


**TEACHER EDUCATION FOR THE DEVELOPMENT OF COMPETENCIES AND SKILLS IN  
CONTEMPORARY EDUCATION**

 <https://doi.org/10.63330/aurumpub.057-003>

**Meiry Cristiane Richil de Carvalho<sup>1</sup>, Franciele Raquel Hickmann<sup>2</sup>, Lindamir Svidzinski<sup>3</sup>, Ronilda Roacab de Meneses<sup>4</sup>, Adriana Peres de Barros<sup>5</sup>, Jane Gomes de Castro<sup>6</sup>, Luciano João da Silva<sup>7</sup>, Javan Ferreira<sup>8</sup>, Solange da Cunha Machado<sup>9</sup> and Glicélio Ribeiro Nobre<sup>10</sup>**

<sup>1</sup> Master's student in Agroecology  
Universidade Estadual de Roraima  
Boa Vista - Roraima

E-mail: meiryrichil10@gmail.com

Lattes: <https://lattes.cnpq.br/2048503580746268>

<sup>2</sup> Specialization in Early Years, Literacy, and Literacy Development

UnIBF - União Brasileira de Faculdades

Barra Velha - SC

E-mail: franciele.rh@aluno.ifsc.edu.br

Lattes: <https://lattes.cnpq.br/3487839448153926>

<sup>3</sup> Master's student in the PPGEN - Graduate Program in Teaching Natural Sciences and Mathematics

Unicentro de Guarapuava - PR

E-mail: svidzinskilindamir@gmail.com

Lattes: <https://lattes.cnpq.br/8158198842926465>

<sup>4</sup> Master's degree

UNIVATES

Boa Vista - Roraima

E-mail: oroacab@hotmail.com

<sup>5</sup> Specialization in Early Childhood Education and Literacy

AVEC - Associação Varzeagrandense de Ensino e Cultura

FIVE - Faculdade Integrada de Várzea Grande

E-mail: adrianaperes\_@hotmail.com

<sup>6</sup> Specialization

Universidade Federal de Lavras

Lavras - Minas Gerais: Ecotourism: Interpretation and Environmental Education

E-mail: 996812523j@gmail.com or Jane\_leve@gmail.com

<sup>7</sup> Master's degree

Universidade Federal de Pernambuco - UFPE

Recife - PE

E-mail: luciano.joao@ufpe.br

Lattes: <http://lattes.cnpq.br/7521338210112105>

<sup>8</sup> Master's student in Science of Religion, PUC-SP; Specialist in Psychopedagogy, Licensed in Pedagogy and Sociology

E-mail: javanfpr@gmail.com

Lattes: <http://lattes.cnpq.br/9865058959427944>

ORCID: <https://orcid.org/0009-0008-5476-6550>

<sup>9</sup> Postgraduate degree in Literacy and Literacy Development

UEMA

Presidente Dutra - MA

E-mail: Msol91228@gmail.com

Lattes: <https://lattes.cnpq.br/2043562318160023>

<sup>10</sup> Postgraduate degree in School Management and Pedagogical Practices - Candido Mendes University

Methodologies for Teaching Mathematics - FACEO

Guaraciaba do Norte - CE

E-mail: giuceliornobre@hotmail.com

### **Abstract**

Contemporary education has been marked by profound social, cultural and technological transformations that directly impact teaching and learning processes. In this context, teacher education plays a fundamental role in preparing professionals capable of acting critically, reflectively and innovatively in response to the educational demands of the twenty-first century. This chapter aims to discuss teacher education for the development of competencies and skills in contemporary education, analyzing the challenges imposed by social changes, digital culture and new demands of pedagogical practice.

Methodologically, this is a qualitative bibliographic study grounded in research on teacher education, professional competencies, professional development, digital competencies and educational innovation.

The discussion is supported by authors such as Freire, Perrenoud, Tardif, Nóvoa, Moran, Castells and UNESCO. The findings indicate that teacher education must go beyond the mere transmission of theoretical knowledge, promoting the development of competencies related to pedagogical mediation, critical thinking, inclusion, collaboration and the ethical use of digital technologies. It is concluded that both initial and continuing teacher education are essential for building an educational system capable of responding to contemporary challenges while maintaining its commitment to human and civic development.

**Keywords:** Teacher education, Professional competencies, Skills, Contemporary education, Digital competencies.

### **INTRODUCTION**

Contemporary education is situated within a context marked by profound social, cultural, technological, and communicational transformations that directly affect teaching and learning processes. The expansion of digital technologies, the speed at which information circulates, the diversity present in school spaces, and new forms of social interaction have required increasingly dynamic responses from educational systems, aligned with the demands of the twenty-first century. In this scenario, teacher

education assumes a strategic role, since the development of teaching competencies and skills becomes fundamental for education professionals to act critically, reflectively, and innovatively in the face of contemporary challenges.

The changes observed in recent decades have significantly altered the traditional role of the teacher. Whereas previously teachers' work was centered on the transmission of content, today they are expected to be able to mediate learning processes, promote the collective construction of knowledge, encourage students' autonomy, and develop contextualized pedagogical practices. For Freire (1996, p. 47), "teaching is not transferring knowledge, but creating the possibilities for its own production or construction." This understanding reinforces the need for teacher education that goes beyond the technical mastery of content and encompasses ethical, human, social, and pedagogical dimensions.

In analyzing the transformations of contemporary society, Castells (1999) emphasizes that we live in a network society, characterized by the intense circulation of information and by the reorganization of economic, cultural, and educational relations mediated by digital technologies. In this context, the school ceases to be the main source of access to knowledge and begins to share this role with multiple informational environments. Consequently, teachers need to develop competencies that allow them to act in a constantly changing scenario by selecting information, promoting critical thinking, and assisting students in constructing meaningful learning.

The discussion concerning professional competencies gained prominence especially through the studies of Perrenoud (2000), who understands competence as the ability to mobilize knowledge, skills, attitudes, and values when faced with complex situations in professional practice. For the author,

"a competence is the capacity to mobilize a set of cognitive resources (knowledge, capacities, information, etc.) to solve a series of situations with relevance and effectiveness" (Perrenoud, 2000, p. 19).

This perspective broadens the understanding of teaching, since it recognizes that professional practice is not limited to the mechanical application of knowledge acquired during initial education. On the contrary, it requires the capacity for analysis, decision-making, adaptation, and permanent reflection on educational practice.

In the same direction, Tardif (2014) argues that teachers' knowledge is constructed throughout their professional trajectory and results from the articulation of academic knowledge, practical experiences, social interactions, and institutional contexts. For the author, teaching work constitutes a complex activity that mobilizes different types of knowledge and requires constant updating in response to educational and social changes. This understanding reinforces the importance of continuing education as an indispensable element in teachers' professional development.

In addition to traditional pedagogical competencies, contemporary education also demands the strengthening of digital competencies. The incorporation of technologies into educational processes has ceased to represent a future possibility and has become a concrete necessity. Moran (2023) emphasizes that digital technologies profoundly modify ways of learning, communicating, researching, and producing knowledge, requiring teachers to develop new competencies related to technological mediation, information curation, and the construction of more participatory and collaborative learning environments.

The emergence of Artificial Intelligence further broadens this debate. Recent documents from UNESCO (2023) and studies developed by Holmes and Tuomi (2022) indicate that the ethical, critical, and pedagogical use of intelligent technologies requires continuous investment in teacher education. It is not merely a matter of learning how to use digital tools, but of understanding their potential, limitations, ethical implications, and impacts on teaching and learning processes.

In this context, teacher education for the development of competencies and skills assumes central relevance for the construction of an education capable of responding to contemporary demands without losing sight of its commitment to human formation. As Nóvoa (2022) emphasizes, there is no consistent

educational transformation without the appreciation and strengthening of the teaching profession, with education being one of the fundamental pillars of this process.

In view of these considerations, this chapter aims to discuss teacher education for the development of competencies and skills in contemporary education, analyzing the challenges imposed by social and technological transformations, the contributions of theories on professional competencies, and the importance of continuing education for the practice of teaching in the twenty-first century. To this end, it will address changes in the role of the teacher, the conceptual foundations of teaching competencies, emerging digital competencies, and pathways for professional development in contemporary times.

## **METHODOLOGY**

This chapter is characterized as bibliographic research with a qualitative approach, developed through the analysis and interpretation of scientific productions related to teacher education, the development of teaching competencies and skills, and the challenges of contemporary education. According to Gil (2008), bibliographic research is prepared on the basis of materials already published, enabling the researcher to deepen knowledge about a given topic and to construct analyses grounded in consolidated theoretical frameworks.

The qualitative approach was adopted because it enables the understanding of educational phenomena in their complexity, considering the historical, social, cultural, and pedagogical aspects that permeate teacher education. According to Bogdan and Biklen (1994), qualitative investigation seeks to understand the meanings attributed by subjects and by social practices, privileging the interpretation of contexts and of the relationships established among the different elements that make up the object of study.

The bibliographic survey included books, scientific articles, official documents, and academic productions that discuss teacher education in contemporary times, professional teaching competencies, the development of pedagogical skills, digital competencies, and the challenges arising from the social

and technological transformations of the twenty-first century. Priority was given to authors recognized nationally and internationally in the fields of education, teacher education, and pedagogical innovation, including Freire (1996), Perrenoud (2000), Tardif (2014), Nóvoa (2022), Moran (2023), Castells (1999), Holmes and Tuomi (2022), as well as documents produced by UNESCO (2023) and by the National Common Curricular Base (Brazil, 2018).

The analysis of the selected material was conducted through exploratory reading, analytical reading, and critical interpretation of the texts, seeking to identify theoretical convergences, central concepts, and contributions to the understanding of the competencies and skills necessary for the exercise of teaching in contemporary education. According to Severino (2017), bibliographic research makes it possible to establish dialogues among different theoretical perspectives, favoring the construction of interpretative syntheses and grounded reflections on the phenomenon under investigation.

The organization of the discussion was structured around thematic axes that encompass the challenges of teacher education in contemporary times, the conceptual foundations of professional competencies and skills, emerging digital competencies, and pathways for teachers' professional development. This structure made it possible to analyze, in an articulated manner, the demands imposed on the twenty-first-century teacher and the contributions of initial and continuing education to the construction of critical, innovative pedagogical practices committed to students' learning.

## **TEACHER EDUCATION AND THE CHALLENGES OF CONTEMPORARY EDUCATION**

The transformations that characterize contemporary society have brought about profound changes in educational processes and, consequently, in the demands related to teachers' education and professional practice. The expansion of digital technologies, the intensification of information flows, the cultural diversity present in classrooms, and new forms of production and circulation of knowledge challenge traditional teaching models and require the construction of new professional competencies. In this

context, teacher education is no longer understood as a process restricted to initial training and is instead conceived as a permanent path of learning, reflection, and professional development.

The emergence of the so-called knowledge society has brought new demands for educational systems. Castells (1999) argues that contemporary society is marked by the constitution of global information networks that modify forms of communication, work, learning, and social participation. According to the author, information technologies do not represent merely technical tools, but rather structuring elements of a new social organization based on the circulation of knowledge. This scenario directly affects teaching work, since the school no longer occupies the exclusive position of producing and transmitting knowledge.

From this perspective, it becomes necessary to rethink the role of the teacher. If, for a long time, the teaching function was associated mainly with the transmission of content, today educators are expected to act as mediators of learning, stimulating students' autonomy, inquiry, creativity, and critical thinking. Moran (2023) observes that contemporary teachers need to work in hybrid, dynamic, and connected environments in which knowledge is constructed collaboratively and contextually.

In discussing the educational changes arising from digital culture, Lévy (1999) emphasizes that collective intelligence emerges as one of the main challenges and opportunities of contemporary education. For the author, learning begins to occur in collaborative networks in which different subjects share experiences, knowledge, and competencies. In this context, the teacher's role shifts from the centrality of information to the mediation of processes of knowledge construction.

This change requires a profound review of teacher education processes. As Nóvoa (2022) states, contemporary educational challenges cannot be addressed solely through curricular reforms or the introduction of new technologies. It is necessary to invest in the valorization of the teaching profession and in the construction of permanent spaces for professional development. For the author, "there will be no transformation of education without the transformation of teacher education" (Nóvoa, 2022, p. 32).

This statement shows that the quality of educational processes is directly related to the quality of the education offered to education professionals. More than mastering specific content, teachers need to develop competencies that allow them to understand the complexity of school contexts and respond critically to the demands of contemporary society.

In analyzing teaching as a profession, Tardif (2014) emphasizes that teachers' knowledge is plural and results from the articulation among different sources of knowledge. According to the author, teachers mobilize disciplinary, curricular, pedagogical, and experiential knowledge constructed throughout their professional trajectory. This understanding breaks with the idea that teaching practice depends exclusively on initial academic education, recognizing the importance of lived experiences and reflection on one's own practice.

In this sense, teacher education must be understood as a continuous process of identity and professional construction. Imbernón (2011) argues that continuing education needs to go beyond models centered on the simple updating of content, promoting spaces for critical reflection on the real challenges faced by educators. According to the author,

The permanent education of teachers must be supported by the subjects' reflection on their teaching practice, in such a way as to allow them to examine their implicit theories, their operating schemes, their attitudes, and their work processes. In this way, education ceases to be merely a process of transmitting knowledge and becomes an instrument of professional and institutional transformation (Imbernón, 2011, p. 48).

The quotation reinforces the idea that teacher education must be articulated with the concrete experiences of everyday school life. It is not enough to offer isolated courses or training sessions; it is necessary to create conditions for teachers to critically analyze their practices and develop strategies capable of responding to the needs of students and the school community.

Another relevant aspect refers to the growing diversity present in educational spaces. Contemporary classrooms are marked by cultural, social, linguistic, and cognitive plurality. This reality requires teachers to possess competencies related to inclusion, equity, and respect for differences. Teacher

education, therefore, must encompass not only technical and methodological aspects, but also ethical, human, and social dimensions that favor the construction of democratic and welcoming educational environments.

Freire (1996) contributes significantly to this discussion by affirming that teaching requires respect for learners' knowledge, dialogue, ethics, and commitment to social transformation. For the author, educational practice cannot be neutral, because it involves choices, values, and positions in relation to reality. From this perspective, teacher education must prepare professionals capable of understanding education as a social practice committed to human emancipation.

Technological transformations have also expanded the challenges of the teaching profession. The advancement of artificial intelligence, digital platforms, and virtual learning environments requires teachers to develop new competencies related to the pedagogical use of technologies. Holmes and Tuomi (2022) emphasize that the integration of artificial intelligence into education demands specific education so that educators can use these tools in a critical, ethical, and pedagogically grounded manner.

In addition, recent UNESCO documents (2023) emphasize that teacher education for the digital age must address aspects related to digital citizenship, data protection, technological ethics, and the development of critical thinking. It is not merely a matter of learning how to use digital tools, but of understanding their impacts on educational processes and human relations.

In view of this scenario, it becomes evident that teacher education constitutes one of the central elements in the construction of an education capable of responding to contemporary challenges. The twenty-first-century teacher needs to develop competencies that integrate pedagogical knowledge, technological mastery, human sensitivity, reflective capacity, and ethical commitment. More than transmitting content, teachers are expected to be able to create conditions for students to learn to think, question, collaborate, and act responsibly in an increasingly complex and interconnected society.

Thus, understanding the challenges of contemporary education means recognizing that teacher education needs to keep pace with social transformations without losing sight of its humanizing

dimension. In this process, the development of professional competencies and skills emerges as a fundamental condition for strengthening teachers' work and promoting meaningful, inclusive, and socially relevant educational experiences.

## **COMPETENCIES AND SKILLS IN TEACHER EDUCATION**

The discussion on competencies and skills has gained prominence in recent decades due to the social, economic, and technological changes that have come to require professionals capable of mobilizing knowledge in complex and dynamic contexts. In the educational field, this perspective has significantly influenced debates on teacher education, professional development, and educational quality, broadening the understanding of the knowledge necessary for the exercise of teaching.

Although often used as synonyms, the concepts of competence and skill have specific features. Skills are related to the ability to perform certain actions or procedures, while competencies involve the integrated mobilization of knowledge, skills, attitudes, and values in concrete situations. Zabala and Arnau (2010) emphasize that competence is not limited to mastery of content, but presupposes the ability to use it meaningfully in problem-solving and decision-making.

Among the main scholars of the subject, Perrenoud (2000) understands competence as the ability to mobilize different cognitive resources to face complex situations in professional practice. As the author states, "a competence is the capacity to mobilize a set of cognitive resources to solve a series of situations with relevance and effectiveness" (Perrenoud, 2000, p. 19). This definition shows that competence goes beyond the simple acquisition of theoretical knowledge, involving the ability to apply knowledge in a contextualized and reflective manner.

Within the scope of teaching, this perspective becomes especially relevant, since the teacher's work is marked by unpredictable situations, multiple demands, and constant decision-making processes. Teaching implies planning, assessing, dialoguing, mediating conflicts, promoting inclusion, using

diversified pedagogical resources, and responding to students' specific needs. Thus, teaching practice requires a broad set of competencies that develop throughout one's professional trajectory.

Perrenoud (2000) proposes ten broad families of competencies for the exercise of the teaching profession, among which the following stand out: organizing and directing learning situations; managing the progression of learning; designing and developing differentiation devices; involving students in their learning; working in teams; participating in school management; using new technologies; facing the duties and ethical dilemmas of the profession; and managing one's own continuing education.

When analyzing these competencies, it becomes clear that contemporary teaching requires far more than mastery of disciplinary content. It requires the ability to understand students in their diversity, promote meaningful learning experiences, and build inclusive and collaborative educational environments.

Tardif (2014) contributes to this discussion by affirming that teachers' knowledge is plural and results from the articulation among different sources of knowledge. For the author, "teachers' knowledge is plural knowledge, formed by the more or less coherent amalgam of knowledge arising from professional education, disciplinary knowledge, curricular knowledge, and experiential knowledge" (Tardif, 2014, p. 36).

This understanding reinforces the idea that teaching competencies are not constructed exclusively in initial education programs. They develop through experiences lived in professional practice, through interactions established in the school environment, and through continuous processes of reflection on pedagogical action.

In this context, the National Common Curricular Base (Brasil, 2018) also contributes to broadening the discussion by emphasizing the need to develop general competencies related to critical thinking, communication, digital culture, empathy, responsibility, and citizenship. Although directed toward students, such competencies presuppose teachers prepared to promote them in their pedagogical practices.

In addition to pedagogical competencies, the education of teachers capable of working in contexts marked by cultural diversity, inclusive demands, and technological transformations becomes increasingly necessary. Libâneo (2013) emphasizes that the contemporary teacher must assume an investigative, reflective stance committed to students' learning, understanding education as a social practice aimed at the integral formation of individuals.

In this way, the development of teaching competencies and skills constitutes a central element in the construction of pedagogical practices capable of responding to the challenges of contemporary education. More than transmitting knowledge, teachers need to be able to mobilize different forms of knowledge, interpret contexts, make decisions, and promote meaningful educational experiences, strengthening their professional practice and contributing to students' integral formation.

## **DIGITAL COMPETENCIES AND ARTIFICIAL INTELLIGENCE IN TEACHER EDUCATION**

The incorporation of digital technologies into educational processes constitutes one of the main characteristics of contemporary education. The expansion of the internet, mobile devices, digital platforms, and, more recently, systems based on artificial intelligence has brought about significant changes in ways of teaching, learning, communicating, and producing knowledge. In this context, teacher education must encompass not only the technical mastery of these tools, but also the ability to use them in a critical, ethical, and pedagogically meaningful manner.

Digital culture has modified access to information and expanded the possibilities of interaction and collaboration among individuals and groups. Moran (2023) emphasizes that today's students live daily with multiple languages, media, and digital environments, requiring schools to adopt new forms of organizing teaching. According to the author, education needs to prepare individuals to act in a connected society, marked by the collaborative production of knowledge and the constant circulation of information.

In this scenario, the need emerges for the development of teachers' digital competencies. These competencies involve the ability to select appropriate technological resources, plan activities mediated by

technologies, critically evaluate information available in digital environments, and promote pedagogical practices that encourage students' active participation. It is not merely a matter of using technological tools, but of understanding how they can contribute to learning and to human development.

In discussing the challenges of digital education, UNESCO (2023) emphasizes that teacher education must address aspects related to ethics, digital security, data protection, inclusion, and the responsible use of emerging technologies. The document highlights that teachers continue to occupy a central role in educational processes, even in highly technology-rich contexts, being responsible for guiding students in the critical construction of knowledge.

The growing presence of artificial intelligence in the educational field further expands these demands. Tools capable of generating texts, images, videos, and automated analyses have been transforming pedagogical practices, assessment processes, and forms of interaction with knowledge. Holmes and Tuomi (2022) state that artificial intelligence has the potential to support the personalization of learning, expand access to education, and assist teachers in administrative and pedagogical tasks. However, they warn of the need for responsible use grounded in ethical principles.

In this sense, teacher education must prepare professionals to understand both the potential and the limits of these technologies. As Holmes and Tuomi (2022, p. 18) point out, “artificial intelligence should support educational goals and not replace them,” reinforcing that human mediation remains indispensable in teaching and learning processes.

In addition to technological knowledge, it becomes fundamental to develop competencies related to critical thinking, information curation, and the evaluation of the reliability of digital sources. In a society characterized by information overload, teachers assume an essential role in guiding students toward the critical analysis of content available in digital environments, contributing to the formation of citizens capable of using information ethically and responsibly.

Teacher education for the digital age also involves the construction of an investigative stance open to innovation. Technologies are continuously changing, requiring teachers to be willing to learn, adapt,

and update their practices. From this perspective, digital competence does not constitute a fixed set of knowledge, but rather a permanent process of professional development.

Thus, contemporary education demands teachers capable of integrating pedagogical, technological, and ethical competencies. The challenge does not consist merely of incorporating digital resources into classes, but of constructing educational practices that use technologies as instruments to promote meaningful learning, autonomy, creativity, collaboration, and civic participation in an increasingly connected society.

## **PATHWAYS FOR TEACHERS' PROFESSIONAL DEVELOPMENT IN CONTEMPORARY TIMES**

In view of the social, cultural, and technological transformations that characterize the twenty-first century, teachers' professional development has become a permanent necessity. Initial education, although fundamental for the construction of the profession's basic knowledge, is not sufficient to respond to the constant changes that affect education. For this reason, continuing education assumes a strategic role in consolidating the competencies and skills necessary for the exercise of contemporary teaching.

Nóvoa (2022) argues that teacher education must be directly articulated with professional practice, valuing experience, reflection, and collaboration among peers. For the author, teachers learn not only through courses and training programs, but also through the sharing of experiences, the analysis of real problems, and the collective construction of solutions to the challenges faced in everyday school life. From this perspective, the school comes to be understood as a privileged space for education and professional development.

Reflection on practice constitutes another essential element in this process. Schön (2000) emphasizes the importance of the reflective professional, capable of analyzing their actions, understanding the results of their interventions, and continuously reconstructing their knowledge.

According to the author, “reflection-in-action is central to the art through which practitioners sometimes deal with the indeterminate zones of practice” (Schön, 2000, p. 39).

This reflective capacity allows teachers to develop greater professional autonomy and broaden their possibilities for action in the face of the complex situations present in the school environment.

Another relevant aspect concerns collaborative work. Contemporary teaching requires overcoming isolated practices, favoring the construction of learning communities in which teachers share experiences, knowledge, and pedagogical strategies. Imbernón (2011) states that collaboration among professionals strengthens educational innovation processes and contributes to the construction of more effective responses to the demands of the contemporary school.

In addition, research on one’s own practice constitutes an important instrument of professional development. Freire (1996, p. 32) affirms that “there is no teaching without research and no research without teaching,” emphasizing that teachers must assume an investigative stance toward educational phenomena. By researching their practice, analyzing results, and reflecting on students’ learning processes, teachers strengthen their decision-making capacity and continuously improve their professional practice.

In this context, teachers’ professional development must be understood as a continuous, reflective, collaborative process committed to improving the quality of education. Investing in the permanent education of teachers means strengthening not only individual competencies, but also the school’s capacity to respond to contemporary challenges in a critical, ethical, and socially responsible manner.

## REFERENCES

Brasil. Ministério da Educação. Base Nacional Comum Curricular [National Common Curricular Base].

Brasília, DF: MEC, 2018.

- Bogdan, Robert C.; Biklen, Sari Knopp. *Investigação qualitativa em educação: uma introdução à teoria e aos métodos* [Qualitative research in education: an introduction to theory and methods]. Porto: Porto Editora, 1994.
- Castells, Manuel. *A sociedade em rede* [The network society]. 8. ed. São Paulo: Paz e Terra, 1999.
- Freire, Paulo. *Pedagogia da autonomia: saberes necessários à prática educativa* [Pedagogy of autonomy: knowledge necessary for educational practice]. 25. ed. São Paulo: Paz e Terra, 1996.
- Gil, Antonio Carlos. *Métodos e técnicas de pesquisa social* [Methods and techniques of social research]. 6. ed. São Paulo: Atlas, 2008.
- Holmes, Wayne; Tuomi, Ilkka. *State of the Art and Practice in AI in Education*. Luxembourg: Publications Office of the European Union, 2022.
- Imbernón, Francisco. *Formação docente e profissional: formar-se para a mudança e a incerteza* [Teacher and professional education: training for change and uncertainty]. 9. ed. São Paulo: Cortez, 2011.
- Lévy, Pierre. *Cibercultura* [Cyberculture]. São Paulo: Editora 34, 1999.
- Libâneo, José Carlos. *Didática* [Didactics]. 2. ed. São Paulo: Cortez, 2013.
- Moran, José. *Tecnologias digitais para uma aprendizagem ativa e inovadora* [Digital technologies for active and innovative learning]. Porto Alegre: Penso, 2023.
- Nóvoa, António. *Os professores e a sua formação* [Teachers and their education]. Lisboa: Dom Quixote, 1992.
- Perrenoud, Philippe. *Dez novas competências para ensinar* [Ten new competencies for teaching]. Porto Alegre: Artmed, 2000.
- Schön, Donald A. *Educando o profissional reflexivo: um novo design para o ensino e a aprendizagem* [Educating the reflective practitioner: a new design for teaching and learning]. Porto Alegre: Artmed, 2000.
- Severino, Antônio Joaquim. *Metodologia do trabalho científico* [Methodology of scientific work]. 24. ed. São Paulo: Cortez, 2017.

Meiry Cristiane Richil de Carvalho | Franciele Raquel Hickmann | Lindamir Svidzinski | Ronilda Roacab de Meneses | Adriana Peres de Barros | Jane Gomes de Castro | Luciano João da Silva | Javan Ferreira | Solange da Cunha Machado | Glicélio Ribeiro Nobre

---

Tardif, Maurice. Saberes docentes e formação profissional [Teachers' knowledge and professional education]. 17. ed. Petrópolis: Vozes, 2014.

UNESCO. Guidance for Generative AI in Education and Research. Paris: UNESCO, 2023.

Zabala, Antoni; Arnau, Laia. Como aprender e ensinar competências [How to learn and teach competencies]. Porto Alegre: Artmed, 2010.