

The contribution of active methodologies to the pedagogical practice of university professors¹

Caroline Elizabel Blaszkoiⁱ 

State University of Paraná, União da Vitória, PR, Brazil

Ana Lúcia de Araújo Claroⁱⁱ 

Pontifical Catholic University of Paraná, Curitiba, PR, Brazil

Nájela Tavares Ujjeⁱⁱⁱ 

State University of Paraná, Paranavaí, PR, Brazil

Abstract

This work originates from the research carried out with university professors who are part of the research group that investigates Educational Paradigms and Teacher Training, linked to the Research Line: Pedagogical Theory and Practice in Teacher Education in a Graduate Program in Education from a large university in the city of Curitiba, Paraná. The objective was to understand the contribution of active methodologies to the teaching practice of university professors. The methodology used is based on a qualitative approach of the case study type that aims to interpret, in an analytical way, the data captured in the course of the research. From the data analysis, it was possible to verify that the proposal of the active methodologies can be constituted as a teaching proposal in a complex or holistic view, which enables a meaningful learning for the students, protagonists of the construction of knowledge in an autonomous, critical, reflective, and participatory manner.

Keywords

Higher education. Active methodologies. Learning. Pedagogical practice.

A contribuição das metodologias ativas para a prática pedagógica dos professores universitários

Resumo

Este trabalho se origina da pesquisa realizada com professores universitários que fazem parte do grupo de pesquisa que investiga os Paradigmas Educacionais e Formação de Professores, vinculado à Linha de Pesquisa: Teoria e Prática Pedagógica na Formação de Professores em um Programa de Pós-Graduação em Educação de uma universidade de grande porte na cidade de Curitiba, Paraná. Objetivou-se compreender a contribuição das metodologias ativas para a prática docente dos professores universitários. A metodologia utilizada pauta-se em uma abordagem qualitativa do tipo estudo de caso, que prima por interpretar, de modo analítico, os dados captados no decurso da pesquisa. A partir das análises dos dados, foi possível verificar que a proposta das

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metodologias ativas pode se constituir como uma proposta de ensino numa visão complexa ou holística, que possibilita uma aprendizagem significativa para os alunos, protagonistas da construção do conhecimento de forma autônoma, crítica, reflexiva e participativa.

Palavras-chave

Ensino superior. Metodologias ativas. Aprendizagem. Prática pedagógica.

**La contribución de las metodologías activas a la práctica pedagógica
de los docentes universitarios**

Resumen

Este trabajo fue realizado a partir de la investigación hecha con docentes universitarios que forman parte del grupo de investigación sobre Paradigmas Educativos y Formación de Docentes, vinculado a la Línea de Investigación: Teoría y Práctica Pedagógica en la Formación de Docentes en un Programa de Posgrado en Educación de una gran universidad de la ciudad de Curitiba, Paraná. El objetivo consiste en comprender la contribución de las metodologías activas a la práctica docente de los profesores universitarios. La metodología utilizada se basa en un estudio de caso cualitativo, que se destaca por interpretar de manera analítica los datos obtenidos durante la investigación. A partir del análisis de los datos, se pudo comprobar que la propuesta de las metodologías activas puede constituir una propuesta de enseñanza desde una mirada compleja u holística, que posibilita un aprendizaje significativo para los alumnos, protagonistas de la construcción del conocimiento de forma autônoma, crítica, reflexiva y participativa.

Palabras clave

Enseñanza superior. Metodologías activas. Aprendizaje. Prácticas pedagógicas.

1 Introduction

Pedagogical practice of university professors is the object of research of several scholars, such as Behrens (2011), Masetto (2011), Moran (2018), Veiga (2009), among others. Every day new questions appear concerning pedagogical actions, innovative and dynamic practices that may bring contributions to reframe teachers' practices.

Therefore, through the changes that have been occurring in the Education field, every day there are new challenges for teachers to overcome, that is, there is a demand to change the conservative paradigm. This confrontation is reflected on their pedagogical practice, which also requires change into a critical, reflective and transformative attitude, encompassing teaching methodologies and education practices.

Moran (2013, p. 83, our translation) discusses the importance of reflective pedagogical practice seeking to optimize the teaching process, since learning must “[...] be meaningful, challenging, problematizing, and stimulating, in order to mobilize the student and the group to seek possible solutions to discuss and implement in the light of theoretical and practical references”.

In view of this, the education of university students must be thought in a broader perspective, together with the complexity paradigm, understanding them as full beings, which involves the social, affective, ethical, and spiritual dimensions. Thus, conceiving a complex view “[...] implies collective thinking, depending on the success of others, on partnerships, on collective work” (MORAN, 2013, p. 88, our translation).

Therefore, we can infer that this attitude has implications on teacher practice, which may be grounded on active methodologies. In this perspective, we seek to analyze the contribution of the use of active methodologies as a mediation strategy to the pedagogical practice of six university professors who participated in the research.

Theoretical framework was based on studies by Behrens (2008, 2011), Masetto (2006), Moran (2018), Zabala (2002), among others. This article is thus constituted: first, we present a reflection about education in the current context, about pedagogical practice and about the importance of active methodologies; then, we discuss methodological approach and weave the analyses in the core of the research, through the notions of the university professors, related to the work with active methodologies on a higher education level.

2 Education in a contemporary context, pedagogical practice, and the importance of active methodologies

Higher Education institutions are important for the production of knowledge, in addition to being a space for discussions, debates, and reflections – they are a research locus, a place of investigation regarding scientific knowledge. In this sense, the practice of teacher training needs to be thought based on complexity, as:

[...] pedagogical practice in an emerging paradigm that grounds teaching on research, in a holistic view with a progressive approach, which will certainly bring to the university meaningful and relevant knowledge production that enables the

education of ethical and competent citizens to build a fairer and more equal society. (BEHRENS, 2013, p. 135, our translation).

Considering that and the transformations that have been happening in the last few decades, we observe the need to rethink current paradigms in education. In Zabala's (2002) perspective, the role of education is based on a process of understanding and intervention of reality: this implies teaching through the paradigm of complexity.

Thinking education in a broader view requires paradigm change, which, right now, points to the complexity theory proposed by Morin (2001). The complexity paradigm allows us to understand the incompleteness of human beings; for that reason, it can help understand human beings in full, since they are gradually constituted in those relationship webs.

According to Capra (2006, p. 25, our translation), adherence to the new paradigm represents a break with conservatism and the expansion of the horizon "[...] that conceives the world as an integrated whole, and not as a collection of separated parts. [...] which acknowledges the foundational interdependence of all phenomena [...]"

Yus (2002, p. 21, our translation) corroborates Capra's (2006) thought when stating that education, in a holistic or complex perspective, is centered "[...] on the increase of all potentials: intellectual, emotional, social, physical, artistic, aesthetic, creative, intuitive, and spiritual". Therefore, it is important to emphasize that, in this educational process, the learner is a being that learns in fullness, through the integration between mind, body, feelings, interests, and imagination.

Education is a process of emancipation and transformation of human beings. In this sense, Moraes (2004) highlights the teacher's role in the full formative process of students: their actions are essential, because they contribute not only to their professional development, but, especially, to their human development.

Reflecting about pedagogical practice, it is paramount to understand that, in order to act as a teacher, it's necessary "[...] to expand one's perception level to understand and confront the new challenges imposed on teaching by a globalized and internationalized world" (BEHRENS; PRIGOL, 2019, p. 65, our translation).

Thus, educating teachers to work at universities first requires understanding the relevance "[...] of the role of teaching; providing them scientific-pedagogical depth that empowers them to confront fundamental issues of the university as social institution – a

social practice contemplating ideas of training, reflection, critique” (VEIGA, 2009, p. 43, our translation). In the dimension presented, the author emphasizes the importance of breaking with the conservative view and aligning pedagogical practice with educational intentionality, which integrates teaching, learning, research, and evaluation as educational and formative acts: complex.

Regarding professional development, Mororó (2017, p. 42, our translation) indicates that “[...] the teacher needs to hold in their conscience the relationship between the object of the educational action and the reason for the educational action in which they are involved, that is, the reason for their pedagogical practice”. Corroborating that idea, Mezzaroba and Carriquiriborde (2020, p. 17, our translation) explain that, when we understand educational practices as “[...] actions planned, reflected upon, and tried by educators as transformative intellectuals, then we know the need to combine reflection and action, i.e., theory and practice, looking at an education that problematizes reality [...]”.

In this perspective, Ujje (2020) debates formative and educational action which aligns research and teaching, considering initial and continued teacher training to handle reality. In this sense, it is important to understand that “[...] university, before being an education institution, must be an instance of learning” (BEHRENS, 2006, p. 451, our translation). That is, it is the university’s role to guarantee learning and training and promote moments of reflection about knowledge production.

We emphasize that innovative pedagogical practice allows teachers and students to produce, question, construct and create knowledge. In addition, it favors the construction of knowledge and experiences with peers. In this fertile environment, it is important to understand the relevance of the professional role of the teacher in a community, in society and in the world, since they need to “[...] reflect about and realign their pedagogical practice to create possibilities to encourage the students’ learning. The focus shifts from emphasizing teaching to emphasizing learning” (BEHRENS, 2013, p. 78, our translation).

Thus, Masetto (1998) highlights the importance of the teacher/student relationship in the learning process, where the teacher’s role is guiding, motivating and encouraging the development of activities. To achieve that, the professional needs to develop an active action, a partnership and co-responsible attitude with students,

planning the course together, using, in the classroom, techniques to facilitate participation and considering students as adults who can be responsible for their professional training.

In this focus, the educator is understood, according to Junges, Ketzer and Oliveira (2018, p. 94, our translation), “[...] as all those who act professionally in teaching and learning, no matter on which level, who seek means to steer the student toward more meaningful learning”.

Another important aspect emphasized by Masetto (1998) concerns the demands of teaching on a Higher Education level, among which we highlight: a) conceptual mastery – of a determined field of knowledge; b) pedagogical mastery – the way of teaching and relating with knowledge and students; c) political and social mastery – of their existing and being in university and in the world as historic citizens with rights.

The educational context demands change in teachers’ educational practice, because the world is dynamic, as the prevailing education in contemporaneity must be active. Therefore, “[...] learning through questioning and experimenting is more relevant for a broader and deeper understanding” (BACICH; MORAN, 2018, p. 2, our translation) of reality and education.

In this sense, Behrens (2014, p. 97, our translation) points out that the methodology that integrates teaching and research provides the reorganization of the teaching job, in that “[...] learning to learn puts teacher and student as investigation agents, for that, they go beyond the questions with ready answers and suggest proposing problematizations for which it is necessary to seek possible answers”. Therefore, in the education scenario, enters the issue of active methodologies, understood “[...] as teaching strategies centered on effective student participation in the construction of the learning process, in a flexible way, interconnected and hybrid” (BACICH; MORAN, 2018, p. 2, our translation).

Through active methodologies, the student is constituted as a being who actively interacts and constructs knowledge individually and collectively. In this sense, the teacher has a unique role in encouraging and awakening students’ curiosity, turning them into protagonists in their learning, encouraging them to become researchers, discoverers of their potentials, through learning that should happen not only individually, but also in collective processes, in a partnership with peers and teachers.

According to Valente (2018, p. 27, our translation), active methodologies “[...] constitute pedagogical alternatives that place the focus of the teaching and learning process on the learner, involving them in learning through discovery, investigation, or problem-solving”. For the author, this proposal opposes the traditional approach, requiring from the teacher a new attitude, a pedagogical practice turned to the student’s demands and to the permanent reality. Thus, active methodologies:

[...] seek to create learning situations in which learners can make things, think about and conceptualize what they do and construct knowledge about subjects involved in the activities they carry out, as well as develop critical capabilities, reflect about practices accomplished, provide and receive feedback, learn to interact with peers and teacher, in addition to exploring personal attitudes and values. (VALENTE, 2018, p. 28, our translation).

Active methodologies are an essential path in contemporaneity, considering that this proposal focuses on the individual: the student is established as protagonist in their learning. The individual commits and takes responsibility for their education and training, an attitude more participative, investigative, that enables the construction of knowledge, in the context of the university and their professional constitution. The teacher is “[...] mediator, consultant for the learner. And the classroom becomes the place where the learner has the presence of the teacher and the peers to help them solve their tasks, exchange ideas and attribute meaning to information” (VALENTE, 2018, p. 42, our translation).

Active methodologies in practical action require:

[...] transforming the educator’s teaching objectives into learning expectations for students. Active learning methodologies should provide to educators didactic resources and practices that enable ‘teaching’ in the face of scenarios, environments and costumers – students and communities – with diverse needs and ‘educating’ to understand the world where we live. (SENNA *et al.*, 2018, p. 223, our translation).

From what was discussed, we can infer that active methodologies constitute a teaching proposal that enables meaningful, reflective and participative learning. Thus, active methodologies cause a transformation in pedagogical practice regarding the change in attitude from transmitter to mediator and guide of students’ learning.

Active methodologies are the driving force for meaningful learning, which strengthens the citizen’s formation and human autonomy, contributing, according to Ujii

(2020), to the training of teachers and students, individuals with rights and aware of their social and transformative role within society.

3 Methodological path and research findings

The methodological choice for this research is based on a qualitative approach involving case study, in which the collected data are descriptive and, in the case of this investigation, were collected through semi-structured interviews with members of a research group and merit analysis of their aspects related to quality. These data are normally collected in natural environments, and investigators analyze the data collected in “[...] all their wealth, respecting, as much as possible, how they were recorded or transcribed” (BOGDAN; BIKLEN, 1994, p. 48, our translation). This procedure is of utmost importance for the investigator to understand the problem being studied.

A case study, according to Ujii *et al.* (2016), is an investigative modality that allows the interpretative and subjective analysis of the data, that may be collected through observation, interviews, anamnesis, and informal conversations with research participants. The case study represents a vicarious experience that, although unique, enables associations to other contexts and realities.

Lüdke and André (2013) define the case study as a modality that uses diverse sources in data collection, aims to discover, emphasizes the interpretation of context, uses accessible language, usually written reports, citations, examples, and descriptions.

Regarding the study participants, we invited participants from the further development seminar which was part of the Theory and Pedagogical Practice in Teacher Training research line, which had 15 meetings, each lasting around three hours, adding up to 45 hours, and debated innovative practices and active methodologies. Out of the universe of 15 participants, freely joined the research six university professors with different backgrounds, three from the Math field and three from the Pedagogy field, who already used active methodologies in their real contexts.

Data collection focused on their particular experiences, seeking to capture and analyze their notions related to active methodologies in Higher Education. Aiming to clarify the investigative problem, we asked the following question: “How can active

learning methodologies contribute to improve the pedagogical practice of university professors?”.

To accomplish the study, at the end of the seminar we carried out semi-structured interviews with participants who had experience in Higher Education and wanted to be part of the research. The interview had five questions – one multiple-choice and four essay questions. Following the ethical requirements of education research, participants filled out an Informed Consent Form. To ensure participants’ anonymity, they were identified by numbers – P1 to P6.

According to the university professors who participated in the study, active methodologies play an important role in students’ learning, as we can observe in some of the following excerpts:

Facilitates learning, autonomy, creates a dynamic of greater student participation. (P2, our translation).

Closer to the routines outside of the classroom, encouragement to less hierarchy in consensual decisions and fosters self-reflection regarding the student’s autonomy. (P3, our translation).

Enhances the process of collective knowledge construction, gives new meaning to the methodological teaching-learning process, brings the subjects in the educational context closer to the content of the technological world and tries new ways of thinking and doing the movement of education as social process. (P5, our translation).

Active methodologies foster greater interaction between teacher and student and knowledge. (P6, our translation).

Based on the professors’ statements, we notice the relevance of using active methodologies in the educational process. This assertion converges in the thoughts of authors who research the use of active methodologies, such as Behrens (2007, 2008, 2011, 2013), Moran (2018) and Valente (2018), according to whom active methodologies turn students into protagonists of their learning, fostering the collective construction of knowledge, sparked by the shift of paradigm within education.

Regarding challenges and difficulties in using active methodologies in Higher Education, professors noted as follows:

Methodologies must be part of the teacher’s belief; they need to believe, study, and prepare to use that approach; however, not all teachers are willing to break with previously established practice. (P1, our translation).

Resistance by students and teachers who have a comfort zone. (P2, our translation).

Students' willingness, teachers' commitment, the involvement of different learning situations. (P4, our translation).

Understanding its meaning and significance, difficulty in changing educational paradigms; trying the new is always a process of insecurity, and that interferes. Sometimes, innovation needs to be bold, brave, understanding of mistakes, challenge of trying, experimenting, understanding, before recording, reflecting the new. (P5, our translation).

Breaking the traditional paradigm for an innovative education and having an open, reflective outlook on pedagogical practices, knowing how to apply methodologies that, in fact, contribute to the construction of knowledge, not only another dynamic. (P6, our translation).

In the reports by professors who participated in the research, although they implement active methodologies in Higher Education, we notice that the difficulties in accomplishing it are permeated by the requirement to reconsider the teacher/student attitude, breaking with comfort zones, acting in the field of innovation and uncertainty in the classroom, sharing knowledge, being intellectually humble and having social and pedagogical commitment to students' training as citizens and humans, aspects that Ujiie (2020) highlights as important in teacher training.

According to Valente (2018), there are many difficulties in implementing active methodologies; even so, the author emphasizes that, gradually, several education institutions are adopting that teaching perspective, seeking to innovate pedagogical practices, aiming to transform education and belonging realities. In this dynamic, we have the articulation dear to Mezzaroba and Carriquiriborde (2020) between theory and practice, materialized through active methodologies in actions of educational and training practice.

Another inquiry made to research participants aimed to bring into focus which active methodologies were used and which were more adequate to their teaching practice. Below we have the answers:

Inverted classroom, station rotation, learning through peers and design, because they have blended processes in their essence. (P3, our translation).

Inverted classroom and gamification, because, when the student has previous knowledge about mathematics subjects, they have a greater possibility to assimilate what is being discussed in the classroom. Regarding the use of gamification, current students have a close relationship with games. Using that

approach in the classroom could get them to be more involved with the construction of their own knowledge. (P4, our translation).

I like the inverted classroom due to previous experiences with the process of those practices, first as a learner and later as someone in the position of providing that experience for students. I have observed significant improvement in the teacher/student and teaching/learning relationships. (P5, our translation).

According to the professors' answers, we observe that most of them seek to use different strategies based on active methodologies in their pedagogical practice. They mentioned: problem-based learning, station rotation, learning through peers, inverted classroom, and gamification.

Regarding *problem-based learning*, according to Moran (2018, p. 16, our translation), "[...] it is a learning methodology in which students commit to a task through challenges in order to solve a problem or develop a project that can be articulated with life outside the context of the classroom".

Station rotation is a blended teaching technique based on creating different environments inside the classroom and forming a sort of circuit, allowing students to approach a subject in different ways and manipulate and acquire knowledge moving through the classroom between different stations of knowledge.

Most professors suggest, as strategy, *learning through peers*, which takes place in different interest groups, with the possibility of happening both in-person and virtually. According to Moran (2018), these are groups that share what they know, help with doubts, and illuminate perceptions in the knowledge construction process.

The *inverted classroom*, according to Moran (2018), is an active strategy that involves the blended model, maximizing time for learning and for the teacher. In this focus, in a first moment, the content is accessed online (class, lecture, text and/or video) at the students' homes, and discussion of doubts, questions and reflections enter the school universe in a second moment.

Research participants also indicate that they use *gamification* in the space and time of their classes, based on simulations and ludic elements. According to Moran (2018), this practice is increasingly present in the school routine as a strategy that encourages, charms and motivates students' learning.

In the face of the strategies presented by the research subjects, we ratify what studies by Bacich (2018), Behrens (2007) and Moran (2018) have stated about the

importance of using active methodologies, with a complex or holistic view, in the sense of optimizing new learning.

The last question involved the following issue: “How can active methodologies contribute to the practice of university professors, from your point of view?”. Here are their answers:

To bring new meaning to pedagogical practices and integrate the student in teaching and learning processes; therefore, encouraging them to learn through research and seek new alternatives to reconstruct knowledge. (P1, our translation).

University professor can take advantage of those practices to motivate students to develop their autonomy in learning and they can use them to deepen the subjects being studied. (P2, our translation).

They contribute, in my view, in three great blocks: 1) methodology, manner of teaching; 2) learning relationships between teacher and student; and 3) access to knowledge. Methodology, due to changing the structures of teaching and learning; however, it happens in the relationship with the dynamic of teaching and learning, modifies, restructures and resets the way of thinking and carrying out learning. (P4, our translation).

Modifies and expands relational conditions between subjects, teacher and student, mobilizing a more dynamic relationship, based on the movement of knowledge.

The notions of university professors converge with Moran’s (2018) thought that these methodologies contribute to the effective participation of students as protagonists of their learning, since, by using that teaching approach, professors have the opportunity to give new meaning to their pedagogical practices, as has been expressed in the statements of those who participated in this study.

4 Final considerations

Based on the theoretical framework and the results discussed, we can conclude that active methodologies contribute to students’ learning, encouraging different ways of learning, fostering self-reflection and autonomy, in addition to enabling collective knowledge construction. We observed that active methodologies are part of those professors’ pedagogical practice and that they use several strategies that can favor the development of learning.

Concerning the challenges and difficulties involving the use of active methodologies in Higher Education, we noticed the mention of certain resistance both from some teachers and from some of the students. This can indicate the need to overcome the traditional paradigm, moving toward an innovative, complex or holistic education. Thus, this understanding leads us to infer that this resistance may also be related to the meanings and significance of active methodologies in pedagogical practice and in students' learning, denoting the lack of more specialized training about active methodologies, more discussion, and popularization of their applicability.

When asked about active methodologies' contribution to the practice of university educators, we verified a consensus among the professionals, considering that, for the group that participated in the research, these methodologies contribute to more dynamic and contextualized classes.

We observed that the research subjects use different strategies that take into account the theoretical contributions of active methodologies. This denotes the diversity and plurality of actions, in order to reframe the practice in the classroom.

The use of active methodologies is a theme that must be better explored because it is an involving theme that breaks with traditional teaching, still present in many school and university contexts. Therefore, the teacher must integrate active methodologies that create opportunities for meaningful knowledge construction, not only transmitting disjointed and useless knowledge for students.

With this explanation, we consider advisable to carry out new research that discuss the understanding of basic education teachers about the use of active methodologies in their classroom practices in order to disseminate and popularize the theme.

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Caroline Elizabel Blaszko, State University of Paraná, Pedagogy Department

i <https://orcid.org/0000-0002-9741-2823>

Doctor in Education. Professor from the Pedagogy Collegiate at the State University of Paraná, União da Vitória campus. Member of the Research and Study Group on Education: Theory and Practice (Gepe).
Authorship contribution: Writing, review and editing.

Lattes: <http://lattes.cnpq.br/7383240071679937>

E-mail: carolineblaszko2020@gmail.com

Ana Lúcia de Araújo Claro, Pontifical Catholic University of Paraná

ii <https://orcid.org/0000-0001-7257-9849>

Doctorate student and master in Education from the Pontifical Catholic University of Paraná.
Authorship contribution: Writing and first draft.

Lattes: <http://lattes.cnpq.br/0195019590013618>

E-mail: ana.claro13@hotmail.com

Nájela Tavares Ujiie, State University of Paraná

iii <https://orcid.org/0000-0003-3405-4894>

Doctor in the Teaching of Science and Technology. Professor from the Pedagogy Collegiate at the State University of Paraná, Paranavaí campus. Leader of the Research and Study Group on Education: Theory and Practice (GEPE) and of the Research and Study Group Childhood Educational Praxis (Geppei).

Authorship contribution: Supervision, orientation and final review.

Lattes: <http://lattes.cnpq.br/1242945275956878>

E-mail: ujiijenajela@gmail.com

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