

CARACTERIZAÇÃO DA PRODUÇÃO CIENTÍFICA NA ÁREA DE INOVAÇÃO PEDAGÓGICA DO CURSO DE DOUTORADO DA UNIVERSIDADE DA MADEIRA

CARACTERIZACIÓN DE LA PRODUCCIÓN CIENTÍFICA EN EL ÁREA DE INNOVACIÓN PEDAGÓGICA DEL CURSO DE DOCTORADO EN LA UNIVERSIDAD DE MADEIRA

CHARACTERIZATION OF SCIENTIFIC PRODUCTION IN THE PEDAGOGICAL INNOVATION AREA OF THE PhD COURSE AT THE UNIVERSITY OF MADEIRA

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RESUMO: Desde 2003, a existência de uma linha de pesquisa em Inovação Pedagógica no Centro de Investigação em Educação da Universidade da Madeira, possibilitou a ampliação da produção científica nesta área. Após esse tempo, urge sistematizar os aspetos identitários, os elementos epistemológicos e de boas práticas reconhecidas como inovadoras para o campo da Pedagogia e da Educação. Neste artigo apresentamos a parte inicial do projeto *Inovação Pedagógica: Identidade, Teoria e Práticas (IPITP)* onde caracterizamos a produção científica realizada na área de Inovação Pedagógica do curso de doutoramento da Universidade da Madeira (PT). Concluimos que os pesquisadores são maioritariamente femininos e de nacionalidade brasileira. Os temas mais investigados são os que possuem maior relação com o espaço escolar e tornam evidente a presença de invariantes culturais que dificultam a inovação pedagógica. O conhecimento oriundo destas pesquisas mostra a perfusão entre a teoria e a prática bem conjugada com o método de pesquisa descritiva utilizado.

PALAVRAS-CHAVE: Inovação pedagógica. Produção científica. IPITP. Educação.

RESUMEN: Desde 2003, la existencia de una línea de investigación en Innovación Pedagógica en el Centro de Investigación en Educación de la Universidad de Madeira ha permitido ampliar la producción científica en esta área. Después de ese tiempo, es urgente sistematizar los aspectos de identidad, los elementos epistemológicos y las buenas prácticas reconocidas como innovadoras para el campo de la pedagogía y la educación. Este artículo presenta el proyecto de Innovación pedagógica: identidad, teoría y prácticas (IPITP) y caracteriza la producción científica en el área de Innovación pedagógica del curso de doctorado en la Universidad de Madeira (PT). Llegamos a la conclusión de que los

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investigadores son en su mayoría mujeres y de nacionalidad brasileña. Los temas más investigados son aquellos que tienen una mayor relación con el espacio escolar y evidencian la presencia de invariantes culturales que obstaculizan la innovación pedagógica. El conocimiento derivado de estas investigaciones muestra la perfusión entre teoría y práctica bien combinada con el método de investigación descriptivo utilizado.

PALABRAS CLAVE: *Innovación pedagógica. Producción científica IPITP. Educación.*

ABSTRACT: *Since 2003, the existence of a line of research in Pedagogical Innovation at the Education Research Center of the University of Madeira, has made it possible to expand scientific production in this area. After that time, there is an urgent need to systematize the identity aspects, the epistemological elements and good practices recognized as innovative for the field of pedagogy and Education. This article presents the Pedagogical Innovation project: Identity, Theory and Practices (IPITP) and characterizes the scientific production in the Pedagogical Innovation area of the PhD course at the University of Madeira (PT). We've concluded that the researchers are mostly female and of Brazilian nationality. The most investigated themes are those that have a greater relationship with the school space and make evident the presence of cultural invariants that hinder pedagogical innovation. The knowledge derived from these researches shows the perfusion between theory and practice well combined with the descriptive research method used.*

KEYWORDS: *Pedagogical innovation. Scientific production. IPITP. Education.*

Challenging education through pedagogical innovation

The line of research in Pedagogical Innovation at the Center for Research in Education at the University of Madeira (CIE-UMa) emerged in 2003 with a master's degree in Educational Sciences, in the field of Pedagogical Innovation. In 2006, UMa opened the first PhD course in Education, in the area of Pedagogical Innovation. The two courses maintained uninterrupted operation until 2016 (FINO; SOUSA, 2016). After an evaluation process by the External Evaluation Committee of the Portuguese Higher Education Assessment Agency (A3ES), Pedagogical Innovation renewed its purpose in a new 3rd cycle course in Higher Education - the PhD in Curriculum and Pedagogical Innovation, currently in operation. In turn, the Master's course in Pedagogical Innovation, accredited by the same evaluation agency, continues to function in response to requests from students in the 2nd cycle of Higher Education.

The purpose of questioning the pedagogical ways of acting together with the specific contexts enabled a new path in education, a new set of objectives, valuing the creation and autonomous practice of students. This is what pedagogical innovation is about in a perspective of rupture with the traditional and institutionalized model of teaching-learning that no longer responds to the surrounding cultural requests and imposes the urgency of a paradigm break. As

Fino (2011) advocates, pedagogical innovation must be guided by a discontinuity in traditional pedagogical practices. This leads to an update of pedagogical ways of acting in contexts at the micro level, giving them a critical look at the organization and functioning of educational systems. Approaching pedagogical innovation means dealing with learning processes and pedagogical practices in order to restore autonomy to students so that they can carry out engaged learning.

From the curriculum⁵ point of view, the two referenced courses (master's and doctorate) of this line of research aim to analyze revolutions, paradigms and pedagogical innovation, starting from a brief historical account of educational institutions from the factory model, the guiding principles of cultural revolutions, addressing the paradigm breaks as models of discontinuous dynamics, until culminating in the concept of pedagogical innovation, with reflection on the person's autonomy. (ALMADA; SOUSA, 2017; SOUSA; FINO, 2005).

In both courses, empirical research leads researchers to develop a critical look at educational contexts focused on pedagogical practices, with qualitative research methodologies where participant observation assumes a preponderant place in regulating the action of researchers.

The Pedagogical Innovation project: identity, theory and practices (IPITP)⁶

Concerned with the volume of information in the area of Pedagogical Innovation in the digital collection of the University of Madeira, we developed the IPITP project with the following objectives: a) To identify the theoretical, conceptual and methodological contributions in the area of Pedagogical Innovation in the research obtained in the course of PhD in Education, in the area of Pedagogical Innovation, from the College of Social Sciences,

⁵ About the discussions on curriculum, read the works of Rudd and Goodson (2016), Uijens (2016), Pacheco and Sousa (2016), Morgado (2016), Moreira and Silva Junior (2016), Kovacs and Tinoca (2017), Fino (2016), Sousa (2016), Pedro (2017), Barbosa and Cassiani (2017), Menezes and Dias (2017), Campani and Silva (2019) and Rocha (2020).

⁶ The project has international cooperation through the Cooperation protocol for scientific activities between the University of Madeira (Portugal) and the Federal University of Sergipe (UFS). For this phase of data collection, we had the collaboration of students from the 2nd year of the Degree in Education Sciences at the University of Madeira, in which we highlight their names: Ana Carolina Leal Nóbrega, Patrícia Sofia Silva Barcelos, Ana Catarina Moura Serrao, Marco Andre Correia Gomes, Ana Isabel Gomes Silva, Catarina Isabel Silva Velosa, Ana Sofia Gonçalves Abreu, Érica Joana Figueira Faria, Ana Sofia Martins de Freitas Joana Olinda Santos Jardim, Ana Patricia Gouveia Salvação, Beatriz Gonçalves Aguiar, Vera Isabel Castro Rocha, Celina Manuela de Sena Aguiar Patrício, Lívia Sisandra da Silva Soares Ferreira, Rosária de Andrade Francisco Silva, Dalila Rodrigues Teixeira, Sara Raquel Rodrigues Silva, Fátima Jacinta Gonçalves da Corte, Neide Maria Santos Gouveia, Joana Catarina Jardim Freitas, Joana Maria Gama Freitas, José Armando Rangel de Abreu, Sara Catarina Carvalho Catanho, Mariana José Silva Fernandes, Maria Matilde Rodrigues Henriques, Nuno Miguel Figueira Lopes, Pedro Miguel Nunes Pimenta.

University of Madeira; b) Identify the Good Practices recognized contextually as innovative, for the field of Pedagogy and Education in these researches; c) Recognize the existence of identity references in the field of educational sciences, in the area of Pedagogical Innovation.

In the first moment, we formulate the questions of the IPITP project: a) What theoretical, conceptual and methodological contributions are identified in the investigations of the PhD course in Education, in the area of Pedagogical Innovation, from the College of Social Sciences, University of Madeira?; b) What good practices are recognized as contextually innovative, for the field of Pedagogy and Education, reported in these investigations?; c) What identity evidences in the field of Educational Sciences, in the area of Pedagogical Innovation, are noticeable in the scientific production of the PhD course in Education, in the area of Pedagogical Innovation?

We take as a methodological reference the qualitative meta-analysis according to Castro (2012) and Strauss's Grounded Theory (1990), as it is widely used in research with a qualitative meta-analytical approach.

We defined three axes to carry out the analysis of doctoral productions registered in the DIGI-UMa repository⁷: a) Epistemological elements of Pedagogical Innovation, in line with Pedagogical Innovation, of CIE-UMa; b) Good Practices recognized contextually as innovative, in the field of Pedagogy and Education, reported in the research on Pedagogical Innovation, of CIE-UMa; c) Identity elements of the CIE-UMa Pedagogical Innovation line. For the collection and subsequent analysis of the information, we established the following protocol:

Table 1 - Protocol for categorizing the collection and analysis corpus

| Analysis axis | Survey Questions | Categories | Entries in the MQE database |
|---|---|---|---|
| A - Epistemological elements of Pedagogical Innovation, identified in the thesis B - Good Practices recognized contextually as innovative, in the field of | What theoretical, conceptual and methodological contributions are identified in the research of the PhD course in Education, in the area of Pedagogical Innovation, from the College of Social | WORK IDENTIFICATION: 1. Work IDENTIFICATION 2. AUTHOR 2. ADVISOR 3. YEAR of conclusion 4. TITLE of the work 5. Number of pages 6. ABSTRACT 7. KEYWORDS 8. SUMMARY | 1. IDENTIFICATION of the work - DOCTORAL THESIS in Educational Sciences in the area of Pedagogical Innovation 2. AUTHOR 2. ADVISOR 3. YEAR OF CONCLUSION 4. TITLE OF THE WORK 5. NUMBER of pages 6. ABSTRACT 7. KEYWORDS 8. SUMMARY |
| | | THEORETICAL ELEMENTS FOR THE | THEORETICAL ELEMENTS FOR THE |

⁷ DIGIUMa acessível em www.digiiuma.pt

| | | | |
|--|---|--|--|
| <p>pedagogy and Education, reported in the theses</p> <p>C - Identity elements of the Pedagogical Innovation line</p> | <p>Sciences, University of Madeira?</p> | <p>CONCEPTUALIZATION OF PEDAGOGICAL INNOVATION:</p> <p>9. CHAPTER for the conceptualization of Pedagogical Innovation.</p> <p>9.1. COMPLETE CHAPTER</p> <p>10. DEFINITIONS of Pedagogical Innovation</p> <p>10.1. AUTHORS mentioned in the explanation of the concept of Pedagogical Innovation</p> | <p>CONCEPTUALIZATION OF PEDAGOGICAL INNOVATION:</p> <p>9. Chapter for the conceptualization of Pedagogical Innovation</p> <p>-The work contains a SPECIFIC CHAPTER for the conceptualization of Pedagogical Innovation.</p> <p>-The conceptualization of Pedagogical Innovation EXPLAINS itself throughout the work.</p> <p>9.1. INCLUDE THE COMPLETE CHAPTER</p> <p>10. DEFINITIONS of Pedagogical Innovation</p> <p>10.1. AUTHORS mentioned in the explanation of the concept of Pedagogical Innovation</p> |
| | | <p>METHODOLOGICAL ELEMENTS USED IN RESEARCH:</p> <p>11. METHODOLOGY used</p> <p>12. TECHNIQUES AND INSTRUMENTS applied</p> <p>12.1 ROLE OF THE OBSERVER (LAPASSADE, 2001).</p> | <p>METHODOLOGICAL ELEMENTS FOR RESEARCH IN PEDAGOGICAL INNOVATION</p> <p>11. METHODOLOGY used</p> <ul style="list-style-type: none"> - Qualitative - Case Study (qualitative) - Ethnographic <p>12. TECHNIQUES AND INSTRUMENTS applied</p> <ul style="list-style-type: none"> - Questionnaire - Interview (semi structured) - Interview (open) - Ethnographic interview - Documentary analysis - Participant observation <p>12.1 If the referred to participant observation refer to the ROLE OF THE OBSERVER (LAPASSADE, 2001).</p> <ul style="list-style-type: none"> - Peripheral participant observation - Active participant observation - Complete or total participant observation |
| | <p>What good practices are recognized as contextually innovative?</p> | <p>EMPIRICAL ELEMENTS FOR THE CONCEPTUALIZATION OF PEDAGOGICAL INNOVATION:</p> <p>13. RESEARCH questions</p> <p>14. OBSERVED PRACTICES</p> | <p>EMPIRICAL ELEMENTS FOR THE CONCEPTUALIZATION OF PEDAGOGICAL INNOVATION</p> <p>13. RESEARCH questions</p> <p>14. OBSERVED PRACTICES</p> <p>15. If referred, please indicate the PRACTICES</p> |

| | | | |
|--|--|--|---|
| | | 15. DEVELOPED PRACTICES | DEVELOPED by the researcher in these contexts |
| | | SYSTEMATIC ELEMENTS ON PEDAGOGICAL INNOVATION: 16. RESULTS 17. CONCLUSIONS 18. RECOMMENDATIONS for other studies. | SYSTEMATIZED ELEMENTS ON PEDAGOGICAL INNOVATION 16. RESULTS 17. CONCLUSIONS 18. Are there RECOMMENDATIONS for other studies?* |
| | What identity evidences in the field of educational sciences, in the area of Pedagogical Innovation, are noticeable in the scientific production of the PhD course in Education, in the area of Pedagogical Innovation? | IDENTITY ELEMENTS OF THE RESEARCH LINE IN PEDAGOGICAL INNOVATION: CONCEPTUALIZATION OF PEDAGOGICAL INNOVATION FROM THE THEORETICAL CORPUS OF THESES CONCEPTUALIZATION OF PEDAGOGICAL INNOVATION FROM THE EMPIRICAL CORPUS OF THESES | SYNTHESIS OF THEORETICAL ELEMENTS FOR THE CONCEPTUALIZATION OF PEDAGOGICAL INNOVATION SYNTHESIS OF METHODOLOGICAL ELEMENTS FOR RESEARCH IN PEDAGOGICAL INNOVATION SYNTHESIS OF THE EMPIRICAL ELEMENTS FOR THE CONCEPTUALIZATION OF PEDAGOGICAL INNOVATION SYNTHESIS OF THE SYSTEMATICIZED ELEMENTS ON PEDAGOGICAL INNOVATION |

Source: Devised by the authors (2020)

In the second moment of the research, we defined as inclusion / exclusion criteria the theses that: a) qualify the PhD degree in Education in the field of Pedagogical Innovation at the University of Madeira; b) integrate the DIGI-UMa repository until January 2020.

In the third moment of the work, we started to collect the research information. We found 21 theses available, between the years 2008 and 2019, which constituted our object of study. This number of theses was considered by us to be an adequate sample, because the universe consists of 25 since the opening of the course at the University of Madeira, until January 2020 and the available value (21) represents 84% of the total of completed theses.

We proceeded to collect the information present in the 21 doctoral theses according to the analysis categories shown in Table 1.

We entered the information in the computer program *Qualitative Meta-analysis in Education* (MQE)⁸, that we developed specifically for this study and that allowed us to trigger the following procedures: a) Gather the information in a categorized way, in accordance with Table 1; b) Redefine new categories based on the selected information; c) Embody an emerging theory from the previous steps (STRAUSS, 1990).

Figure 1 – Presentation of the MQE software



Source: Devised by the authors (2020)

The effectiveness of the previous procedures enables the interpretative description and analysis of the information obtained, allowing to understand the emerging phenomena (STRAUSS, 1990) as well as to build new categories resulting from a more comprehensive view of the analyzed area.

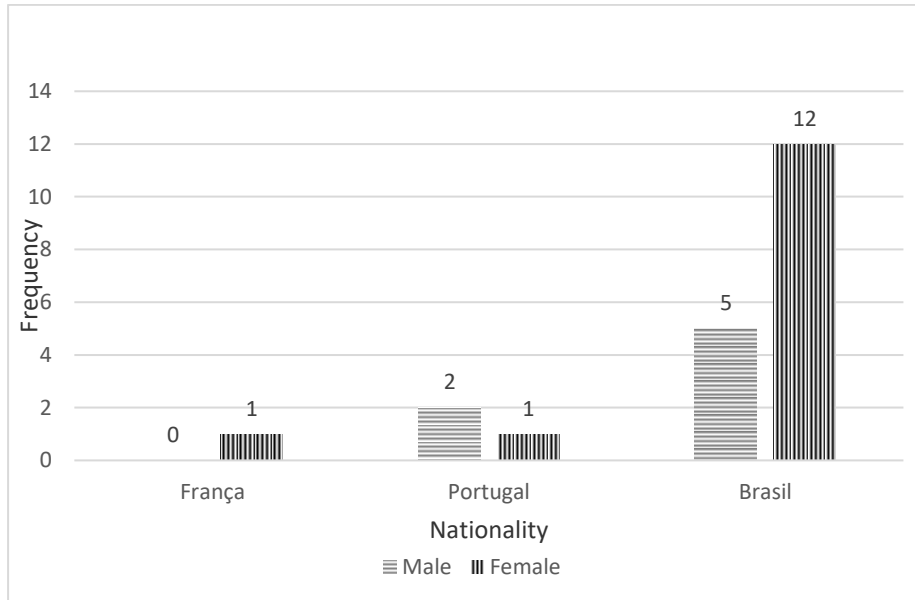
Results

Considering that when we carry out this article this project is in the 3rd stage of development, we have a first set of results related to the characterization of scientific production in the area of Pedagogical Innovation in the PhD course in Education at the University of Madeira, which we now present.

⁸ MQE Computer program developed by the authors for the qualitative meta-analysis of doctoral theses in Education, in the Pedagogical Innovation specialty of the University of Madeira, initially published in <https://a853654.fmphost.com/fmi/webd/MQEv26maio>. This software will also be evaluated in the MQE project: A TOOL FOR QUALITATIVE META-ANALYSIS IN EDUCATION, developed from May 15, 2020 to March 15, 2021, presented in <https://www.researchgate.net/project/MQE-UMA-FERRAMENTA-PARA-A-METANALISE-QUALITATIVA-EM-EDUCACAO>

Graph 1 allows us to characterize the 21 researchers who completed this doctoral course and whose data we have accessed, allowing us to identify their nationality and gender.

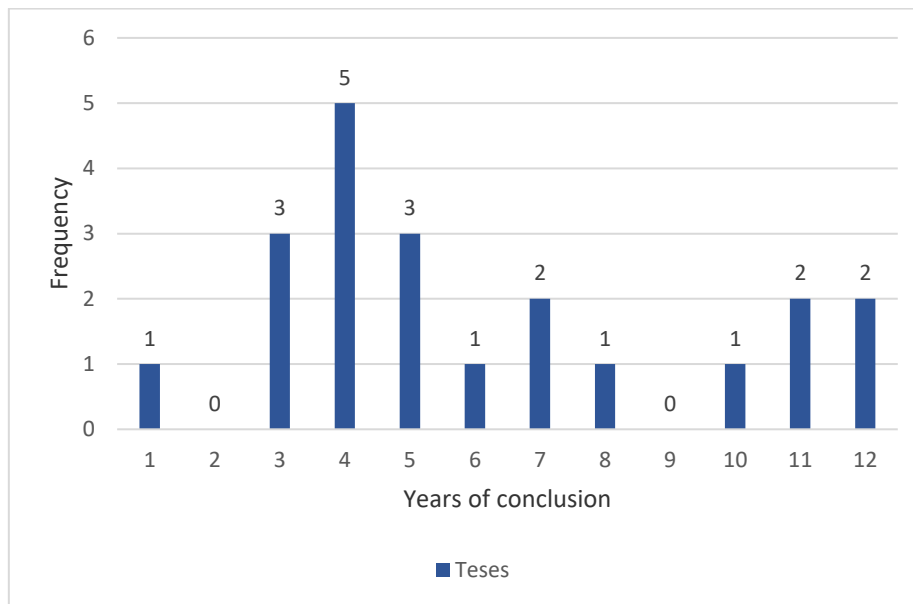
Graph 1 - Nationality and sex of researchers



Source: DIGI-UMa, 2020 (Devised by the authors)

We found that the researchers are predominantly female (66.7%) and are mostly Brazilian (81%). This results from the internationalization effort of this line of research since the opening of the PhD course, in 2006, through partnerships with higher education institutions in Brazil that involved travel to Brazil by Portuguese teachers for teaching, and foreign students to the University of Madeira. to conclude their evaluation processes in the PhD course.

Gráfico 2 - Teses de Doutoramento concluídas em Inovação Pedagógica (2008-2019)

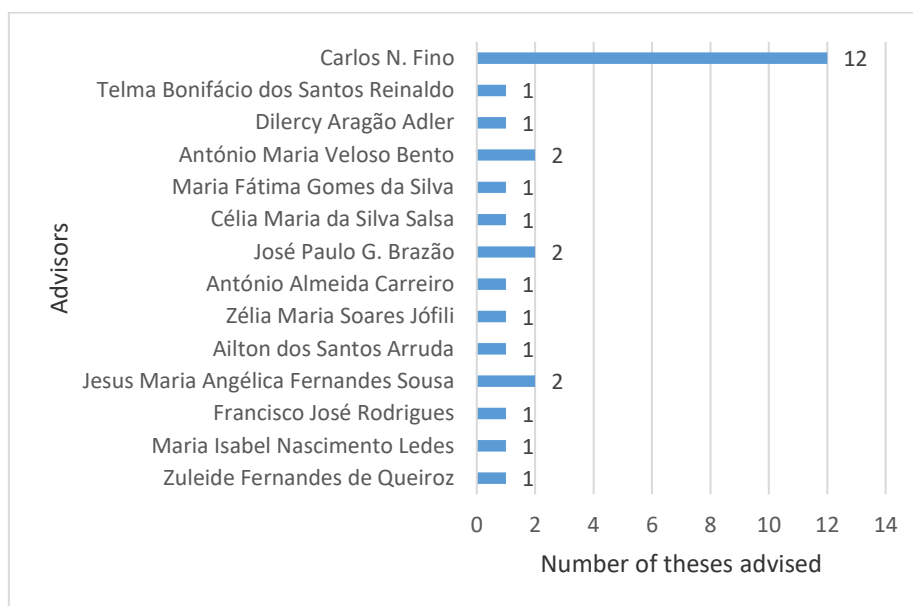


Source: DIGI-UMa, 2020 (Devised by the authors)

Graph 2, allows us to infer that between the years 2010 and 2012, more than half of the totalities of the theses (52.4%) were completed, which attests to the concentration of this investigation, successfully concluded, in those three years. Subsequent years, as well as previous years, report frequencies ranging from 0 to 2.

The number of pages varies according to each thesis, and their values vary between a maximum of 487 pages and a minimum of 278. This fact stems from the specific regulation of that course which states the number of required words (maximum and minimum) for the thesis and does not include the indication of the number of pages. Thus, taking into account the calculation of the number of pages for each of the 21 theses, the calculation of the arithmetic average reported 355.

Graph 3 - Advisors of doctoral theses in Pedagogical Innovation



Source: DIGI-UMa, 2020 (Devised by the authors)

Regarding the participation of advisors in doctoral theses in Pedagogical Innovation (see Graph 3), we observe that Professor Carlos Fino (Director of the course and researcher responsible for the line of research in Pedagogical Innovation) is the advisor with the greatest participation in this process (12 guidelines). Professors Paulo Brazão, António Maria Veloso Bento and Jesus Maria Angélica Fernandes Sousa, each advised two theses. The remaining teachers participated in advising one thesis. The identity aspects of these research works are mainly marked by the influence of the advisor who most oriented the thesis, Professor Carlos Nogueira Fino, the founder, director and coordinator of the research line.

Table 2: Themes and contexts of studied practices

| Title | Themes researched in Pedagogical Innovation | Contexts of Pedagogical Practices studied |
|--|---|--|
| Weblogs, Aprendizagem e Cultura da Escola: Um estudo etnográfico numa sala do 1º ciclo do Ensino Básico⁹ | Weblogs Learning School Culture | Pedagogical practices in ICT in the 4th year cycle of Basic Education |
| Inovação Pedagógica no Curso de Pedagogia da Universidade de | Pedagogy course | Pedagogical practices of the Pedagogy course at the University of Brasília (UnB) |

⁹ Weblogs, Learning and School Culture: An ethnographic study in a room of the 1st cycle of Basic Education

| | | |
|--|--|---|
| Brasília (UnB): um estudo de abordagem etnográfica¹⁰ | | |
| A escola como espaço privilegiado para a construção da identidade negra e afrodescendente: um estudo de caso da Unidade Integrada de Ensino Fundamental Padre António Vieira¹¹ | Construction of black and Afro-descendant identity | Curricular work on Afro-descendant black culture in an 8th grade class of the 4th cycle of Elementary Education |
| Educação Inclusiva, utopia possível: um estudo de caso sobre o papel da escola na inclusão dos deficientes mentais na Unidade de Ensino Básico – UEB Tancredo Neves – São Luís/MA/Brasil¹² | Inclusive education of people with mental disabilities. | The inclusion process of students with mental disabilities in UEB-Tancredo Neves from the Municipal Education Network, as well as the educational trajectory of a student with DM |
| A Tarefa Escolar e Suas Implicações nas Salas de Aula de EJA: Um Estudo de Caso Etnográfico¹³ | School assignment and its implications in classrooms | Pedagogical practices in the Youth and Adult Education (EJA) class |
| Ciclos de Aprendizagem: Caminhos para uma Inovação Pedagógica das Práticas Educativas na Cidade do Recife – Pernambuco?¹⁴ | Learning cycles | Pedagogical practices in first and second cycle classes in the Municipality of Recife |
| Internet – sala de estudo virtual¹⁵ | Internet as a virtual study room | Pedagogical practices in a Higher Education study room |
| Ensino Médio e Cultural Juvenil: um olhar etnográfico sobre a aula, como espaço de construção do conhecimento de alunos e alunas¹⁶ | High school and youth cultural construction of knowledge of male and female students | High school pedagogical practices in the city of Recife. |
| O uso das tecnologias no âmbito da Educação Visual: uma perspectiva inovadora do desenvolvimento da capacidade criadora?¹⁷ | Use of technologies in Visual Education | ICT pedagogical practices within the scope of Visual Education in a 9 grade class of Basic Education |

¹⁰ Pedagogical Innovation in the Pedagogy Course at the University of Brasília (UnB): a study of an ethnographic approach

¹¹ The school as a privileged space for the construction of black and Afro-descendent identity: a case study of the Integrated Unit of Elementary Education Padre António Vieir

¹² Inclusive Education, possible utopia: a case study on the role of the school in the inclusion of the mentally disabled in the Basic Education Unit - UEB Tancredo Neves - São Luís/ MA/ Brazil

¹³ School Task and Its Implications in EJA Classrooms: An Ethnographic Case Study

¹⁴ Learning Cycles: Paths for a Pedagogical Innovation in Educational Practices in the City of Recife - Pernambuco?

¹⁵ Internet - virtual study room

¹⁶ High School and Youth Cultural: an ethnographic look at the classroom, as a space for the construction of knowledge of male and female students

¹⁷ The use of technologies in Visual Education: an innovative perspective on the development of creative capacity?

| | | |
|--|--|---|
| O Percorso Curricular Alternativo, um desafio à Inovação Pedagógica? ¹⁸ Uma abordagem etnográfica aos cenários de aprendizagem de uma turma de 5º ano com proposta de PCA ¹⁹ | Alternative Curricular Course | Pedagogical practices in a class of 5th year of schooling with the proposal of an Alternative Curricular Course |
| O Que a Universidade Faz Com a Cultura Popular O caso da Capoeira como inovação pedagógica ²⁰ | Popular culture Capoeira | Pedagogical practices of the Capoeira circle in Higher Education |
| O círculo de cultura na classe multisseriada: uma inovação pedagógica? ²¹ | Culture in the multi-grade class | Pedagogical practices in a multi-grade class at a municipal school in the city of Itapissuma |
| O Processo de Produção da Obra “Química e Sociedade” como Inovação Pedagógica para o Ensino de Química ²² | Production of the work “Chemistry and Society” | Pedagogical practices on the production of the work “Chemistry and Society” |
| Literacia Científica e Trabalho Prático – Um estudo para a inovação pedagógica em contexto escolar ²³ | Scientific Literacy Practical Work | Pedagogical Practices in Natural Sciences |
| A possibilidade de uma prática inovadora num trabalho interdisciplinar do Colégio Militar de Fortaleza ²⁴ | Interdisciplinary work | Interdisciplinary work of the Military College of Fortaleza |
| Práticas educativas interculturais como Inovação Pedagógica na Escola Indígena Pedro Ferreira de Queiroz, Ibimirim-Pernambuco/Brasil ²⁵ | Intercultural educational practices | Pedagogical practices at the Pedro Ferreira de Queiroz Indigenous School, Ibimirim-Pernambuco/Brazil |
| Inovação pedagógica numa escola pública: as práticas pedagógicas inovadoras mediadas pelas atividades da oficina Rádio Escola ²⁶ | Radio School workshop activities | Pedagogical practices in a Radio School Workshop |
| Educação em Astronomia e Inovação Pedagógica: Desafios e Possibilidades ²⁷ | Astronomy | Pedagogical practices developed by the participants of the Astronomy Club Vega |

¹⁸ The Alternative Curricular Course, a challenge to Pedagogical Innovation?

¹⁹ An ethnographic approach to the learning scenarios of a 5th grade class with a PCA proposal

²⁰ What the university does with Popular Culture: The case of Capoeira as a pedagogical innovation

²¹ The culture circle in the multi-grade class: a pedagogical innovation?

²² The production process of the work “Chemistry and Society” as a Pedagogical Innovation for Teaching Chemistry

²³ Scientific Literacy and Practical Work - A study for pedagogical innovation in the school context

²⁴ The possibility of an innovative practice in an interdisciplinary work by the Military College of Fortaleza

²⁵ Intercultural educational practices as Pedagogical Innovation at the Pedro Ferreira de Queiroz Indigenous School, Ibimirim-Pernambuco/Brazil

²⁶ Pedagogical innovation in a public school: the innovative pedagogical practices mediated by the activities of the Radio School workshop

²⁷ Education in Astronomy and Pedagogical Innovation: Challenges and Possibilities

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| Inovação nas práticas de leitura: Uma realidade ainda distante do ambiente escolar ²⁸ | Reading practices | Pedagogical practices of the “Reading Chest Project” |
| Reisado Cordão do Caroá: Uma prática pedagógica inovadora na cultura popular? ²⁹ | Reisado Cordão do Caroá Popular culture | Pedagogical practice of Reisado Cordão do Caroá |
| A Prática da Etnomatemática na Educação do Campo numa perspectiva de Inovação Pedagógica na Escola Coronel Luiz Ignácio Pessoa de Melo, Aliança-PE-Brasil ³⁰ | Ethnomathematics Rural Education | The Practice of Ethnomathematics in Rural Education at Coronel Luiz Ignácio Pessoa de Melo School |

Source: DIGI-UMa, 2020 (Devised by the authors)

From the analysis of the themes specified in Tables 1 and 2, we can see that there is a great diversity of themes studied in the confrontation with pedagogical innovation. However, the contexts selected for the research focus mostly on formal learning environments, as shown in Table 3.

Table 3: Places studied

| Places | | n | % |
|----------------------------------|-------------------------------------|-----------|------------|
| Non-Formal Learning Environments | Educational spaces in the community | 3 | 14 |
| | School | 4 | 19 |
| Formal Learning Environments | Classroom | 14 | 67 |
| | Total | 21 | 100 |

Source: Devised by the authors (2020)

In other words, formal learning environments were the target of 86% of the total research and of these, 67% took place in the classroom. Only 3 investigations (14%) took place in non-formal learning environments, which attests to the importance that researchers give to formal learning environments. Figure 2 summarizes this conclusion and attests to the hierarchy granted to different learning contexts as privileged spaces for investigation.

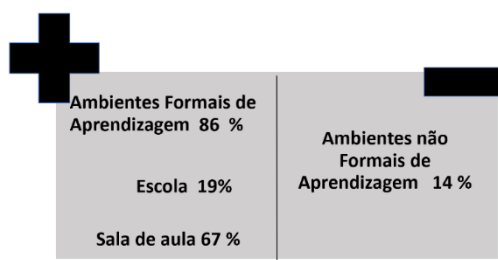
Figure 2 - Hierarchy of research contexts³¹

²⁸ Innovation in reading practices: A reality still far from the school environment

²⁹ Reisado Cordão do Caroá: An innovative pedagogical practice in popular culture?

³⁰ The Practice of Ethnomathematics in Rural Education from a perspective of Pedagogical Innovation at Coronel Luiz Ignácio Pessoa de Melo School, Aliança-PE-Brasil

³¹ We read on the image from left to right: First cell: Formal Learning Environments 86%; School 19%; Classroom 67%. / Second cell: Non-formal Learning environments.



Source: Devised by the authors (2020)

These contextual options result from the great interest of researchers in working on themes that are more related to formal learning environments because this field historically represents a conflict zone, namely at the level of cultural invariants (FINO, 2009) that hinder pedagogical innovation.

Table 4: Keywords used in the theses

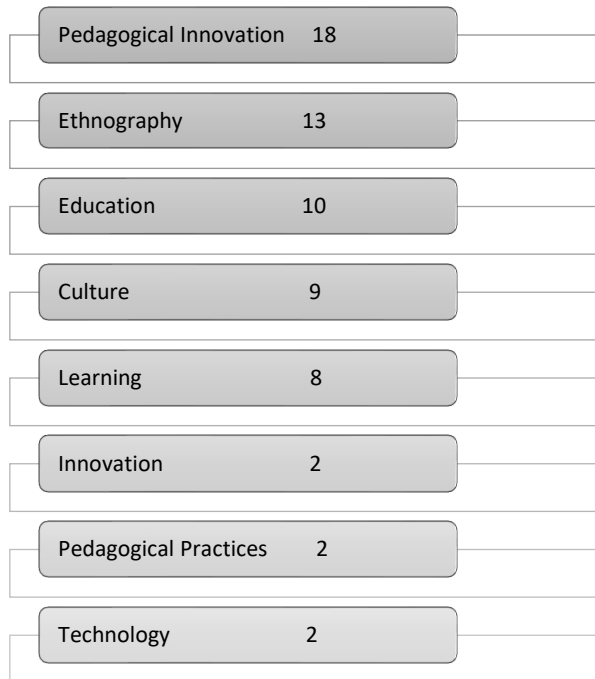
| Keywords | n | % | Keywords | n | % |
|---------------------------|----|----|---|---|---|
| Learning | 8 | 12 | Ethnomathematics | 1 | 1 |
| Culture | 9 | 13 | Ethnic Identity | 1 | 1 |
| Education | 10 | 15 | Black Afro-descendant identity | 1 | 1 |
| Ethnography | 13 | 20 | Dialogic Pedagogical Innovation | 1 | 1 |
| Innovation | 2 | 3 | Internet | 1 | 1 |
| Pedagogical Innovation | 18 | 27 | Invisibility | 1 | 1 |
| Pedagogical Practices | 2 | 3 | LDB Law of Guidelines and Bases of National Education | 1 | 1 |
| Technology | 2 | 3 | Mediatic Languages | 1 | 1 |
| “Chest of Reading” | 1 | 1 | Scientific Literacy | 1 | 1 |
| Collaborative Learning | 1 | 1 | Didactical Book | 1 | 1 |
| Astronomy | 1 | 1 | MEC Ministry of Education and Culture | 1 | 1 |
| Class | 1 | 1 | Capoeira Masters | 1 | 1 |
| Capoeira | 1 | 1 | Education Models | 1 | 1 |
| Circle of Culture | 1 | 1 | Participant Observation | 1 | 1 |
| Multi-grade Classroom | 1 | 1 | PCR Recife City Hall | 1 | 1 |
| Constructivism | 1 | 1 | Pedagogy of Possibility | 1 | 1 |
| Learning contexts | 1 | 1 | Alternative Curricular Course | 1 | 1 |
| School Culture | 1 | 1 | Action-research | 1 | 1 |
| Youth Culture | 1 | 1 | Intercultural Educative Practices | 1 | 1 |
| Chemistry Culture | 1 | 1 | Sociocultural Practices | 1 | 1 |
| Virtual Culture | 1 | 1 | Racial Prejudice | 1 | 1 |
| Curriculum | 1 | 1 | Protagonism | 1 | 1 |
| Mentally handicapped | 1 | 1 | School Radio | 1 | 1 |
| Youth and Adult Education | 1 | 1 | Reisado | 1 | 1 |
| Rural Education | 1 | 1 | Humanistic Sustainability | 1 | 1 |
| Inclusive Education | 1 | 1 | School Task | 1 | 1 |
| Mathematical Education | 1 | 1 | Practical Work | 1 | 1 |
| High School | 1 | 1 | Realizable Utopia | 1 | 1 |
| Indigenous School | 1 | 1 | Weblogs | 1 | 1 |
| Collaborative writing | 1 | 1 | | 1 | 1 |

Source: Devised by the authors (2020)

The variety of themes selected for investigation was mirrored by the existence of a substantial and differential number of keywords, the details and frequency of which are shown in Table 4.

Hence the elaboration of the hierarchical synthesis (see Figure 3), which contains all the keywords included in the theses and whose frequency is greater than 1.

Figure 3 - Hierarchy of Keywords



Source: Devised by the authors (2020).

The keyword *Pedagogical Innovation* concentrates the maximum frequency (27%). This is followed by Ethnography (20%), Education (15%), Culture (13%), Learning (12%), Innovation (3%), Pedagogical Practices (3%) and Technology (3 %).

These results reflect the importance that researchers attach to the epistemology of Pedagogical Innovation, which reveals the existence of an identity of the work carried out with the researched line of research.

Table 5 - Operationalization of objectives in research abstracts³²

| Title | Objectives |
|-------|------------|
|-------|------------|

³² The titles presented in this table are the same as those in table 2.

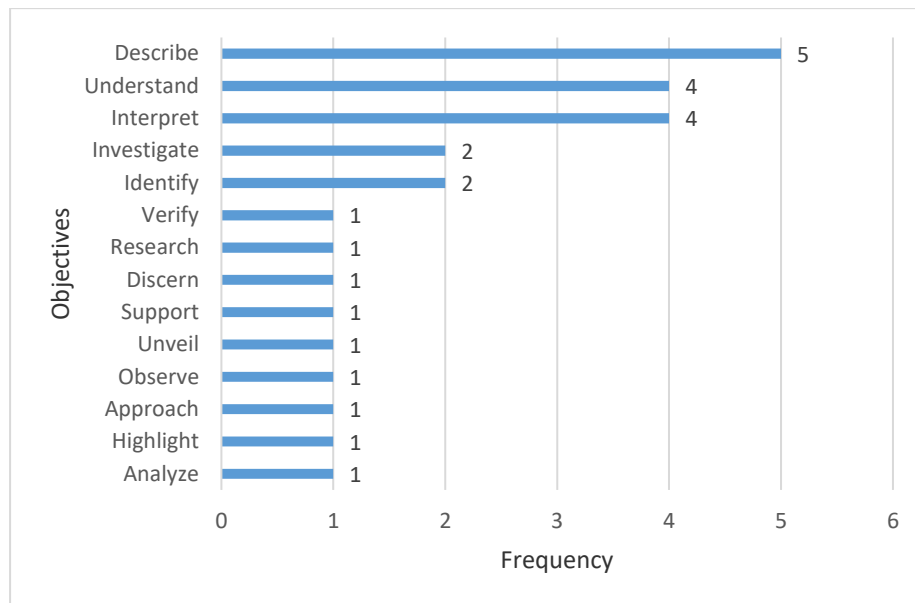
| | |
|---|---|
| Weblogs, Aprendizagem e Cultura da Escola: Um estudo etnográfico numa sala do 1º ciclo do Ensino Básico | Describe and interpret the emerging culture |
| Inovação Pedagógica no Curso de Pedagogia da Universidade de Brasília (UnB): um estudo de abordagem etnográfica | Understand the nature of pedagogical innovation |
| A escola como espaço privilegiado para a construção da identidade negra e afrodescendente: um estudo de caso da Unidade Integrada de Ensino Fundamental Padre António Vieira | Describe and critically analyze the emerging culture |
| Educação Inclusiva, utopia possível: um estudo de caso sobre o papel da escola na inclusão dos deficientes mentais na Unidade de Ensino Básico – UEB Tancredo Neves – São Luís/MA/Brasil | Highlight the role of the school in the process of including students with mental disabilities |
| A Tarefa Escolar e Suas Implicações nas Salas de Aula de EJA: Um Estudo de Caso Etnográfico | Refer to the learning process of students of Youth and Adult Education |
| Ciclos de Aprendizagem: Caminhos para uma Inovação Pedagógica das Práticas Educativas na Cidade do Recife – Pernambuco? | Address the issue of possibilities for pedagogical innovation in the context of learning cycles |
| Internet – sala de estudo virtual | Observe students' use of computers and particularly the Internet |
| Ensino Médio e Cultural Juvenil: um olhar etnográfico sobre a aula, como espaço de construção do conhecimento de alunos e alunas | Describe, analyze and interpret the meaning of the class as a space for the production of knowledge and cultural formation of young people |
| O uso das tecnologias no âmbito da Educação Visual: uma perspectiva inovadora do desenvolvimento da capacidade criadora? | Unveiling the extent to which the use of technologies in the teaching of Visual Education gives rise to innovative practices |
| O Percorso Curricular Alternativo, um desafio à Inovação Pedagógica? Uma abordagem etnográfica aos cenários de aprendizagem de uma turma de 5º ano com proposta de PCA | Describe, understand and interpret the emerging culture |
| O Que a Universidade Faz Com a Cultura Popular O caso da Capoeira como inovação pedagógica | Identify in the Afro-Brazilian foundations of Capoeira, the appropriate pedagogical innovation to support its institutionalization |
| O círculo de cultura na classe multisseriada: uma inovação pedagógica? | Support the introduction of paradigmatic changes that could become pedagogical innovation, in a common practice |
| O Processo de Produção da Obra “Química e Sociedade” como Inovação Pedagógica para o Ensino de Química | Identify contributions from the use of this book in addressing socio-scientific topics |
| Literacia Científica e Trabalho Prático - Um estudo para a inovação pedagógica em contexto escolar | Discern the potential of practical work in the creation of heterodox pedagogical practices where the student is socially participative in the construction of knowledge |
| A possibilidade de uma prática inovadora num trabalho interdisciplinar do Colégio Militar de Fortaleza | Describe and interpret, based on the foundations of ethnography, the educational phenomena and the actions of the subjects involved in the pedagogical practice |

| | |
|--|---|
| Práticas educativas interculturais como Inovação Pedagógica na Escola Indígena Pedro Ferreira de Queiroz, Ibimirim-Pernambuco/Brasil | Research on intercultural educational practices, such as pedagogical innovation in indigenous schools |
| Inovação pedagógica numa escola pública: as práticas pedagógicas inovadoras mediadas pelas atividades da oficina Rádio Escola | Check if a situation of knowledge construction is understood as an emerging culture that opposes traditional pedagogical practices and that can be revealed as pedagogical innovation |
| Educação em Astronomia e Inovação Pedagógica: Desafios e Possibilidades | Investigate and analyze the pedagogical practices developed by the participants of the Astronomy Club Vega |
| Inovação nas práticas de leitura: Uma realidade ainda distante do ambiente escolar | Understand how they are characterized and the relevance of the pedagogical practices of the “Chest of Reading Project”, as a pedagogical innovation |
| Reisado Cordão do Caróá: Uma prática pedagógica inovadora na cultura popular? | Understand these techniques in the process of appropriating playful and historical knowledge, in the transmission to future generations and in learning |
| A Prática da Etnomatemática na Educação do Campo numa perspectiva de Inovação Pedagógica na Escola Coronel Luiz Ignácio Pessoa de Melo, Aliança-PE-Brasil | Investigate whether there was pedagogical innovation in the practice of Ethnomathematics in Rural Education |

Source: Devised by the authors (2020).

Table 5 shows the operationalization of the objectives in the researches carried out and, in relation to each researched topic, we identified the objectives proposed by each researcher. The categorization of the objectives explained here enabled us to synthesize the information related to the taxonomy of the objectives defined for the surveys as well as the respective frequency. Graph 4 shows, in order of magnitude, the most frequent operative verbs: *describe* (5 citations), *understand* (4 citations), *interpret* (4 citations), *investigate* (2 citations), *identify* (2 citations), and the rest operative verbs used less frequently (1 quote): *analyze*, *highlight*, *approach*, *observe*, *unveil*, *support*, *discern*, *research and verify*.

Graph 4 - Research objectives



Source: Devised by the authores (2020)

We did not include in this article the epistemological study of pedagogical innovation in this line of research. This axis of analysis will be better addressed in future publications. We can advance now that the perfusion between theory and practice, as well as the fact that the method of descriptive research used, guides the construction of operative objectives such as *describing*, *understanding*, and *interpreting* (see Graph 4) and is the result of the epistemological influence of Pedagogical Innovation in this line of research.

This aspect also constitutes an element of identity in the work carried out.

Final considerations

The analysis of the scientific production systematized in this work allowed to show some characterizing and strongly striking aspects from the point of view of the line of research in Pedagogical Innovation at the University of Madeira.

We found that the researchers are predominantly female and of Brazilian nationality, the result of the internationalization of this line of research since 2006 with a special focus on Brazil.

The identity aspects of these research works are definitely marked by the influence of the advisor who most guided him, Professor Carlos Nogueira Fino, the founder, director and coordinator of the research line.

On the other hand, it was found that the vast majority of research privileged the physical space of the classroom and the investigative questions aimed predominantly at *describing*, *understanding* and *interpreting* educational phenomena.

Although the epistemological study of the line of research in Pedagogical Innovation constitutes an axis of analysis to be deepened in future publications, we can now proceed with the finding that the choice of topics of greater relation with the space of formal education increases the possibility of identifying and highlight the cultural invariants that hinder Pedagogical Innovation.

The importance attributed to the epistemology of Pedagogical Innovation reveals, on the one hand, the existence of an identity of the works carried out in this line of research, and on the other, it shows the perfusion between theory and practice, used with descriptive research methods used.

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