



Teacher education is a deeply pedagogical process rooted in values, ethics, and the social purpose of schooling. Globally, it sits at the core of educational quality and fairness, as research in comparative and international education demonstrates: the training of teachers directly influences students' learning chances, social inclusion, and the democratic aims of schools. Teachers are not simply transmitters of curricula, but active professionals whose convictions, reflective skills, and ability to manage the complexities of classroom life give shape and substance to the educational experience itself.

The pedagogical dimension of teacher education frames teaching as a relational, context-aware, and ethically grounded profession rather than just a set of procedural skills. From a research perspective, this demands robust research methodologies that can critically examine the complex realities of schools and inform evidence-based policies. Equally important is the connection between theory and practice, which helps to bridge the persistent gap between universities and schools.

The contributions gathered in this volume reflect the richness and diversity of experiences showcased during the ATEE Spring Conference 2024, held at the University of Bergamo from May 29 to June 1, 2024. The volume presents 70 selected papers out of more than 300 presented by researchers representing over 40 countries.

This broad spectrum of studies highlights promising directions that can inspire renewed inquiry and concrete proposals aimed at improving contemporary educational systems.

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ATEE Spring Conference 2024

## ATEE Spring Conference 2024

### Teacher education research in Europe: trends, challenges, practices and perspectives

May 29<sup>th</sup> – June 1<sup>st</sup>, 2024  
S. Agostino, Bergamo



Edited by Nicole Bianquin and Francesco Magni



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# BOOK OF PROCEEDINGS

## ATEE Spring Conference 2024

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trends, challenges, practices and perspectives

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**S. Agostino, 2 - Bergamo, Italy**

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# Table of contents

## Introduction

Francesco Magni, Nicole Bianquin, *Back to the Core: Rediscovering the Power of Teacher Education Research* 7

## Teacher education and pedagogical perspective in uncertain times: history, theory, policies and practices

Brigitta Bekesi, Eva Ulbrich, Tony Houghton, Jana Trgalova & Zsolt Lavicza, *The Reflected Double Tetrahedron Model: Project-based learning in teacher training* 11

Andrea Dessardo, «*The Italian didactic secret*». *Teachers' education according to Giuseppe Lombardo-Radice's thought* 19

Ylenia Falzone & Alessandra La Marca, *Lifelong Learning for Mongolia: Occupational Health & Safety project (3L4MHOS)* 25

Ylenia Falzone, Benedetta Miro & Elif Gülbay, *Teachers and Artificial Intelligence: Developing Digital Citizenship Skills* 31

Eleonora Florio, Tanu Biswas, Ilaria Castelli & Letizia Caso, *Bleak Pedagogy: A new term unveiled from research on Adultcentrism* 38

Deirdre Harvey & Maria Campbell, *Promoting and supporting learner resilience in the hospital school* 44

Aggelos Kavasakalis & Angeliki-Despoina Varouxi, *Reasons and beliefs of (Greek) teachers for participating in an MSc relevant to their profession* 54

Semih Kaygisiz & Hanife Akar, *Challenges Head to Train Culturally and Linguistically Responsive Teachers* 62

Sabina Leoncini, *Gender Stereotypes between School and Guidance: A Look at European Regulations and Vocational Education in Italy* 69

Silvia Maggiolini & Elena Zanfroni, *Emergency and people with intellectual disabilities. Teachers' training in the LEBEL proposal* 77

Cristina Miralles-Cardona, María C. Cardona-Moltó & José M. Esteve-Faubel, <i>Gender-responsive teaching: What strategies are teacher educators using for gender mainstreaming implementation?</i>	83
Benedetta Miro & Alessandra La Marca, <i>Service Learning in teacher education for soft skills development</i>	93
Georgia Natsiou & Melpomeni Tsitouridou, <i>Reflecting together online and offline: A systematic review on the types of peer reflection activities in teacher education</i>	102
Laura Parigi & Maria Elisabetta Cicognini, <i>Exploring the Transformative Impact of Teacher Professional Development on Student-Centered Assessment Approaches</i>	109
Francesca Pileggi, <i>Non-cognitive competence and critical-creative skills. A critical review of the current perspectives</i>	116
Francis J. Prescott-Pickup, <i>Finding a successful teacher identity: the role of the mentor-mentee relationship</i>	122
Nathanaili Valbona, <i>Analyzing poor academic performance of Albanian pupils in PISA</i>	129
Elena Zanfroni, <i>Problematic behaviours and classroom management: teachers' representations</i>	137

## Teaching and learning challenges and professional development

Monica Banzato, <i>Attitudes of Humanities Students and Aspiring Teachers Toward Quantitative Educational Research: An Introductory Study</i>	146
Ane Bergersen, <i>Global awareness and professional teacher competence through student mobility from Norway to Zambia</i>	152
Barbara Bocchi, Elena Bortolitti & Paola Damiani, <i>Informal Support Teacher Networks: training and self-training between Communities of Practice</i>	160
Barbara Bocchi, Elena Bortolitti, Paola Damiani, Giuseppe Filippo Dettori & Barbara Letteri, <i>The use of artificial intelligence (AI) in inclusive learning: an exploratory investigation</i>	167
Virginia Capriotti, <i>The Impact of Teaching and Learning Centers (TLCs) on Initial Teacher Education Programs in Italy</i>	176
Giorgia Coppola, <i>From Burnout toward Pedagogical Teacher Education. A communities perspective</i>	183
Alexandra Efstathiades, Christiane Gesierich, Christian Rudloff & Anna Kapsalis, <i>FOOTT PRINTTS: Advancing Quality Standards in Teacher Training</i>	189

Elena Gabbi, Ilaria ancillotti & Maria Ranieri, <i>Rethinking digital competences for teaching in the Post-Covid Era: A participatory approach</i>	197
Marco Giganti, <i>Emergency Remote Teaching and Teacher Training: The Role of Implicit Beliefs in Lasting Educational Change</i>	205
Hege Knudsmoen & Mette Birgitte Helleve, <i>Develop teachers' professional identity through global internship</i>	212
Charlotte Kohlloffel, <i>Opening the black box of writing instruction in times of change: insights from Italian secondary school teachers</i>	220
Regine Lehberger, <i>A learning-design to promote reflection and digital media skills for professionalisation of teacher students</i>	229
Marica Liotino, Taiwo Isaac Olatunji, Marianne Grace Araneta, & Monica Fedeli, <i>Reflective Practice in MOOCs: Exploring the Role of Tutors and Fostering Teacher Professional Development</i>	236
Cristina Lisimberty & Katia Montalbetti, <i>Guiding students from lower to upper secondary: a challenging and shared task for families and schools</i>	244
Sabrina Natali, <i>Rethinking teacher training in emotional education through sports</i>	256
Sara Nosari & Emanuela Guarcello, <i>The question of non-cognitive skills and the cheetah's coat perspective</i>	262
Alessandro Oro, Ira Vannini & Elisa Guasconi, <i>A formative assessment framework to develop primary school pre-service and in-service teachers' video analysis programs</i>	271
Federica Pelizzari & Simona Ferrari, <i>Exploring Coding and Educational Robotics in Primary Schools. Results and Perspectives from an Action Research Approach to Teaching Innovation</i>	278
Annfrid Rosey & Tove Leming, <i>Internationalization in Teacher Education: How can student practice in Southern Africa contribute to strengthening the professional work as teachers in Northern Norway?</i>	293
Stefano Spennati, <i>Educating on complexity at the time of transition</i>	300
Chiara Urbani, <i>Collaborative and epistemic advances: a study on teacher agency</i>	305
Gerd Wikan, <i>Global Teachers and Practicum in the Global South. A study of Long-Term Impact of International Practicum in Namibia</i>	312
Franco Zengaro & Sally A. Zengaro, <i>Teachers Reflect on Their Identities as Former Students and Future Teachers</i>	318
Sally A. Zengaro & Franco Zengaro, <i>Supporting Active Learning in Online Learning: Creating a Culture of Care</i>	326

## Inclusion in teaching and learning processes and school improvement

Luca Angelone & Federica Festa, <i>Cultivating Inclusive Education: A Collaborative Journey of Secondary School Teachers in Promoting Cognitive and Linguistic Accessibility through Picture Books and AAC</i>	333
Luca Ballestra Caffaratti, Cecilia Marchisio, Alessandro Monchietto, Alessandro Zanzo & Marco Secchia, <i>The Use of Artificial Intelligence in Secondary Schools: Experiences in Initial Teacher Training</i>	340
Daniele Bullegas & Martina Monteverde, <i>Theory into practice: exploring teacher perceptions about Early Intervention in the Italian school system</i>	346
Sara Cecchetti & Nicole Bianquin, <i>The work plan (Plan de Travail) as an educational device that addresses everyone's needs. A survey of teachers' and pupils' perspectives</i>	354
Federica Cilia, Jeanne Kruck, Marie-Hélène Plumet & Mélina Dell'armi, <i>Well-Being and Social Participation of Autism Spectrum Disorder Students at University: the impact of Atypie Friendly Inclusion Program</i>	362
Alice Di Leva & Federica Festa, <i>The Student Voice in teacher training, an investigation into the inclusiveness of European practices</i>	370
Ilaria Folci & Anna Monauni, <i>Differentiation in Preschool. Pedagogical Issues and Best Practices</i>	378
Mabel Giraldo & Fabio Sacchi, <i>Planning the transition to adulthood for students with disabilities: knowledge, perceptions, challenges from STRADE teacher training program</i>	384
Jørgen Klein, Ann Sylvi Larsen & Tove Grete Lie, <i>'People are people' - An investigation of long-term impacts of an international practicum</i>	393
Daniela Maccario & Annamaria Garibaldi, <i>Helping to learn. What are good practices of educational intervention? Structure and preliminary results of a participatory research study</i>	400
Cecilia Marchisio & Alessandro Monchietto, <i>Improving Inclusive Education: The Turin Model of Collaboration between Schools, Universities and Communities</i>	405
Francesca Placanica, Rosa Sgambelluri & Alessandra Priore, <i>Life Designing and inclusive prospects in Italian schools</i>	411
Ilaria Ravasi, <i>Preventing early school leaving. Perspectives of intervention research between school and territory</i>	417

## Digital innovation and artificial intelligence (AI): schools, teachers and students between real and virtual world

Valentina Berardinetti, Michele Ciletti, Andreana Lavanga & Giusi Antonia Toto, <i>Digital Innovation and Artificial Intelligence in Museum Education: perspectives, debates and psychological implications</i>	424
Roxana-Madalina Cristea, <i>Investigating the Relationships between In-service Teachers' Technology Pedagogy Content Knowledge and Virtual Learning Environment Success</i>	432
Francesca De Vitis & Marcello Tempesta, <i>Touch in small hands. Responding to the challenges of technology in childhood 0-6</i>	439
Silvia Larghi & Edoardo Datteri, <i>Programming errors and the attribution of intentionality to educational robots</i>	445
Juliana Elisa Raffaghelli, Francesca Crudele, Laura Foschi & Graziano Cecchinato, <i>Let me introduce open education... Facilitating Prospective teachers' understanding of open Education through an ai-based tool</i>	453
Alice Roffi, <i>Digital technologies and collaborative activities for science teaching in the upper secondary school: a qualitative study on teacher's perspective</i>	464
Alice Roffi, Gabriele Biagini, Stefano Cuomo & Maria Ranieri, <i>Development of teachers' competences on Learning Design and on supporting student's Self-Regulated Learning in the lower secondary school</i>	472
Marcello Tempesta, <i>Teacher education and motivation culture</i>	481

## School & work and the role of teachers in Vocational Education and Training

Maria Concetta Carruba, Mariateresa Cairo & Magdalena Tsoneva, <i>Comparative Analysis of Inclusive Education Practices in Italy and Bulgaria: Reflections from the Erasmus Plus ASuMIE Project</i>	488
Valerio Ferrero, <i>Teacher Education as a Game Changer: Non-Traditional Factors of Inequality and the Role of Teachers for Equity</i>	494
Anna Granata & Valerio Ferrero, <i>Beyond Patriarchy: Teaching Profession, Gender Issues and Teacher Education in Italy</i>	502
Paola Zini & Dalila Raccagni, <i>Teacher training and well-being best practices: the 3H project</i>	508



## POSTER SESSION

Antinea Ambretti, Chiara Gamberini & Arianna Fogliata, *Integration of the Sincrony method in physical education during school age in the digital era* 517

Francesca Finestrone, *Music as an inclusive tool for promoting a sustainable Culture* 523

Francesca Finestrone, Francesco Pio Savino, Leonardo Palmisano & Giusi Antonia Toto, *Nature Connection and Music in Early Education: Insights from the CNS-ch Scale and TEAL Methods* 532

Paula Matijašević, Bruno Matijašević, Ana Žnidarec Čučković & Vesna Babić, *Kinesiologists' and Coaches' Self-Assessment of Their Pedagogical Competences* 538

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# The question of non-cognitive skills and the “cheetah’s coat” perspective

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## Abstract

The most recent scientific debates on teaching and learning challenges grant much attention to training non-cognitive skills, as they are considered more functional than cognitive ones for both effective daily-life management and academic and professional success. However, current theories about non-cognitive skills seem to have failed to recognize how the cognitive/non-cognitive relationship is actually configured. A different configuration of the cognitive/non cognitive relationship is thus needed, one that overcomes the conceptual limits and formative partiality of previous models. This paper proposes a new way of representing this configuration, significantly and effectively conveyed by the pattern of a cheetah’s coat, and a new training approach consistent with this configuration.

**Keywords:** social challenges; teacher education; non-cognitive skills; educational practice; pretext.

## 1. The current pedagogical framework

The most recent scientific debate on teaching and learning challenges has paid a great deal of attention to training non-cognitive skills. This focus extends back to the idea that human beings have a 'dual' character (Iacono, 2004). The duality in question does not follow a binary logic and is not simply an indication of flexibility (Sennett, 1998). Rather, it indicates the co-presence and convergence of two functions, one cognitive and the other non-cognitive. Each function acts in a specific way. The cognitive function 'represents the functional aspect' and 'intervenes in subject-world interaction' by knowing, calculating, re-formulating, and planning (Albanese et al., 2003); the non-cognitive function expresses an 'embedded knowledge that arises not from calculation but from the tuning-sharing of subjective experience' (Damiano, 2009).

These distinct but not separable functions look at and question reality from two different positions (Giammusso, 2005). The two positions differ in terms of the questions they ask and the type of answers they seek (Authors, 2024a). For example, the cognitive position asks 'how does it work?' and responds by reconstructing the process of functioning, allowing people to intervene in a way that adjusts, modifies or enhances. The non-cognitive position asks 'what meaning does this modification have?' and responds by hypothesizing and deciding on the direction of meaning to be given to the modification.

They result in approaches that specify human beings' way of being in the world and which condition (and facilitate) the possibility of intervening. The cognitive position is simultaneously 'outside' and 'facing' reality: as such, it is a position characterized by an impartial and emotionally indifferent approach which opens up a field of attention which is interested and directed towards investigating (Plessner, 2007). The non-cognitive position, on the other hand, operates from 'inside' reality and seeks a unitary vision 'from above': it is a position marked by an immanent and critical approach that entails the partial character of participation and subjectivity (Giammusso, 2005).

The duality bond not only indicates the co-presence and convergence of these cognitive and non-cognitive functions (Authors, 2024a) but also and above implies the complementarity of the two functions. It is this complementarity that forms the necessary foundation for the rational and value-based sustainability of any change proposed by human beings, either as individuals or as collectivities.

However, although the two functions of humans' dual character are linked by a bond of duality, they do not automatically operate together (Paoletti, 2004). The complementarity of these functions is not a given: operating in a complementary way requires cooperation and must be intentionally chosen, intentionally sought out, and intentionally maintained.

This cooperation has become increasingly difficult. The development of the cognitive function, stimulated in part by the use of new technologies, and the ever-increasing recognition of its important role in humankind's progress have severely compromised the balance and complementarity of human duality, unbalancing research and putting the emphasis on training in cognitive skills by virtue of their being productive and performance-oriented.

To pursue truly humanizing progress (Morin, 2020), however, requires going back to the non-cognitive skills approach of human duality. Training in a non-cognitive skills approach thus represents a strategic focus for educating the next generations.

## 2. Toward a different configuration

However, there is one outstanding issue this focus on training non-cognitive skills must address before it can take the form of educational action: what does non-cognitive mean?

The issue is outstanding because the idea of non-cognitive has a broad semantic field. Considering documents on non-cognitive competences or projects aimed at non-cognitive aspects, there are multiple different meanings of cognitive at play. It is therefore necessary to take into account a theoretical approximation that has an inevitable practical consequence: educational disorientation.

The endeavour of resolving this theoretical approximation thus meets a practical need: if the non-cognitive field is not focused and centred, the educational project to train such skills runs the risk of being inadequate or, even worse, of acting on a false non-cognitive.

Current attention to non-cognitive aspects reflects both the recognition that a non-cognitive approach to the world is important and the fact that teaching has need of educational components that truly serve to inculcate such an approach.

This attention has led to the development of various theories proposing a definition of non-cognitive skills and hypothesising how they might be developed early, among young people in school. Theories such as life skills, soft skills, character skills, social-emotional skills, EntreComp, LifeComp, GreenComp, DigComp, etc. all share this aim (Boffo & Palumbo, 2018; Patera, 2019; Chiosso, Poggi & Vittadini, 2021).

Although this focus has made it possible to concentrate on the meanings and functions of non-cognitive competences, the various theories do not seem to have fully grasped or faithfully recognized the value of the specific skills that distinguish the non-cognitive domain from the cognitive one. Non-cognitive competences are always considered secondary to cognitive ones, as the cognitive arena continues to be pre-eminent and privileged (Authors, 2024a).

The assumption underpinning this paper is that this approximation derives from a problem of conceptual configuration. That is, when we think of the qualities and properties of the skills needed to exercise of humans' dual character, we think of them in relation to cognitive skills. Since it is not easy to demarcate and distinguish the qualities and properties of the skills needed to take a critical-immanent stance (value-based, participative, and subjective), we use the "differences method" (Mathieu, 1998) to define them and thus end up defining them by opposition as the set of skills that are not cognitive.

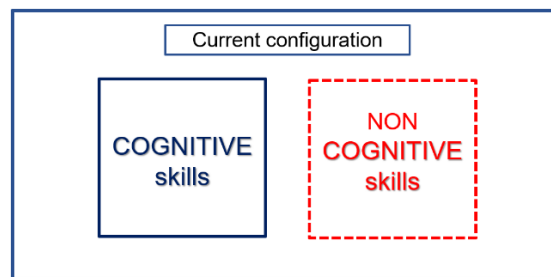


Figure 1: The current configuration for cognitive/non-cognitive skills.

On the basis of this difference, several theories have sought to define these skills as non-cognitive in relation to cognitive skills. And yet none has been able to fully represent the meaning of non-cognitive skills; above all, none of these theories has been able to represent their specificity and the relationship between the two kinds of skills.

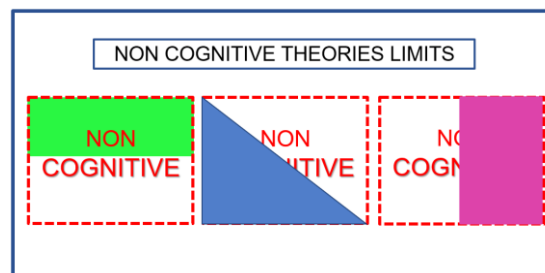


Figure 2: The limits of non-cognitive theories.

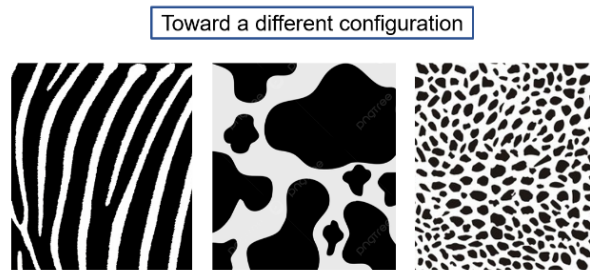
This is not an error as such, but rather a matter of viewpoint bias. Reading human duality through the "filter" of cognitive/non-cognitive offers an incomplete image of our duality. It is not simply a matter of widening the view and involving non-cognitive skills more fully and completely, however.

Nor is it a matter of interpreting complementarity by recognizing the two functions as equal. Rather, the step we need to take is to rethink the order of complementarity and the consequent bond of human duplicity.

The challenge, therefore, is to recognize the skills in question not only through a “negative” framing (i.e. as non-cognitive) that identifies them in opposition to the positive framing of cognitive competences but to instead identify the specific characteristics and qualities of these skills so as to effectively foster the duality of humankind, the only quality that is capable of giving rise to humanizing progress.

We have engaged this challenge by searching for an image that could best render the configuration of the duality of human character, the diversity of its functions and the relationship between these functions. Numerous images were considered, but discarded every time because they conveyed dualism. This is key because duality does not consist in actual opposition between independent elements, but rather in an original relationship between elements which exist solely in relation to each other.

At a certain point, the research also tried out different animal skins.



*Figure 3: A different configuration for cognitive/non-cognitive skills.*

The zebra pattern was discarded. It shows two kinds of skills, but gives no indication of the relationship between them. Its stripes reproduce the fallacy of thinking of human beings' dual character as characterized by parallel functions that, while specific (black and white), do not enter into any relationship with each other.

The research then turned to a cow coat pattern. This image suggests two types of skills related to each other, but there is no order to the relationship; it is random. The dual character can be represented by different-colored spots. Because of the irregular size of the spots, however, this pattern cannot offer an adequate representation of the relationship between the two functions comprising human duality.

Finally, we considered the pattern of a cheetah's coat (Authors, 2024a). Cheetahs have a spotted coat made up of an underlying tone, usually light yellow-beige, long with small round, black, and brown spots. It would not be a cheetah coat without the spots. And the spots are only perceptible because they rest on a different-colored base. Acting as a background, the base encompasses the individual spots in a way that allows them to stand out. By virtue of encompassing the spots, the base is also what unites the spots and holds them together.

A cheetah coat pattern is the combination of base and spots. Their amalgamation is governed by a relationship that specifies the parts: each part (the base and the spots) has a function. It would be impossible to either reverse them or separate them from each other.

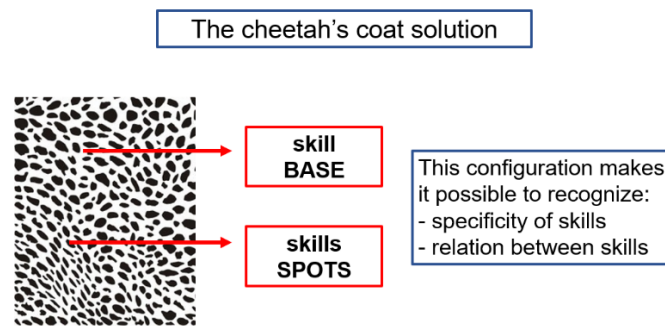


Figure 4: The cheetah's coat solution.

The "cheetah coat" configuration of the duality of human skills assigns each set of skills its own unique and non-contingent position. Human duality does not act through the parallel – and distinct – management of different functions. The configuration that represents the uniqueness of human skills is not cognitive and non-cognitive positioned next to each other, but both dimensions shown as rooted in a shared, sensitive background which grants them direction. We will focus here on the skill-base.

### 3. "Cheetah coat" skills

Framed in this "cheetah coat" perspective, the skill-base has three basic qualities: sensitivity, reflexivity, and ethics. First, the skill-base is what allows human beings to come into contact with experiences through their individual *sensitivity* (Arendt, 2003, 2017). We do not know and analyze our experiences mainly or exclusively through logical-rational reasoning, that is, by describing them, taking them apart and putting them back together to assess their costs, benefits, and margins of effectiveness. Experience is instead understood first and foremost in terms of its sentimental aspects, subjectively perceived through our perception of the degree to which we genuinely agree or disagree with (or are even disgusted by) what is happening. Humans understand an experience through the motivations or aspirations that make it valuable or indifferent to them, the dreams and plans they deem to be indispensable and for which they feel it is absolutely worth investing, far beyond any reason-based calculation of effectiveness.

Within this "sensitive" terrain, the skill-base also grants human beings the ability to "think" about experience, that is, to investigate it and sound it out by means of their individual *reflexivity* (Arendt, 2009). Experience is thus sifted, called into doubt and questioned thanks to all those "heuristic" questions (Mortari, 2020) that do not explain reality or provide definitive solutions to its problems but rather nourish it and broaden our reflection on the grand themes that make existence human: justice, beauty, goodness, faith, trust, death, etc.

Through this reflection, people examine their own existence and life worlds to plumb their meaning: is mine a just existence and a just world? Is it beautiful? Good? Does it generate bonds of trust and hope? Etc. Clearly, such examination entails evaluating existence and the world itself in terms of their value and the transformative effort necessary to expand and nurture them. It is precisely in this sense that, finally, the skill-base gives human beings the ability to orient themselves and their experiences in the direction of meaning, thanks to our ability to decide and act along the axes of ethics-values. Indeed, thanks to *ethics* (Freire, 2018; Morin, 2021), approaching existence through our individual sensitivity and examining it through our reflexivity leads, step by step, towards horizons and goals capable of protecting and fostering the dignity and realization of the self, others, and the world at large.

The skill-base expresses these three qualities (sensitivity, reflexivity, and ethics) in the form of specific *skills* (*action competences*) through which the skill-base intervenes in a given experience to understand, manage, and transform it. The current frameworks used to conceptualize non-cognitive skills are so functionalistic, so dominated by concerns of efficiency and adaptiveness,

that they completely overlook the set of skills that make up the skill-base (Authors, 2024a): the Approaching Skill, Questioning Skill, Nuances-Creating Skill, and Re-enchanting Skill (Figure 5).



Figure 5: The skills comprising the skill-base.

The *Approaching Skill* is an action capable of reducing distances due to a “sentimental” approach, being in touch with others in a deep and nourishing way and thus exploring the uniqueness of people and situations with attention and interest (Stein, 2016; Weil, 2008; Bollnow, 2009). The *Questioning Skill* allows people to ask unanswerable questions about complex aspects of existence, about beauty, justice, the good, etc., and thereby expand the space of experience to be examined and deepen the immediacy of the experience. This skill allows humans to be able to approach the experience first by questioning, by reconstructing the hidden aspects of it and searching for some probable but non-definitive answers (Dolci, 2018; Monti, 2019; Mortari, 2020). Helped by the previous two skills, the *Nuances Creating Skill* allows people to differentiate among the elements of reality (whether they are people, feelings, assignments, objects, places, animals, etc.) to such an extent as to render them non-overlapping and non-interchangeable (Besnier, 2013; Heller, 2016; Mathieu, 1998). This is important in our hyper-accelerated world that tends to reduce all details to a superficial overview. Thanks to the operation of these first three skills, the *Re-enchanting Skill* relaunches people in a new action capable of re-enchanting the world, that is, imagining and making the world in a renewed way, with its problematic aspects (environmental, social, economic, and technological) transformed. This is a very important skill to train in new generations because it gives them the ability to engage in demanding, long-term projects of change, the ability to go beyond existing reality, transcend short-term objectives and work not only for some immediately useful aim but especially for values that can improve the quality of human life and, may be, identify a way to save the planet from ruin.

#### 4. 3RPLAY. Reflective educational practice

Based on the “cheetah coat” perspective, we formulated a group training that is consistent with the reconstructed theoretical perspective and effective in educating students in the skills making up the skill-base. Named “3RPLAY”, this training is a reflective-educational practice that leads participants to exercise their reflection, understanding and judgment skills. Indeed, 3RPLAY activities target the habit of asking questions, understanding the situation, and developing an answer in relation to the educational problems presented during the training process.

It thus encompasses the three Rs (3R) of reflecting, researching, and replying. The first “R”, *Reflecting*, corresponds to the skill of asking questions about the educational problem being presented (e.g. rule management, relationship with parents or within groups, success and failure in sports, school, etc.). In 3RPLAY training, the group does not immediately work to solve the problem

but rather examines the problem to broaden and deepen their understanding of it. The second "R", *researching*, refers to specifically this skill of investigating the situation to clarify the known elements (who is involved in the problem? What did he/she do? How old is he/she? What role does he/she have? etc.) and focus on the elements that are not yet explicit or that the group needs to discuss to identify possible ways of managing the problem (what could be the objectives? What are the motivations justifying events or behaviors? etc.). Finally, the third "R", *replying*, is the competence of formulating an answer with respect to the problem under consideration. The answer is worked out collectively, as a group, with each person contributing their reflections and skills, and it remains provisional and open to review.

The 3RPLAY training is addressed to groups of education and health professionals, teachers, students, and citizens with the aim of increasing their skills in *problematizing* situations that present educational problems, situations that might arise in either daily life or professional contexts. To achieve this, the 3RPLAY training uses the methodological device of the *pretext*. The pretexts in this case are open-ended, pending situations that are interesting for the people involved. Requires unanswered questions and does not allow for linear and immediate answers. Here we can see two different examples of pretexts. The first (Figure 2) is related to the topic of rules in the experience of football coaches while the second (Figure 3) has to do with a wider topic of human existence.

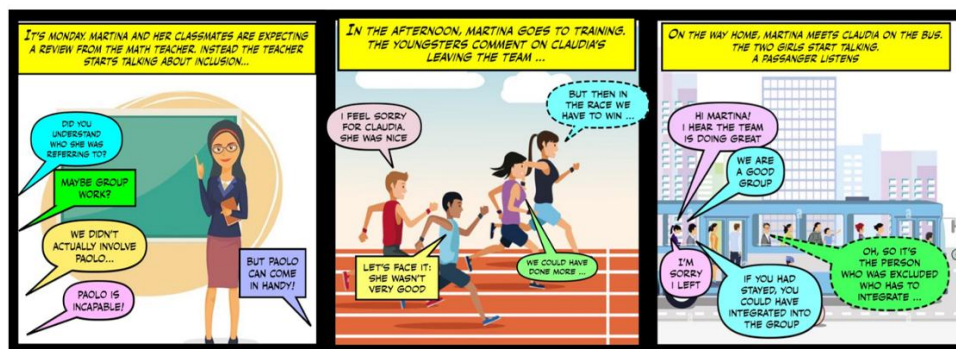


Figure 6: Pretext regarding inclusion.



Figure 7: Pretext regarding a wider topic of human existence.

As you can see by looking at the images, the pretexts are presented in the form of a comic strip (Girotti, 2016) and they stage a problem without describing all its details or suggesting solutions. Indeed, the main aim behind the design of these pretexts is to raise questions about the situation being presented and prompt a group discussion, allowing each participant to share his or her own point of view on the problem. The pretexts thereby seek to lead participants in exercising all the skill-base competences: the Approaching Skill, Questioning Skill, Nuances-Creating Skill, and Re-enchanting Skill. They investigate the situation under examination by approaching the problem on the basis of their own sensitivity, questioning it to understand its logic, characteristics, and

motivations and thus recognize the different nuances involved. By reflecting together with others, they can imagine possible ways to move toward a positive and constructive transformation. In 3RPLAY training, of all the skills comprising the skill-base, the key one to be stimulated is undoubtedly the Questioning Skill. While we cannot explore this skill in depth here, we can note that it allows us to approach experience by posing a wide range of “reasonable questions to ask” (Thom, 2022). Such questions correspond to the different universal categories of the human spirit based on the Aristotelian lesson and have been identified through a phenomenological-hermeneutic analysis (Bagnasco, Ghirotto & Sasso, 2015; Lieblich, Tuval-Mashiach & Zilber, 1998) of about 2,000 questions collected from previous 3RPLAY training courses (with sports and school professionals). The types of questions can be divided into five macro types. We use the first and second question macro type to try to understand the characteristics and meaning of the situation, for example who, what, when, how, how much, etc. (descriptive and interpretive questions). Using the second macro type, we try to understand how to act and manage the situation in question (operational questions). The third macro type is used to understand the reasons underpinning the situations and the aims that justify our actions (causal questions). Using the fourth macro type, we try to understand how the situation might be changed, that is, the different hypotheses of transformation (hypothetical questions).

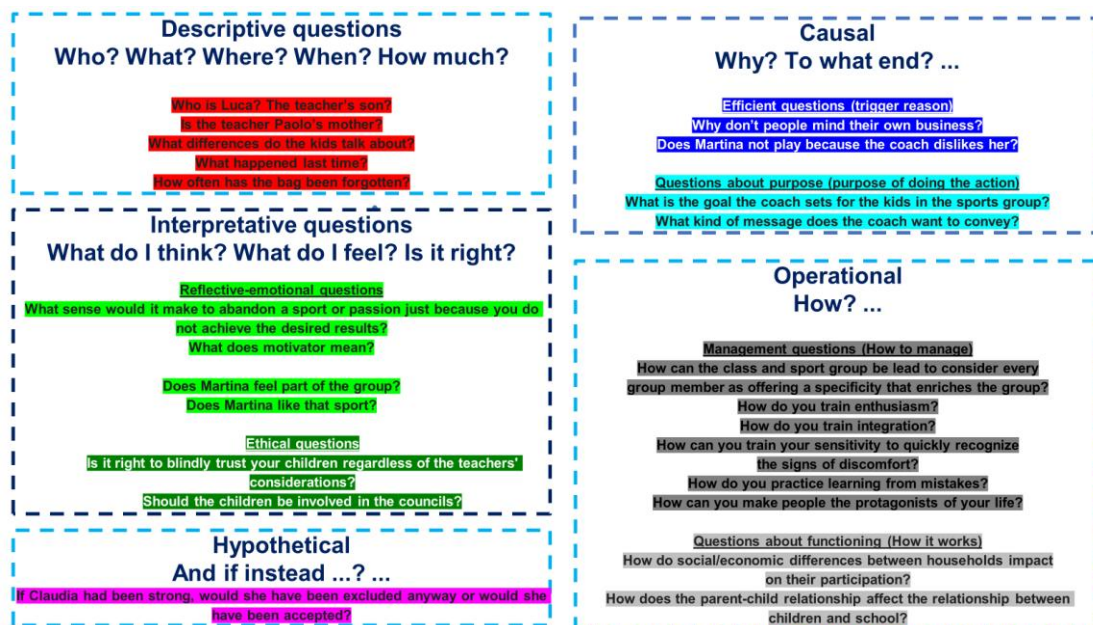


Figure 8: Types of questions.

The Questioning Skill is also central to 3RPLAY training because it is the main competence we assess to gauge participants' learning outcomes. Indeed, for 3RPLAY training evaluation plan course participants are asked to write down, individually, the questions each pretext elicits for them. The individual questions are then read in groups and discussed among participants to identify common points of interest and strategies for resolving them.

For purposes of evaluation, individual questions are collected in a personal portfolio containing the questions pretexts, each person asked in relation to each pretext presented during the session (sessions can vary from 3 to 6 or more). The portfolio is returned to each participant at the last session, where they engage in a self-assessment of their problematizing competence (ability to ask questions in the face of a problematic situation) and how it might have increased during the training. In view of the evaluation of the training's educational outcomes carried out so far, we can confidently state that all those who regularly participated in the training activities increased their problematizing competence (for example, broadening the types of questions used to understand the problematic situation). Moreover, participants self-assessment indicates that this competence is fundamental to analyzing and managing everyday and professional educational problems (Authors, 2024b).

## 5. Conclusions

In the face of change that continually transcends what seemed to be limits and thus creates new fields of action, paying attention to so-called non-cognitive skills is an act of responsibility. Indeed, these are the only human skills capable of directing change by maintaining and regenerating a direction of human meaning. This act of responsibility is, first and foremost, an act of recognizing the uniquely human ability to rethink experience according to an order of meaning: this recognition does not consist in merely recording what is, but rather in proposing a perspective on which the very future of humanity as a community of destiny depends. At the same time, it is an act by which we commit oneself to developing this ability: any perspective that does not work to translate itself into an action aimed at rendering that perspective a concrete reality would be meaningless.

As an expression of such attention to so-called non-cognitive skills, the cheetah coat perspective and 3RPlay model are presented as an act of responsibility: they establish the conditions for granting a direction of meaning and propose a methodology for carrying it out.

### Author contribution statement

Author 1 and Author 2 conceived the idea presented here. Author 1 developed sections 1 and 2. Author 2 developed sections 3 and 4. Both authors wrote the conclusion.

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