Pedagogical Practices with Technologies: what the ANPEd database reveals

Práticas Pedagógicas com Tecnologias: o que revela o banco de dados da ANPEd

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Abstract
Pedagogical practices are situated activities that permeate the school context and concern the actions planned and executed by the teacher. Technologies have been of great value in streamlining these practices in this mediation process. Thus, this work aims to analyze the publications of the ANPEd, carried out from 2015 to 2021, about pedagogical practices using technologies. We adopted qualitative, through a review of the State of Knowledge literature, focusing on Work Group 4 – Didactics, and Work Group 16 – Education and Communication, based on the descriptors of pedagogical practice and technologies. The results indicate that few works deal with these descriptors interconnectedly in the time frame in question. In addition, the works do not present a clear concept of pedagogical practice(s). Therefore, investigations are needed to help elucidate this concept.

Keywords: Pedagogical practices; Technologies; ANPEd.

Resumo
As práticas pedagógicas são atividades situadas que permeiam o contexto escolar e dizem respeito às ações planejadas e executadas pelo professor. Nesse processo de mediação, as tecnologias têm sido de grande valia para a dinamização dessas práticas. Assim, este trabalho objetiva analisar as publicações da ANPEd, realizadas de 2015 a 2021, acerca das práticas pedagógicas com a utilização de tecnologias. Adotamos a pesquisa qualitativa, através da revisão da literatura do tipo Estado do Conhecimento, tendo como foco o Grupo de Trabalho 4 – Didática, e o Grupo de Trabalho 16 – Educação e Comunicação, a partir dos descritores *prática pedagógica* e *tecnologias*. Os resultados apontam que, no marco temporal em questão, são escassos os trabalhos que versam sobre esses descritores de forma interligada. Além disso, os trabalhos não apresentam um conceito claro de prática(s) pedagógica(s), sendo necessárias, portanto, investigações que ajudem a elucidar esse conceito.

Palavras-chave: Práticas Pedagógicas. Tecnologias. ANPEd.

1. Introduction

In the school scenario, one of the most common themes that people usually reflect on, especially in pedagogical meetings between peers, concerns pedagogical practices; after all, they move the teaching-learning process, and it is natural to be interested in discussing them by undertaking efforts to improve teaching. However, this interest is not restricted to the school space (teachers and administrators) and has also been the target of the motivations of some researchers (FERNANDES, 2006; BRAGA, 2012, FRANCO, 2016; CUNHA, 2016; ROSA, 2017; SANTOS, 2017; MODELSKI; AZEREDO; GIRAFFA, 2018; CERUTTI; BALDO, 2020; ALMEIDA *et al*. 2021, among others).

It is from research that possibilities for change will present to teachers. Researchers have contributed significantly to improving teaching work, showing that working from evidence-based interventions and practices can be a fruitful path and a differential for teaching work to produce good results (ORSATI *et al*., 2015; BISSONNETTE; GAUTHIER; BOCQUILLON, 2020).

The researchers' concern has been to highlight the importance of pedagogical practices for the excellent result of the teaching-learning process and the formation of the subject, showing that they are not just natural actions and a consequence of teaching; on the contrary, they are actions planned and marked by academic alignments that are often implicit in teaching actions, even if teachers are not aware of it (ALMEIDA *et al*., 2021). Authors point out that when the teacher's pedagogical practice is based on an explicit theory, the results for the teaching-learning process are much more solid.

Walking in this direction, Franco (2015) points out that pedagogical practices occur from the teacher's planning, from the beginning of its organization, expanding beyond what was systematized when put into action. These practices, when well designed, mobilize students' prior knowledge, built in the school spaces in which they immerse, and also in other spaces; after all, throughout their life, the student is crossed by formal, informal, and non-formal education[i].

In this context, when discussing pedagogical practices and their concepts, we must maintain sight of the need to integrate technologies into these practices; after all, they help to streamline and innovate them, not to mention that they are everywhere, being a constant presence in the students' routine and of great value for the teaching-learning process. Thus, "inserting the student into his reality makes him see himself participating in society and thus

becoming a citizen, being able to take advantage of the technological innovations that are part of his daily life in the information age" (VASCONCELOS, 2017, p. 68). That is, the teacher, from his pedagogical practices with the use of technologies, will approach the context of his students and value his time, which, at present, is notably technological.

Given these initial considerations, the following question arises: what does the National Association of Graduate Studies and Research in Education (ANPEd)[ii] database reveal about pedagogical practices using technologies?

Based on this problem, the present work aims to analyze ANPEd publications, carried out from 2015 to 2021, about pedagogical practices with the use of technologies.

Methodologically, it is a research of literature review of the State of Knowledge type, with a qualitative approach, analyzed from the very theoretical reference of the search. Thus, we bring the balance from adopting the State of Knowledge, making the interconnections with the intended research objective.

2. Methodological route: The State of Knowledge

In an attempt to reach the objective proposed in this research, we carried out the State of Knowledge regarding what has been produced about pedagogical practices with technologies in the Annals of ANPEd, especially in Working Group 4 – Didactics, and in Working Group 16 – Education and Communication, having as time frame 2015 to 2021 (37th, 38th, 39th and 40th national meetings)[iii].

The choice for this base is justified by the fact that it is a non-profit entity that brings together strict sensus postgraduate programs in education, professors and students linked to such programs, and other researchers in the area, to develop science, education, and culture within the principles of democratic participation, freedom, and social justice, its primary objectives being the strengthening and promotion of the development of postgraduate teaching and research in education, seeking to contribute to its consolidation and improvement, in addition to stimulating new experiences in the area, thus encouraging educational research and related topics, promoting the participation of the academic and scientific communities in the formulation and development of the country's educational policy (ANPED, n.d.).

The choice of GT 4 – Didactics and GT 16 – Education and Communication is justifies by the fact that the first has a direct relationship with our object of investigation – the

pedagogical practices, and the second, as it is the specific discussion group on technologies, part of our interest in this study.

Regarding the option for the State of Knowledge, we adopted this research technique because, according to Morosini, Santos, and Bittencourt (2021, p. 23), "[...] in social research we work with the notion of knowledge construction at a given time and space, which points to the search for understanding what was found". In addition, according to the authors, the "[...] State of Knowledge is identification, registration, a categorization that lead to reflection and synthesis on the scientific production of a given period, it was bringing together periodicals, theses, dissertations, and books on a specific theme" (MOROSINI; SANTOS; BITTENCOURT, 2021, p. 23). In our case, we focused on the Annals of ANPEd, due to the importance of this base for education research.

To carry out this State of Knowledge, we used pedagogical practices and technologies as descriptors, making the initial reading of the titles, abstracts, and keywords to find the interconnection between the two descriptors. In a second moment, we scanned the texts to find this interconnection, proceeding with categorizing and analyzing the data.

3. Publications on pedagogical practices with technologies in GT 4 – Didactics and GT 16 – Education and Communication from 2015 to 2021

The State of Knowledge was carried out from the ANPEd website, opting for national meetings due to their scope and the works section for adding more information. Thus, from the first searches, using the mentioned descriptors as a basis, the works that appear in Chart 1 were found.

Table 1 – Pedagogical Practices with Technologies at ANPEd

GT	Reunião/Ano 37ª/2015	Reunião/Ano 38ª/2017	Reunião/Ano 39ª/2019	Reunião/Ano 40ª/2021
GT 4 - Didactics	1 task	No task	No task	3 tasks
GT 16 – Education and Comunication	5 tasks	1 task	No task	1 task
Total tasks: 11				

Source: Survey data (2022)

As we can see, based on the data available in Table 1, only a few works in the Annals of ANPEd deal directly with the interconnection between pedagogical practices and technologies, with only 11 appearing in the last four meetings of the

association above in seven years. Furthermore, it is necessary to point out that these two GTs are the most conducive to presenting works with these descriptors – the first because it is the specific field of Pedagogy to work on pedagogical practices; the second, as it is the focus of interest for researchers who want to discuss communication, education, and technology.

It is worth mentioning that, during the initial searches, some works presented the terms "pedagogical practices" and "technologies", but each descriptor in different texts, without any relationship. In addition, the unselected works that mentioned the descriptor "pedagogical practices" appeared loosely in the texts whose central focus of discussion was not the practices. In this regard, the research developed by Almeida et al. (2021), entitled Pedagogical practices in basic education in Brazil: what research in education shows, reached similar conclusions. As signaled by the authors, "although the reference to pedagogical practices appears in many works, whether doctoral theses or articles, the procedures, and processes involved in their implementation, as well as their study, are not always addressed in the analyzes found" (ALMEIDA *et al.*, 2021, p. 37).

What is observed in many texts on various subjects is that they mention the term "pedagogical practice(s)" because it is part of any subject that concerns the school. Although the classroom is not, as in this work, there is no intention of studying these practices as an object of investigation. In Table 2 below, we present the 11 works selected to compose the corpus of this investigation.

Table 2 – Papers on Pedagogical Practices Associated with Technologies

Year	Autors	bonding institution	Region	Title	GT
2015	GOMES, Suzana dos Santos	UFMG	SE	Didactics, Teaching Practices and the Use of Technologies in Higher Education: knowledge in construction	GT 4 – Didactics
2015	SILVA, Ana Elisa; Drummond Celestino	UFBA	NE	Pedagogical Practices and Collaborative Productions: reflections on the use of smartphones in the school context	GT 16 – Education and Comunication
2015	ROSSINI, Tatiana Stofella Sodré; SANTOS, Edméa Oliveira dos	UERJ	SE	*Open-Interactive Design: a research-training device in cyberculture*	GT 16 – Education and Comunication

2015	PISCHETOLA, Magda	PUC-Rio	SE	Technologies in the Classroom: contributions to a sustainable pedagogy	GT 16 – Education and Comunication
2015	VELOSO, Maristela Midlej Silva de Araujo; BONILLA, Maria Helena Silveira	UFSB/UFBA	NE	The Teacher and Authorship in Times of Cyberculture: the network of creation of curriculum acts	GT 16 – Education and Comunication
2015	NICHELE, Aline Grunewald; SCHLEMMER, Eliane	IFRS/UNISINOS	S	Paths of a pedagogical practice with the use of mobile and wireless technologies in the degree in Chemistry	GT 16 – Education and Comunication
2017	NASCIMENTO, Neuvani Ana do; CARVALHO, Rose Mary Almas	SME GOIÂNIA/PUC-Goiás	CO	The Formative Processes in Teaching Work Mediated by Technologies: echoes and repercussions	GT 16 – Education and Comunication
2021	MESQUITA, Silvana Soares de Araújo; SOUZA, Maria Inês Marcondes de	PUC-Rio	SE	Between school form and possible didactic reinventions: the logic of action in remote teaching	GT 4 – Didactics
2021	LOPES, Ana Lucia de Souza	Universidade Presbiteriana Mackenzie	SE	Digital Culture and Teaching Practice: ruptures and continuities in the context of post-covid19 higher education	GT 4 – Didactics
2021	PEREIRA, Ednaldo Coelho	SEC-Roraima	N	Flipped class with the use of digital information and communication technologies in times of pandemic	GT 4 – Didactics
2021	FANTIN, Monica; SANTOS, Lizyane Francisca Silva dos	UFSC/SME-Florianópolis	S	The Trails Traveled by Early Childhood Education Teachers in the Pandemic: between means, productions, and mediations	GT 16 – Education and Comunication

Source: Survey data (2022)

Of the 11 works that qualify this investigation, offering signals for the importance of pedagogical practices associated with technologies, published in the last seven years, more than half (6) were published in 2015, only one in 2017, and four in 2021. In other words, interest in the topic, which was quite evident in 2015, dropped significantly in 2017, growing again in 2021.

These data are exciting for two reasons: first, the concern with integrating technologies in pedagogical practices is something other than the last three years due to the Covid-19 pandemic. Researchers were already aware of the importance of this integration long before due to the need to keep up with social changes that, as we know, require an honest look at technologies. Second, the pandemic has revived researchers' interest in the

subject in question; after all, technologies in education have been used less than in the last three years, which explains the sudden growth in research.

Another very relevant data is the fact that the works were produced in institutions located in the five regions of Brazil: North (1), South (1), Northeast (2), Midwest (1), and Southeast (6). It is noted, in this data, a predominance of research in the Southeast region, with six works. However, this is not new because, according to Almeida et al. (2021, p. 46), "[...] most Brazilian universities with consolidated postgraduate programs [...] are located in the Southeast region of the country, which may contribute to explain the concentration of works in this area. Region".

Another relevant data presented in Table 2 is the collaboration between institutions and researchers, as is the case of Veloso and Bonilla (2015) – UFSB and UFBA; Nichele and Schlemmer (2015) – IFRS and Unisinos; and Nascimento and Carvalho (2017) – SME Goiânia and PUC-Goiás; Fantin and Santos (2021) – UFSC and SME-Florianópolis. According to Almeida et al. (2021, p. 39), "this is an interesting signal, as it shows networking on similar topics, configuring the integration of researchers within various areas of knowledge." Furthermore, in the authors' words, when researchers strive to carry out joint investigations and theoretical sharing, they strengthen pedagogical perspectives.

In the investigation of the theme in question, still based on the data in Table 2, something that calls attention is the predominance of women. Of the 17 researchers related to the 11 works, 15 are women, and only two are men.

Regarding the methodology adopted in the surveys, all bring a qualitative approach, presenting variation only in the data collection instruments: interview, questionnaire, observation, focus group, document analysis, and case study, among others.

Regarding the distribution of works by Work Group, WG 16 – Education and Communication added the most significant number of works (7), while WG 4 – Didactics had four works.

One last analysis that we find pertinent to point out is that, in none of the 11 works displayed in Table 2, there was any conceptualization about pedagogical practice(s), which leads us to understand that working pedagogical practices from the perspective of the concept it is not something simple or familiar, pointing, therefore, to the need for research

with this focus to be embraced by researchers, something that will add a lot in the field of didactics.

It is noted that the authors of this text are involved in research that involves the theme addressed in the National and International Research Network (Brazil and Portugal), leading a larger project called Educational practice as social practice, whose coordination is carried out by the teacher Doctor Nilma Margarida de Castro Crusoé, from the State University of Southwest Bahia (Uesb). In addition, other authors carry out research on training practices with technologies in different educational contexts, specifically in the state of Sergipe, focusing on public and private education networks, both in Basic Education and in Higher Education, pioneering paths and mishaps regarding the meanings, epistemologies, and issues related to the practices carried out by teachers at different levels and networks.

Thus, after carrying out these analyses, we were also concerned with understanding the focus of the content of the 11 texts. To this end, we carefully read the works and, after some reflection, created four categories described below.

Table 3 – Categorization of research on pedagogical practices with technologies

Categories	Theoretical clues
Teaching training for the use of technologies in pedagogical practices	Contribution and place of didactic knowledge in teaching training and practice; training requirement to deal with a dynamic society permeated by technologies; teachers' preparation conditions to use resources in the construction of students' knowledge (GOMES, 2015); training as necessary for changing pedagogical practices (PISCHETOLA, 2015); discovery of other possibilities for teaching based on training in the use of technology (VELOSO; BONILLA, 2015); split between theory and practice in training (NASCIMENTO; CARVALHO, 2017).
Incorporation of technologies in teaching for the diversification of pedagogical practices	Technology enables teachers to develop new potential in pedagogical work; favors the construction of knowledge in non-linear ways (GOMES, 2015); flexibility for pedagogical practices (PISCHETOLA, 2015); attempts to integrate technologies into pedagogical practices (NASCIMENTO; CARVALHO, 2017); increase the range of alternatives for greater effectiveness in teaching (PEREIRA, 2021).
Need for infrastructure	Institutions need adequate resources to meet new educational demands (GOMES, 2015).
Sharing practices	Teachers have innovative sharing practices through smartphones; the sense of sharing must integrate pedagogical practices (SILVA, 2015).

Source: Elaboration based on the research (2022).

Regarding the first category shown in Chart 3, entitled Teacher training for the use of technologies in pedagogical practices, it is clear the need for educational institutions to invest more consistently in teacher training since didactic knowledge, as Gomes points out (2015), makes an outstanding contribution to training and teaching practice. Furthermore, our

society is notably technological and digital, and teachers must understand that they must keep up with changes. For that, they must enter continuing education courses that qualify them to use different technologies in favor of teaching.

> It is through technologies, from active mediations, that potentialities emerge. Time and space are no longer obstacles, providing education without distance, without time, leading the educational system to assume a role not only in forming citizens belonging to that space but also in an inclusive training space in a plural society (VASCONCELOS, 2017, p. 19).

Thus, valuing technologies in the teaching-learning process and streamlining the process is a need for social inclusion. After all, in this digital age in which we are immersed, turning a blind eye to the use of technologies, such as digital ones, is disrespectful to the education of the student who, being from a different time than the teacher was formed, needs to receive an education consistent with his time.

We do not conceive of using technologies as the "salvation of the crop" or as the secret to improving education. Following the thinking of Veloso and Bonilla (2015), it is actually about discovering, from technologies, other possibilities to move forward in the teaching-learning process without being tied to a single methodology but diversifying methodologies from what technologies can offer. To achieve this purpose, it is fundamental that the teacher has a theoretical framework related to technologies that support their pedagogical practices. From good training, they will realize that the fusion between theoretical and practical knowledge related to the field is necessary. Use of technologies in teaching, as pointed out Nascimento and Carvalho (2017)

Regarding the second category, the Incorporation of technologies in teaching for the diversification of pedagogical practices, Gomes (2015, p. 15) draws attention to the "[...] integration of different media, combining video, audio, sound resources, animation, texts, graphics, and others, expanding the spaces of the teaching-learning process". In other words, practices are diversified to get out of the linearity that is usually perceived in the daily life of the classroom, which, given its repetitive and monotonous character, ends up discouraging the student and his interest in school. Thus, the more the teacher manages to diversify his teaching methodologies, the better it will be for the student's training process, and he can do this since "[...] the technological instrument has the potential to overcome teaching-learning difficulties, offering greater flexibility for pedagogical practices" (PISCHETOLA, 2015, p. 3).

In this context, it should be noted that it is not enough to incorporate technologies into classes in any way; it is necessary to have clear and well-defined objectives, something that requires prior planning, as indicated by Nascimento and Carvalho (2017) and Modelski, Azeredo, and Giraffa (2018). That is, technology cannot be seen as something neutral (instrumentalism) nor as an automatic transformer of pedagogical practices (determinism), as indicated by Nascimento and Carvalho (2017). It is necessary to take a critical look at them, seeing them not as an end but as a means to achieving goals, whose control is in the hands of the teacher, in the way he will use technological resources and how he will conduct his practices.

To Pischetola (2015), "training must change the perception of technology, even before its use. It must be able to activate pedagogical reflections and open new cultural horizons, which include a predisposition to change pedagogical practices [...]". This is the path to be taken if one intends to work with pedagogical innovation.

Regarding the third category, Need for infrastructure, it is noted that it is one of the biggest obstacles when valuing and using technologies in teaching-learning. School institutions, in large part, despite the efforts of their teachers and managers, need an adequate infrastructure for the use of technologies, such as digital technologies. Many need a computer lab that students and teachers can use. When they have laboratories, others need internet access for the innovative practices they need. So, we talk a lot about the Need, but in everyday life, a little different happens.

> Concerning ICT, its introduction in education [...] requires analysis from two angles. The first refers to the acquisition of equipment by the institutions, with adequate resources for the new educational demands involving technologies. The second concerns the preparation conditions of teachers so that, creatively and critically, they have favorable conditions to use such resources in favor of the student's knowledge construction process and as a contribution to their continuous training (GOMES, 2015, p. 17).

That is, for the teacher to actually integrate technologies into their pedagogical practices, they will initially need a school equipped with the technological resources they need. Added to this, he needs to be included in training courses for the use of technologies, paying attention both to the creative character of its use and the critical character, since, when making use of a given technology, the teacher needs to before questioning to what extent its use will add value to a given practice, after all, one cannot use it by itself, in a mere

appreciation of the instrument, since it is essential to focus on how the resource will contribute to the change of the practice.

The fourth category, Sharing practices, stood out a lot in the texts that comprise this investigation's corpus. This digital scenario in which we live has unimaginably resized people's lives. If before we were just users of digital technologies, behaving only in a passive and consumerist way, today we live in the age of sharing. We share all kinds of subjects on the network, and it has been the same regarding education. Sharing has been a hallmark of these last few years.

Teachers should view the current ease of producing and sharing content favorably. How many exciting ideas have we learned on the net through our peers' sharing, enabling us to test in our contexts? How many innovative pedagogical practices do we find in different parts of Brazil and the world that inspires us to do something similar or even reproduce it in our school contexts? The pedagogy of sharing is something positive that should be considered in the teaching-learning process.

Based on this context, research by Silva (2015, p. 1), entitled Pedagogical Practices and Collaborative Productions: reflections on the use of smartphones in the school context, "[…] reveals that teachers […] have innovative practices of communication, production, and sharing of information, content, through the smartphone, despite not using these practices on a daily basis, due to cultural issues".

Still, according to Silva (2015, p. 9), "the sense of sharing must integrate pedagogical practices, as it is associated with the idea of collaboration, producing information and content and disseminating it on the internet […]". It leads teachers and students to modern pedagogical practice.

4. Final considerations

Pedagogical practices are one of the elements in the field of Didactics that stand out the most in teaching work. After all, all actions undertaken daily by teachers at school are considered pedagogical, considering that they have a direct and intrinsic relationship with the teaching-learning process.

However, these practices should not be seen simply as natural acts of the teacher's craft. They must be thought out, planned, and systematized to achieve objectives, so teachers must take teaching planning, one of the elements of Didactics, more seriously. Teaching

cannot be conducted through improvised actions, as they need to have the necessary effects. Improvisation can and does happen, but it should not be routine. Therefore, understanding that pedagogical practices are of paramount importance for the formation of the individual is something that the school must maintain sight of.

In the current scenario, for pedagogical practices to be more effective, they must keep up with the changes imposed by new times, which demand technologies to streamline and innovate the process. In this context, we proposed in this work to analyze ANPEd publications, carried out from 2015 to 2021, about pedagogical practices with the use of technologies in order to understand how this theme is being considered by researchers since technologies are increasingly more inherent to human beings.

Thus, based on a careful analysis, the results indicate that, in the timeframe from 2015 to 2021, referring to the last four national meetings of ANPEd, there are few works that deal with pedagogical practices and technologies in an interconnected way. In addition, the works need to present a clear concept of pedagogical practice(s). Therefore, investigations are needed to help elucidate this concept.

From this perspective, we believe that, with the consequences of the pandemic period, the number of works/productions on the subject investigated tends to increase, as it was realized how vital the State's duty was to ensure, in the time of a pandemic, "education for all." However, in addition to the technological resources themselves, it is necessary for teachers and parents to familiarize themselves with technologies in order to improve skills and competencies in the formative path of students and children, respectively, as Vasconcelos and Menezes (2020) assure.

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Notas

[i] [...] formal education is that developed in schools, with previously demarcated contents; informal as that which individuals learn during their socialization process – in the family, neighborhood, club, friends, and so on, laden with values and cultures of their own, of belonging and inherited feelings: and non-formal education is that which is learned in the world of life', via the processes of sharing experiences, mainly in everyday collective spaces and actions (GOHN, 2006, p. 28).
[ii] From now on only ANPEd.
[iii] National meetings are biannual, so from 2015 to 2021, there were only four meetings. We opted for national meetings due to the scope and diversity of work. In addition, the most relevant works of regional meetings must be included in the national meeting annals.

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