational and ethical implications of educational technologies – thereby avoiding both the technophobic rejection of the 'Frankenstein Complex' and the uncritical, technophile embrace of classroom automation ('D-Generation').

The divergence that emerged between the two cohorts has significant institutional implications for the future of teacher training and university governance. Master's degree students (Group 1) adopted a protective and humanistic stance, strongly defending the emotional uniqueness of the educational relationship, but at times demonstrating a lesser ability to translate this position into operational strategies for technological integration. Conversely, the trainee teachers in class A-48 (Group 2), who are more exposed to the day-to-day complexities of school life, have shifted the paradigm from a defensive opposition between human and machine to a more realistic and generative framework: the teacher–pupil–robot Pedagogical Triad. This practical realism highlights a specific training need: university curricula must move beyond traditional digital literacy programmes, which often focus on technical execution, software management or administrative optimisation. As highlighted by international reviews on AI in physical education (Wang & Wang, 2024), it appears necessary to integrate applied ethics, critical digital sociology and embodied pedagogy into the core of teacher training. If educational policies allow algorithmic metrics – such as automated biomechanical tracking or predictive

learning analysis – to operate without adequate mediation, the discipline risks being reduced to a purely technical exercise (Danaher et al., 2017). Such reductionism can transform physical education into a climate of controlling, ego-oriented performance, hindering pupils' basic psychological needs in terms of autonomy, competence and relatedness (Deci & Ryan, 2000). To prevent this form of de-professionalisation of the teaching staff, education systems should recognise, at both the pedagogical and institutional levels, the principle of 'Technological Fading' and the role of the teacher as an irreplaceable 'hermeneutic filter'. Algorithmic data should never result in unmediated judgements or automatic marks, but should be used as temporary reflective aids. The integration of tools for critical reflection, such as a logbook and practices of bodily self-awareness, into the gym routine can help future physical education teachers to manage the intensity of technology. In this way, the 'algorithmic pulse' can remain an amplifier of human capabilities, serving the right to trial and error and to holistic wellbeing, whilst preserving the living richness of the body in motion and, ultimately, the authenticity of educational care (Tronto, 1993).

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