



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

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# Educating on complexity at the time of transitions

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## Abstract

The complexity today requires a rethinking of the governance models of work organizations, including the school environment. Learning in all phases of life is now strongly connected to needs that change unpredictably and precisely and for this reason require development and adaptability skills to a world of emergencies that generate learning, development and transformation.

Growing in complexity determines that even formal learning, of a scholastic nature, must change to educate young generations to the challenges of our time through an environment and a culture that lead them to learn how to grow.

It becomes strategic to create a “team to innovate” by shifting the attention from the stable rigid structures of the Team and in this sense, school activities, lead by tutor, teachers and coaches, become places of informal learning and Transformative Learning.

**Keywords:** complexity; transformation; innovation; tutor; coach.

## 1. The influence of the complexity on the Organizations

The society of the 21st century is mainly characterized by an aspect that can be found in all sectors: the change.

Otto Scharmer (2018, p. 21) identifies the change as a point of no return that our society have to face, highlighting how change now belongs to the person's being and for this reason it is necessary to understand it through a flexible approach to mutation of the systems, as well as of the structures, that have governed society and its organizations over the last century.

In this sense, Scharmer invites us to reflect on the fact that it is no longer possible to face and see life with the eyes of an "ego-systemic awareness" but rather an "eco-systemic" one, capable of taking charge of everyone's well-being. (ivi, p. 23).

This complexity, which influences action, also and above all, modifies and transforms the nature and needs of learning.

And if in the twentieth century the dominant model of organizations, at work as well as at school, was a Top-down model, now, in this epochal change, in relationships and with an environment increasingly influenced by globalization and technologies, a Bottom-Up approach is increasingly making its way in which informal and non-formal learning and soft skills play an increasingly important role. (Watkins, Marsick, 2023).

In fact, transversal skills allow us to deal with the complexity and ambiguity that characterizes our time, since systems, structures and organizations could hardly carry out long-term planning, as happened in the twentieth century.

Educating on complexity through soft skills is not only a necessity of the present, but also a preparation for the future. Skills such as effective communication, critical thinking, creativity, collaboration, time management and emotional intelligence are, in fact, crucial transversal skills for adapting to changes, but also the ability to work with others, the ability of problem solving and Leadership (Marsick, Spennati 2024).

This awareness must lead us to accept the fact that in our time we must not learn only through the structures coming from past experiences, but also by actualizing emerging possibilities (Scharmer, 2018, p.30).

Crossing that threshold, Scharmer argues, means being willing to let go, letting go old patterns, assumptions, and even letting go our old ego-self. Only then, it is possible to enter into our latent potential, our "emerging Self" (Scharmer, 2018, p.84).

From a more strictly pedagogical point of view, all of this is possible if our being a person is part of a systemic relationship with others. This is not an easy aim to achieve without intentional accompaniment because, as Mowles claims, " we live in highly individualized times where we are encouraged to think of ourselves as separate and closed off from others. There has been a dramatic falling away of membership of and identification with collectivities such as trade unions, community groups and voluntary associations in the last 30 years or so (Mowles, 2022, p. 39).

On the other side, the challenges that the person faces, following the transformation of society, determine new ways of learning in changing situations dominated by complexity.

Learning, therefore, is also strongly linked to the time of emergency defined with the acronym VUCA: Volatile, uncertain, complex and ambiguous (Edmondson, 2012).

The past, which remains part of our cultural baggage and experiences, and which until now has determined our future actions, must be questioned through attitudes of discovery and research, in order to be able to readjust it in a continuously changing context and make so that action can be appropriate to the circumstances.

As Friedman (2016) points out, in order to survive this new mode of organization, the rate of learning must equal or exceed the rate of change.

For this reason, the need for an investment in informal and incidental learning is affirmed that it must not replace formal learning but it can expand it by looking beyond the boundary that was previously considered useful for the purposes of understanding one's own actions.

The 21st century will be therefore, increasingly, characterized by the need to change the governance models of organizations.

Working in complexity determines, then, that formal learning must also change to educate people about the challenges of our time, through an environment and a culture that lead them to learn how to grow (Marsick, Spennati, 2024).

Marsick and Watkins (2023) use the pandemic experience to demonstrate how, in a short time, the pre-Covid normality has been eliminated and how the "new normality" is radically different from how each of us used to live before. More than ever, we have come to terms with the three key forces that characterize our society: interdependence, speed and complexity itself.

Interdependence strengthens networks, communities of practice and collective approaches.

Speed shortens the time for learning, also emphasizing micro learning or experiential learning. Complexity is everywhere and is determined by factors such as: the number of information contained or the number of components in the system, interconnections and non-linearity which is the key to complexity.

Therefore, if in the twentieth century Learning and Development originated in certainties, in good practices and in training to acquire new knowledge, through successful Top-down learning controlled by winning models, complexity revolutionizes these schemes and rather puts Bottom Up learning in the foreground which favors models driven by the passion and objectives of the learner.

As Watkins and Marsick (2023) argue, if in the past the synthesis of the learning phases could be recognized in the acronym ADDIE (Analysis, Design, Development, Implementation and Evaluation), the present and the future focus, instead, and much more, on design thinking, on creativity, on the creation of knowledge and innovations.

Learning and its development become much more effective if people learn and build patterns of meaning through interaction with others and with the stimuli of situations.

Behaviors adapt to changing situations and these will emerge if you are supported to do so.

In this sense, teachers are asked to promote the seven dimensions that Watkins and Marsick list (2023) in a new learning model that refer to necessity:

- to create learning opportunities;
- to promote dialogue;
- to encourage collaboration and group learning;
- to encourage a collective vision in people;
- to create systems to capture and share learning;
- to create systemic connections with the environment;
- to provide strategic leadership for learning.

In a learning situation, Watkins and Marsick suggest, for this reason, to include the following phases:

- diagnose the situation;
- create a desired change;
- build a path along a vision;
- give life to collaborative experiments;
- generate learning to produce changes, control results and produce new experiments through a cooperative model between all interested parties.

## 2. The need of a new way of teaching

At school, as well as in the workplace, it becomes strategic to create Teams to innovate.

So far, especially during school hours, Teams have been seen with clear boundaries, common objectives and collective responsibility for results.

However, complexity changes the image of the Teams, how they work and all the conditions linked to the new thinking of learning of the Team itself.

The attention shifts from the rigid and stable structures of the Team (passive concept) to the active concept introduced by Edmondson (2013) of Teaming, that is, teaming up (different roles and people who, regardless of the hierarchy, introduce something new).

The success of these teams depends on each person's learning ability, therefore on the ability to adapt quickly and efficiently to new knowledge.

In the absence of past experience and knowledge, Teams needs learning to acquire answer and manage opportunities. All of this, through conversation that brings out different visions and integrated perspectives. Through the results, new perspectives, new approaches, new behaviors and initiatives are created.

In this sense, the school experience itself becomes a place of informal learning, unlike what happened in the past, when it was possible to distinguish certain, routine and formal learning from informal and non-formal learning.

Overcoming the transmission of knowledge in teaching, in the era of transitions, where complexity becomes a determining part of the life of each person who learns, it must therefore lead to a new conception of knowledge.

Observing the learning method in the school context during the 20th century, the teacher's skill was evaluated through the broad and in-depth mastery of the knowledge to be taught, but with the advent of scientific and technological progress, knowledge quickly becomes obsolete.

It is necessary, therefore, to go beyond the challenge of simply transmitting knowledge, especially because it becomes a waste of time for students, compared to the challenges that young generations will be called upon to face in all fields of their adult lives.

For this reason, the importance of integrating disciplinary mastery (which obviously remains central) with the addition of pedagogical preparation (which transforms the learning of knowledge into skills and competences) is fundamental for the teacher (Spennati 2023).

Therefore, to the teacher of the third millennium will be asked to do much more than prepare disciplinary lessons, perhaps carried out alone, to fulfill the program, albeit with competence.

As Bertagna and Magni (2022) highlight, this situation requires a new magisterial nature in the dynamics of school teaching-learning. A magisterial nature that must also contribute to reversing the trend of school failure through the personalization of the paths.

A magisterial nature that therefore becomes pedagogical, because it enhances the personal relationship between teacher and student and that refers directly to a need for personalization of learning paths, in order to enhance the student for what he or she really is and at the same time, ensuring that the student can recognize in the school and in the teacher the recipients of his or her questions, his or her curiosities, his or her disorienting dilemmas. (Spennati 2023).

All this together with the enhancement of the context and times for learning, in order also to allow the acquisition of more complex skills.

Through the personalization of the paths we can also face, with greater awareness, the time of transitions dominated by complexity, which influences the learning method inherited from the last century. Thus contributing, in the school context, to go beyond a rigid, uniform and even standardized learning organization that has seen its realization in all levels of school, from primary to secondary school up to today, but that, compared to the 21st century, is no longer able to answer to the needs of the person in the learning phase, precisely because of the change in the learning method and consequently of being a person in a community context.

Educating on complexity in times of transitions means, therefore, that the school Organization, like all work Organizations, must build a learning that can be continuous, encouraging autonomous and therefore informal learning, giving life to skills and competences and not just to knowledge.

A learning, therefore, that can be generative, and that can therefore allow us to understand complex situations and answer to disorienting dilemmas.

«[...] changing economic and social conditions demand that adults continue to learn in order to keep up with rapid changes in our professions and our adult roles in this fluid environment» (Marsick in Spennati 2020, p. 5).

But even in the school context it is necessary to rethink that learning should not remain only a notional or conclusive aspect of a path, but instead be the tool that allows us to continue learning and understanding.

It is therefore possible to face the time of transitions, dominated by complexity, with a strong participation of people (of all ages, Marsick speaks about adults in the work Organizations, Bertagna

and Magni about students in the school Organization) where by reflecting critically and continuously on one's own experiences and valorizing one's own critical issues and curiosities, one can arrive at answering the questions of the complex society.

In particular, it is desirable that teachers increasingly encourage informal learning, which determines incidental learning, through the methodological practices of Action Learning (Marsick in Marsick, Watkins, Spennati, Lorusso, 2019) and Action Science (Watkins in Marsick, Watkins, Spennati, Lorusso, 2019), which lead to the transformation of the person, through an involvement of the person's own meaning schemes.

Therefore teachers are called to give life to a transformative type of learning, through questioning their own knowledge, "reskilling" and therefore building new meaning schemes that derive from the new perspectives of meaning generated by peer comparison.

In the Action Learning methodology, the figure of the coach (which in the school situation may coincide with the teacher) is fundamental. The coach guides the group in diagnosing the situation, creating a vision, encouraging highly collaborative situations, recording the changes of the subjects that make up the group and creating new experiments.

According to Gibson (2012) the coach's intervention in the group dynamics leads participants to behave differently from how they normally act in the organization, and above all encourages the individual to seek solutions to the problem or problems in the group and no longer alone.

For this to happen, the coach must create a positive environment in order to allow the members of the group to feel at ease as much as possible. The coach can encourage all of this, both through his free initiative and intuition, but also by receiving feedback from the members of the group.

According to O'Neil and Marsick (2007), if the coach manages to create these positive situations, this also allows the group to learn how to learn. The Coach's attitude must therefore always be maieutic, in the sense that rather than intervening and giving answers, within the group, he dedicates himself to asking questions.

The Coach can coincide with the "tutor teacher" who, as Bertagna indicates, must be a:

«peak performance coach, who is able to promote and control step by step the student's learning and actions in the most different learning environments available, from real to digital (coaching); to break down the expected skills into a series of tasks shared with him (shaping); to provide or find someone who provides exemplary models of action (modelling) to promote them; to direct and support the cognitive and metacognitive processes (scaffolding) activated by these experiences; to identify the set of adaptive mechanisms put in place by the student to deal with emotional and interpersonal problems, manage, reduce or tolerate stress and conflict (coping) to progressively reduce the expert's help (fading) making the student increasingly autonomous ... a new professionalism that must become central» (Bertagna, 2020, p.229).

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