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Embodied Education and Teacher University Training. Experiential Learning and Embodied Metaphorical Creativity: towards a professional development model. A Methodological Reflection.

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Abstract: The paper develops the theme of the professional development of university teachers starting from the scientific approach of *Embodied Education* with particular reference to the paradigm of *Embodied Cognition* and the construct of creativity to promote professinal skills. The interest stems from the recognition that creativity is an essential skill to support a renewed quality of teaching in the academic context and the *Radical Embodied Cognitive Science* (RECS), from the point of view of the 4E cognition and *Embodied Creativity* could offer a framework for future developments. A methodological reflection is proposed on the development of an Integrated Experiential Training model based on *Experiential Learning* and *Embodied Metaphorical Creativity* that uses dynamic systems (body-mind-environment-emotions) that could provide new insights into the development of creative skills in university teachers and innovative educational practices in academia. This article does not intend to prescribe actions for educators. We invite readers to consider the content as an innovative pedagogical approach, oriented towards a possible remodeling of training.

Keywords: *Embodied Cognition; Embodied Metaphorical Creativity; Experiential Learning*; University Teacher Training, Professional Development

1. The professional development of university teachers and creative skills

In recent years, universities have found themselves having to deal with ever-new and constantly changing situations and, through the research field of *Faculty Development*, have to prepare actions to improve teaching quality and actions aimed at promoting the professional development of university teachers in their multiple roles (Sugrue, et al 2018). Even in the Italian context, there is a strong focus on the theme of the continuous development of education professionals in the university environment, with growing experiences of training and research in the field (Felisatti, Serbati, 2017; Perla, Vinci, 2021).

Promoting significant learning by placing the student and his learning at the center of the training processes means equipping teachers with skills useful for supsupporting an innovative and effective teaching action. From this perspective, training that allows achieving a highly professional profile that leads to redefining the way of being a teacher in teaching becomes fundamental (Felisatti, 2017). The quality of teachers' pedagogical preparation must be taken as a primary objective for the change and continuous improvement of skills (EHEA, 2015).

Considered an essential skill, creativity represents one of the most important learning objectives for the 21st century (WEF, 2020). Its promotion must be included

among the long-term objectives of the university education plan (Duderstadt, 2000) and must be developed in teachers to prepare future generations (Shaheen 2010).

Creativity is defined as a skill that allows one to produce a new, original and unexpected idea, but also appropriate, useful and consistent with the task (Runco, Jaeger, 2012). Thinking creatively represents the ability to generate ideas in the constant search for new optimal solutions, to persevere in overcoming difficulties, to connect new associations with existing ideas or concepts.

In the context of problem solving, whatever their nature, although divergent thinking is often associated exclusively with creativity, it is important to recognize that convergent thinking is also fundamental to *problem solving* skills (Guilford, 1950).

In recent years, we have witnessed the proposal of new active, participatory and situated learning methodologies in which the individual takes on a fundamental role becoming responsible for the construction of his own knowledge taking into account aspects such as involvement, participation, creativity, motivation, important factors for individual growth and change.

Through which methodologies can we address and study the topic of creativity in the professional development of university teachers? How can we help university teachers develop creative and critical and creative thinking skills that allow them to learn to move in constantly changing work scenarios? Through which methodologies can university teachers build necessary reflective skills regarding their roles, personal identity and professional identity?

Given the current lack of evidence-based holistic, embodied and interactive interventions to cultivate creative potential, the contribution starts from the *Embodied Education* approach in particular reference to the *Embodied Cognition* paradigm as an experiential learning setting (Kolb, 1954) to explore a teaching model that allows to incentivize and access people's creative potential (Richard, et al. 2021). Hence, the need to offer learning paths focused on an integrated experiential training model based on the *Experiential Learning* (*EL*) and *Embodied Metaphorical Creativity* approach aimed at promoting creative, critical and creative thinking skills necessary for the professional development of university teachers.

2. *Embodied Cognition – Creativity Embodied - Embodied Metaphorical Creativity*

The idea that cognition can be *radically embodied* has been at the center of the debate in cognitive sciences since the beginning of the 21st century (Thompson, Varela, 2001; Chemero, 2009). Starting from the assumption of EC, which theorizes a complementary relationship between action and perception and how action influences perception and cognition, RECS argues that cognition is understood as a dynamic system that includes brain, body and world (Thompson, Varela, 2001) and therefore is not entirely in the head, but also involves the body and aspects of the environment (Chemero, 2009).

The concept of *RECS* is often described in terms of *4E cognition* (embodied, embedded, enactive, and extended cognition) which explains how the mind is not located exclusively in the brain, but also involves the body and its being situated in the environment (Menary, 2010; Newen, et al. 2018).

Despite the potential of *RECS* to provide new insights into how people acquire creative abilities, the field of creativity research has not paid much attention to the role of the body or its physical context (Malinin, 2016).

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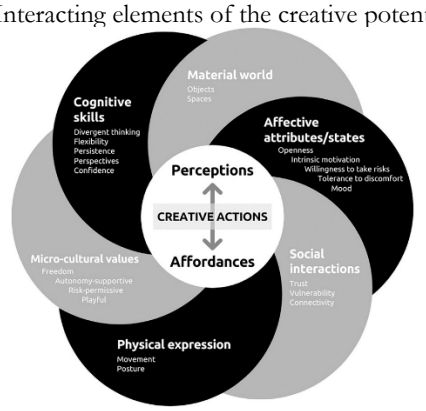
Embodiment refers to how the body contributes to cognitive processes based on the premise that the brain and body, having evolved together, are intrinsically coupled considering the brain as part of a larger cognitive system that includes the nervous system and the sensorimotor capacities of the *body*. Perception is fundamental to cognition as the body schema shapes not only perception but also cognition as a whole and abstract concepts (Gallagher, 2015).

There is a growing body of experimental studies in the literature highlighting the potential value of unstructured, interactive or spontaneous movements (dance, body postures, manipulation, drawing, painting, etc.) with a positive impact on creative performance.

Almost all studies in a systematic review found that *embodied movement* significantly improved creativity (90%) with no study showing a negative effect and, based on the evaluation of the reviewed studies, several common themes emerged such as: the relevance of symbolic metaphors and distributed embodied cognitions, the selection of the embodied modality, specific measurement considerations, as well as the importance of implementing real and inactive control conditions in *embodied creativity* research. (Frith, et al. 2020).

A review of theories on *embodied creativity* highlights that there are two macro-areas associated with an increased creative potential: one concerns environmental elements, the other concerns individual factors (Richard, et al. 2021). Following the taxonomy proposed in the study by Corazza and Glăveanu (2020), the "embodied" creative potential of an individual has to do with different interacting elements, which give life to a creative system that allows and supports creative actions (Fig. 1).

Figura 1. Interacting elements of the creative potential system.



Embodied creativity is an emerging area of research, generally organized into two strands. The first strand involves the experimental examination of embodied metaphors associated with creative thinking with the aim of assessing the effects of metaphor enactment through specific bodily movements on ideational productivity and understanding the creative potential of the general population (Leung et al., 2012; Kuo, Yeh, 2016). The second strand examines creativity from a dynamic systems perspective as an emergent phenomenon that is distributed across people and artifacts of the material environment to understand creative competences by studying creative people, both professionally and historically. For example, musical creativity is examined as a system of emergent and dynamic interactions between musicians and

instruments (van der Schyff et al., 2018). While the *creative metaphor approach* equates creativity with the productivity of divergent and convergent thinking, the systems approach addresses the entire creative process, from problem identification and definition to implementation.

Mental concepts, such as metaphors, are directly tied to bodily experiences (Lakoff, Johnson, 1980). *Embodied metaphors* describe how literal and abstract meanings are intertwined, such that abstract concepts are metaphorically grounded in sensorimotor experiences. Experimental studies on models of *Embodied Metaphorical Cognition* have focused on how movement can enact embodied metaphors to enhance divergent and convergent thinking (Stanciu, 2015; Frith et al., 2020).

Despite the limited number of experimental studies, albeit with small sample sizes and poor replicability, two recent reviews found that *embodied creativity metaphors* did indeed enhance divergent and convergent ideation (Stanciu, 2015; Frith et al., 2020).

All humans have the capacity to be creative. Although it is considered a skill that can be taught (Scott et al., 2004; Ward, Kolomyts, 2010), specific pedagogical practices that lead to creativity have not been identified (Sawyer, 2018).

It is necessary to identify multimodal training interventions that favor the activation of creative processes that, by actively involving the body, support learning by doing, observing, creating, acting and interacting with oneself, with others and with the environment.

3. Towards a professional development model. A methodological reflection

The duality between critical and creative thinking suggests a conceptual framework to support its development through integrated training proposals that refers to two approaches: training for *embodied creativity* that is based on more action-oriented programs and processes facilitating experiences (Byrge, Tang, 2015; Kangas, 2010, Karakelle, 2009, Karwowski, Soszynski, 2008) and training for reflective creativity, which focuses on developing the *understanding* of processes or theories (Byrge and Hansen, 2013; McKay, et al. 2024).

A methodological reflection is proposed on the development of an integrated training model that can contribute to professional development through an action-oriented and physically located perspective, in formal and informal learning environments, through *Embodied Metaphorical Creativity*, the *Experiential Learning* (*EL*) approach and metacognitive learning aimed at developing the creative and *problem solving* skills of university teachers.

In terms of procedures, the integrated experiential training model is oriented towards the definition of a flexible, dynamic, systemic methodological protocol, sensitive to appropriate repositioning in step with changes and that allows specific, situated, generative solutions capable of connecting and entering into dialogue with more general discoveries. It is a design of a potentially enabling and generative model with the aim of promoting learning experiences located in subjectivity.

The supported hypothesis is to create integrated experiential training interventions whose conception can be summarized through embodied metaphors, reflexivity, metacognition, self-regulation, self-learning, self-training, self-empowerment.

A large literature converges in recognizing that acquiring methodological and process skills related to the use of experiential methods in training contexts provides participants with the opportunity to: intercept, cultivate and produce *embodied* and

symbolic modalities; have the possibility of experiencing first-hand, in a protected context and through the involvement of the bodily dimension, an embodied and simulative experience of challenging situations or disorienting events that can also be relocated to the professional sphere (Fabbri, Romano, 2017); analyze one's own experiences and the way in which these have contributed to influencing and determining one's actions and functionings and develop awareness about one's own *agency* to change the realities they inhabit.

The reflective and awareness-raising process through the mediation of the body (generator of information) promotes self-awareness, the development of personal identity, the perception of oneself as the promoter of choices and changes, being an *artist* of one's own life. (Rosa, 2022).

Experiential Learning is a learning model based on experience (cognitive, emotional, sensorial), action and reflection, allowing the development of *problem solving* skills also through creative ability (Kolb, 1984). It is a process that is based on the transformation of real experience into knowledge, constituting the new starting point for further evolutions.

In adult education, a fundamental key to promoting personal and professional growth is the valorization of experiential learning through metaphors and the consequent reflections related to acting in a situation.

The integrated training model, through *Embodied Metaphorical Creativity*, provides for the proposal of situated experiences lived through the body, with the body (as a learning environment), in relation to other bodies in a learning context (indoor or outdoor) within which they alternate with moments lived with a plurality of analogical languages (music, movement, manual skills, etc.), both individual and collective reflective moments (crucial elements of the training model) and metacognitive self-narration to facilitate learning, its consolidation and self-learning and self-empowerment. The self-training and self-empowerment approach, based on Bandura's (1977) self-efficacy theory, supports university teachers to be *agents of change* to the extent that they can be equipped by increasing self-awareness and self-regulation.

Experiential metaphors are exquisitely practical activities that from a holistic perspective call upon the whole person to get involved and immerse themselves completely in conscious action to face difficulties by leveraging their problem solving through direct and targeted actions to encourage learning that, subsequently, through a reflection on their functioning and on the ways in which they act, allow the evolution of new methods and forms of thought-action.

The *experiential metaphor* represents the experience itself that becomes an opportunity for learning as a precious tool to fertilize reasoning and to activate cognitive flexibility; acting as a training setting, it starts from the theories of *experiential learning* and *learning by metaphor*, accompanying the person to reflect on their values, beliefs, attitudes, habits and then implement processes of re-semantization with the aim of facilitating the transfer of learning in function of their personal and professional growth

Reflection, facilitated by moments of debriefing and *formative assessment*, has a decisive function as it allows to give sense and meaning to the experiential metaphors actively lived and, through introspection, transform and systematize them into new knowledge and awareness to then conceptualize them and lead them back to their own professional growth (Schön, 1993) and personal.

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Teachers can invest in their own professional experience to the extent that they are enabled to give meaning to their own experience in reference to the link between perception, action and *affordance*, which constitute the *bridge* between previous, current and future experiences decision-making processes (Gomez Paloma, Damiani, 2015).

Reflection, through the transformation of experience, is framed as a process that generates knowledge (Kolb, 1954), greater self-awareness, *problem solving* and *decision making*.

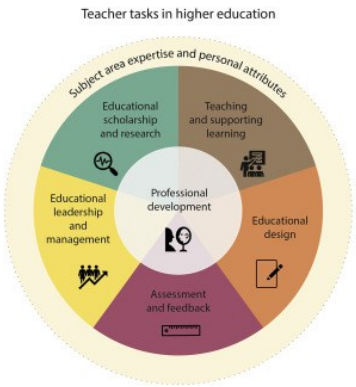
The TALIS 2018 report (OECD, 2020) emphasizes the importance of providing opportunities to increase teachers' reflexivity in relation to their competent action in the teaching-learning relationship in terms of a teaching action that supports the quality of professional action (European Commission, 2013).

Starting from these integrated training paths, based on the training-experiential model aimed at promoting the professional self and the identity self of university teachers, it is possible to innovate pedagogical and teaching models also in light of the implicit pedagogical principles that guide daily action (Perla, Vinci, 2021).

4. Conclusions

Referring to the UNIversity Teacher Expertise (UNITE) framework of university teacher competences, the professional development competence is placed in the centre of a graph surrounded by the other competences (Fig. 2). In academic practice, the UNITE synthesis reflects and contributes to the consensus on teacher competences in *higher education* and serves as a support for further research, for teachers' reflection on their professional development, for the implementation of faculty development programmes and career policies. "Further research is needed to validate the findings of this study, especially the dimensions for professional development" (van Dijk, Tartwijk, et al. 2020).

Figura 2. UNIversity Teacher Expertise (UNITE).



Universities play a fundamental role in promoting the professional development of teachers by strengthening projects with an educational focus that promotes active participation, discovery, adaptability, creativity, resilience (Varela-Losada et al., 2022).

Bodily-kinesthetic intelligence becomes a true instrument of knowledge. "The body becomes the main actor in cognitive functions" (Gardner, 2005) and therefore it is necessary to identify multimodal interventions that favor the stimulation of creative reasoning.

In order for creativity to become an essential learning skill, it is appropriate that training approaches consider its embodied multidimensionality by recognizing the essential role of the "*body*", of all dimensions of corporeality, of metacognition.

Metaphorical experiential learning represents a perspective of training intervention that is based on the most recent approaches of cognitive sciences that advance and deepen an embodied and situated interpretation of cognitive processes, highlighting the role of experiential openness of the body and its being a vector of every experience constantly immersed in a context.

Situated interaction becomes a fixed point on which to develop pedagogical models capable of grasping the way in which the mind, the "*body*" and the world interact and influence each other in order to design corresponding training actions.

The paper presents some reflections to begin designing a model of Embodied Centred Integrated Experiential Training for professional development aimed at university teachers studied in the projects accepted by the IRCIT (International Research Center for Inclusion and Teacher Training) of the UER.

The aim is also to contribute to raising future study questions and to nourish the search for methodological trajectories that allow the provision of possible solutions through which to promote and evaluate creative learning processes in the educational and academic training field

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