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Social Representations of Professional Education Teachers on the Application of Generative Artificial Intelligence in the Production of Teaching Materials

Representações Sociais de Docentes da Educação Profissional sobre a Aplicação de Inteligência Artificial Generativa na Produção de Materiais Didáticos

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Abstract

In light of the emergence of applications based on generative artificial intelligence, such as ChatGPT, and the scarcity of studies that explore teachers' intentions in the face of this new challenge, this study aimed to map the Social Representations of a group of teachers from a vocational school in the city of São Paulo regarding the use of generative artificial intelligence in the production of teaching materials. The methodology included a structured questionnaire grounded in the Central Core Theory, using the Free Word Association Technique, with similarity analysis, prototypical analysis, and Descending Hierarchical Classification. The results revealed a dichotomy in teachers' representations: on the one hand, favorable elements were identified as strong candidates to occupy the central core of these representations, such as agility and ease of use. On the other hand, the terms distrust and plagiarism emerged, indicating a less optimistic view of the tool.

Keywords: *ChatGPT. Vocational education. Teacher training. Artificial intelligence. Central nucleus theory.*

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Representações Sociais de Docentes da Educação Profissional sobre a Aplicação de Inteligência Artificial Generativa na Produção de Materiais Didáticos

Resumo

Diante do surgimento de aplicações baseadas em inteligências artificiais generativas, como o ChatGPT e da escassez de estudos que explorem as intenções dos docentes frente a esse novo desafio, este trabalho teve como objetivo mapear as Representações Sociais de um grupo de docentes de uma escola profissionalizante na cidade de São Paulo sobre a utilização da inteligência artificial generativa na produção de material didático. A metodologia incluiu um questionário estruturado, fundamentado na Teoria do Núcleo Central, utilizando a Técnica de Associação Livre de Palavras, com análises de similitude, prototípica e de Classificação Hierárquica Descendente. Os resultados revelaram uma dicotomia nas representações dos docentes: por um lado, foram identificados elementos favoráveis e fortes candidatos a ocuparem o núcleo central dessas representações, como a agilidade e a facilidade. Por outro lado, emergiram os termos desconfiança e plágio, indicando uma visão menos otimista da ferramenta.

Palavras-chave: ChatGPT. Formação docente. Inteligência artificial. Teoria do núcleo central.

1. Introduction

Artificial Intelligence (AI), whose formal development dates back to 1956 in the field of computer science, has undergone gradual advances over the decades. With the advent of emerging digital technologies, this development has intensified, becoming more integrated into everyday life and, consequently, into educational contexts. This progress has had significant impacts on the social fabric, reshaping relationships and behaviors mediated by digital technologies (Silva; Stavny; Kalinke, 2022).

The 2022 launch and rapid rise in popularity of ChatGPT – developed by OpenAI, an AI research organization founded in December 2015 – has driven the adoption of generative AI in various fields, significantly expanding its impact on society. The platform is capable of understanding natural language and generating text, answering questions, performing translations, producing summaries, and carrying out classifications, providing a personalized conversational interaction that facilitates communication and information processing. ChatGPT, the subject of this study, in its free version based on the GPT-4.0 (Generative Pre-Trained Transformer) model, is an advanced application of generative AI. This type of technology is characterized by its ability to produce new content, data, and solutions based on information previously stored in extensive databases (Hessel; Lemes, 2024).

From this perspective, generative AI is not limited to simply reproducing existing material. Rather, it operates through models trained on large volumes of data, enabling them to identify patterns, styles, structures, and relationships during the learning process. Based on this training, these systems go on to generate original content grounded in the patterns they have learned (Hessel; Lemes, 2024).

The integration of generative AI into the educational context has sparked important reflections on its impacts on teaching and learning processes, highlighting both challenges and possibilities. In this regard, Leite (2024) argues that this transformation is likely to be even more significant than other recent technological changes, such as the widespread adoption of mobile devices and the internet. Complementing this, Andrade Filho (2023) points out that there are differing perceptions regarding the use of AI in education. While some view it as a threat to the development of critical thinking and the value of in-person instruction, others emphasize its potential to promote personalized learning and foster the development of critical skills.

In this debate, Carvalho and Pimentel (2023) ask: How do students and teachers use this technology? What kind of subjectivity does it produce? How does it influence ways of thinking and constructing knowledge? Santos and Silva (2024) warn that generative AI could transform the way we teach and learn. Leite (2024)

asserts that it is essential to reflect on human creativity in light of the advances in knowledge made possible by generative AI. From this perspective, Costa, Oliveira, and Malcher (2022) add that the use of tools such as ChatGPT can foster practices that promote student autonomy and personalized instruction. Almeida (2023) analyzes technological advancement from a dichotomous perspective, highlighting that its use can have both positive and negative implications. On the one hand, when used ethically, technology helps broaden horizons, fostering research, learning, and high-quality scientific output. On the other hand, the author warns that its inappropriate use—especially when aimed at rapidly generating content without due rigor in verifying quality and source—can compromise ethical principles in academia, including the risk of plagiarism.

These issues not only require a close examination of teaching practice, but also invite us to reflect on teachers' Social Representations regarding technological innovations. In this regard, it is important to investigate how teachers interpret the use of emerging technologies to support teaching, since such representations may reveal factors that act as barriers to their incorporation into the educational context (Andrade; Corrallo; Zanotello, 2024).

In light of the above, this paper—an excerpt from a broader master's thesis conducted by the first author— is based on the assumption that the teaching staff of a vocational school in São Paulo constitutes a social group for which the adoption of generative AI in the production of instructional materials (via ChatGPT) constitutes a social object. The objective was to reflect on the meanings attributed to this emerging technology, understanding it as a contemporary sociopedagogical phenomenon. To this end, we analyze the representations and tensions inherent in its integration into teaching practices, drawing on Social Representation Theory, with an emphasis on the Central Nucleus Theory. The methodology was based on the Free Word Association Technique and the textual analysis of open-ended questions.

1.1. Theoretical and Methodological Framework

The Social Representations Theory originated in Serge Moscovici's 1961 doctoral dissertation titled "La Psychanalyse - Son Image et Son Public" and is considered a branch of the Social Psychology of Knowledge. According to Moscovici (2007, p. 20), Social Representations Theory attributes a dynamic meaning to the concept of Social Representations[1], encompassing both the process of constructing representations and the structures of knowledge that result from them. The author further adds that "[...] knowledge emerges from the world where people meet and interact, from the world where human interests, needs, and desires find expression, satisfaction, or frustration" (Moscovici, 2007, p. 9).

Social Representations Theory is a framework in social psychology that seeks to understand how individuals and groups construct and share knowledge in everyday life, especially when faced with new or complex phenomena. It offers analytical tools that can help us understand how certain phenomena—such as educational practices, technologies, or teaching methods — are socially interpreted, enabling us to identify consensus, tensions, and shifts in ways of thinking, as well as how different social groups adopt these practices in their work.

A well-established methodology for mapping Social Representations is provided by the structuralist strand of Social Representations Theory: the Central Core Theory, proposed by Jean-Claude Abric in 1976. According to Abric (2001), Social Representations are organized around a central core, which defines the meaning and structure of the representation. Surrounding this core, a peripheral system forms, composed of elements that are more flexible and context-sensitive, which interact with the core to constitute the entirety of the representational content. The central core performs two main functions: the generative function, which creates and transforms the meaning of the elements of the representation, and the organizing function, which

[1] Social Representations can be defined as organized sets of socially constructed and shared ideas, values, beliefs, and practices that enable individuals to interpret reality, attribute meaning to social objects, and guide their actions and communications. They are, therefore, a form of common-sense knowledge, collectively constructed through social interactions.

determines the nature of the ties that unite, define, and stabilize the links between these elements, acting as a unifying element of the representation (Abric, 2001). According to Sá (1996), the central core tends to be coherent, resistant to change, and responsible for ensuring the continuity of representations over time.

On the other hand, the elements that make up the peripheral system may be more or less close to the central elements. The elements closest to the core play an important role in giving concrete meaning to the representation, while those farther from it illustrate, clarify, and justify that meaning. Thus, peripheral elements also play an essential role in Social Representations, as they constitute the interface between the central core and the concrete situation in which representations are created (Abric, 2001). Sá (1996) summarizes that the functions of the peripheral system consist, in current and everyday terms, of adapting to concrete reality and differentiating the content of the representation, and, in historical terms, of protecting the central system.

The formation of teachers' Social Representations regarding the use of generative AI in the production of instructional materials is unlikely to occur in a uniform manner; rather, it is shaped by the specific characteristics of the fields of knowledge and the educational contexts in which teachers operate. In light of Social Representations Theory, it is understood that such representations are socially constructed and shared, arising from the practices, interactions, and values that characterize specific professional groups. In this sense, the field of education exhibits a structural heterogeneity that can directly impact the meanings attributed to emerging technologies.

From the perspective of fields of knowledge, it is reasonable to assume that faculty members in technology-related fields tend to have a more favorable attitude toward adopting generative AI in their teaching practices. This disposition is often rooted in perceptions associated with efficiency, automation, and process optimization. This tendency can be explained both by the epistemological nature of these fields — characterized by objectivity, formalization, and an emphasis on problem-solving — and by the professionals' consistent familiarity with technological tools.

In the field of vocational and technological education, Social Representations tend to be strongly shaped by a logic of applicability and alignment with the world of work. In this context, the use of generative AI can be viewed both as a tool for innovation and curriculum updating, and as an adaptive necessity in the face of contemporary changes in production. This perspective aligns with pedagogical approaches focused on competency-based education and the integration of theory and practice, in which mastery of emerging technologies is often viewed as a competitive advantage in education. However, this same integration can give rise to ambivalent perceptions, especially when associated with fears of the replacement of teaching roles or the precariousness of educational work. Thus, Central Core Theory can provide clues as to the elements (words or expressions) that potentially constitute the central core — the instance responsible for organizing and assigning meaning to the analyzed manifestations. This core is defined by the relationship established by teachers with emerging technologies— in this case, ChatGPT — as well as by the values that permeate the educational context. In contrast, the elements that make up the peripheral system are characterized by greater flexibility and the ability to adapt to innovations and the demands of the immediate context, helping to alleviate the tensions inherent in the process of integrating these technologies into teaching practices.

2. Methodology

The research presented in this article is part of a broader study conducted within the framework of the Graduate Program—Professional Master's Degree in Science and Mathematics Education (ENCiMA) — at the Federal Institute of Education, Science, and Technology of São Paulo (São Paulo Campus), and completed by the first author[2]. The study aimed to map the possible constituent elements of the Social Representations of

[2] The research project was approved by the institution's Research Ethics Committee through Plataforma Brasil, in accordance with Resolution No. 466/2012 of the National Health Council, based on detailed opinion No. 6,555,723, issued on December 5, 2023.

teachers at a vocational education institution regarding the use of generative artificial intelligence — more specifically, the ChatGPT tool — in the development of instructional materials.

An exploratory approach was adopted, involving the administration of a structured questionnaire using the Free Word Association Technique (FWAT)[3], based on the theoretical principles of Central Core Theory. The FWAT helps capture symbolic and cognitive content that may constitute social groups' representations of a given social object. Data analysis was conducted using the IRaMuTeQ software, an open-source program developed by researcher Pierre Ratinaud for the analysis of textual data, which enabled the use of statistical tools such as similarity analysis, prototypical analysis, and Descending Hierarchical Classification (DHC). This set of techniques can help identify and classify the words or expressions most frequently associated by teachers with the use of generative AI, revealing possible central and peripheral aspects of Social Representations, as well as contributing to a broader understanding of the potential influences of this technology in the educational context.

The study was conducted at the SENAI Roberto Simonsen School, located at 298 Monsenhor Andrade Street, Brás, in São Paulo, SP. This school, which is a leading institution within the network of schools maintained by SENAI — the National Industrial Apprenticeship Service — stands out as a pioneer in industry-focused vocational training. Administered and supported by the industrial sector, the school offers a wide variety of courses designed to train professionals for various industrial fields.

Since it is the largest school in the SENAI-SP network in terms of number of employees, we chose to focus the study solely on this campus, thereby avoiding the influence of other regional factors on the research. Furthermore, at the time, the faculty consisted of 155 members, of whom 123 (79%) participated, which already represents a significant sample of the population for the analysis of Social Representations regarding the use of generative AI in the development of instructional materials, since, as pointed out by Wachelke, Wolter and Matos (2016), samples of 200 and 100 cases exhibit patterns similar to those of the total sample in terms of agreement with the composition of the first quadrant, which will form the potential central core of the representations in the prototypical analysis. It is also worth noting that these faculty members were already working in an environment deeply embedded in a technological context, particularly with regard to teaching technologies applied to the operation of industrial machines and systems; as a result, this setting creates a favorable predisposition toward the incorporation of new educational tools, such as AI tools applied to the teaching process.

For the questionnaire administered, a written form was chosen and distributed inside an envelope to enhance the reliability of the study's anonymity, based on the FWAT framework, in addition to open-ended and closed-ended questions on the application of generative AI. Each faculty member was asked to list five words (associations), in the order in which they came to mind, as well as a justification for each choice, all related to the expression (trigger term): "Use of ChatGPT as a support tool in the production of teaching materials." In this way, it was possible to validate the evoked terms[4], ensuring a more in-depth analysis of the hierarchy of meanings attributed by the faculty members.

3. Results and Discussion

After creating spreadsheets containing the participants' associations, a detailed analysis was conducted of the justifications provided for each term. Based on this analysis, lemmatization was performed,

[3] The Free Word Association Technique consists of "[...] asking the individual to generate all the words or expressions they can think of based on one or more trigger terms, or requesting a specific number of words, followed by a process of ranking the generated terms from most to least important" (Ferrari, 2019, p. 134).

[4] To facilitate the analysis of the words evoked, each envelope was numbered and identified by an "ID." The evoked words were entered into a spreadsheet and organized according to each "ID." In addition, the justifications associated with the evoked words were analyzed, which made it possible to make adjustments and use synonyms when necessary.

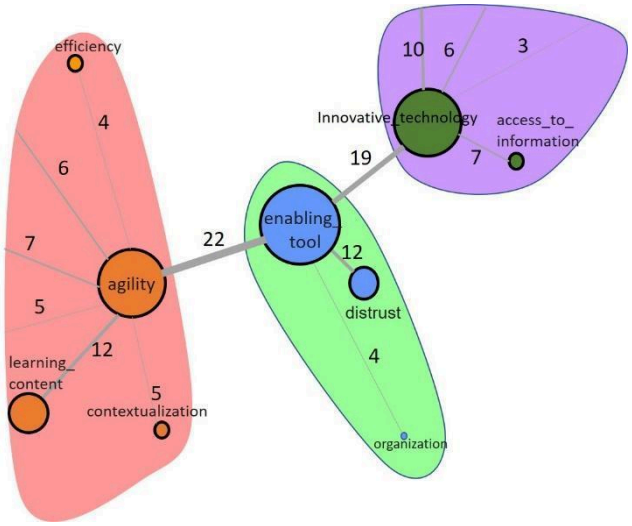
which consisted of merging terms with similar meanings or equivalent roots, ensuring the standardization of the associations. Subsequently, the revised spreadsheet, containing the adjusted associations, was exported to the IRaMuTeQ software, where a cutoff frequency was established based on the most frequently occurring terms, and a threshold of just over 50% was set, representing a minimum of 7 associations.

The first analysis conducted was a similarity analysis; that is, it made it possible to identify the connections between the terms mentioned by the research participants, mapping the cognitive structure that organized these potential Social Representations. In this way, we can gain an understanding of how certain terms are interconnected, revealing a potential network of meanings shared by a social group.

The results are shown in the maximum similarity tree in Figure 1, where the terms can be viewed either independently or grouped into communities. In this similarity tree, three communities were identified: the orange one, the light green one, and the purple one. Their main elements are represented, respectively, by the terms “agility”, “facilitating tool” and “innovative technology”. The orange community appears to represent a set of concepts related to the pursuit of knowledge, learning, and continuous development, suggesting a dynamic of constant evolution and adaptation, characterized by agility, contextualization, and efficiency.

The purple community, on the other hand, may be more closely associated with innovation, technology, and the future. The concepts of intellectual property and practicality are present, which may indicate a concern for originality amid such practicality and ease, especially from a futuristic perspective. Meanwhile, the light green community seems to represent a set of concepts related to the use of tools and the organization of knowledge, but permeated by mistrust — a sentiment that may be associated with new technologies or methods. The connection between the three communities may represent a relationship between the pursuit of knowledge and technology, with innovative technology serving as a tool to accelerate knowledge acquisition and facilitate updating. However, the strong connection between the orange and light green communities suggests that the use of facilitating tools, such as technology, can bring both benefits — such as agility and efficiency — and challenges, such as mistrust. It is reasonable to consider that the presence of the term “mistrust” may represent a potential obstacle to the adoption of this technology by faculty members at the institution under analysis, given its frequency (evidenced by the size of the circle) and its connectivity, represented by the value 12.

Figure 1 - Similarity Analysis with Clustering



Source: Authors.

Following the similarity analysis, we proceeded with the prototypical analysis (Table 1), which, according to Wachelke and Wolter (2011), is a widely used method for presenting the structure of Social

Representations based on data obtained through free association. According to these authors, the technique — originally proposed by Pierre Vergès in the 1980s — is based on the calculation of two main dimensions of participants' responses: the frequency with which certain terms appear in the dataset and the mean order of recall (MOR). The latter corresponds to the position in which each word is mentioned, calculated as an average in which the first terms evoked are assigned a lower value, indicating greater readiness to recall.

Based on these criteria, a distinction is made between high- and low-frequency words, using a cutoff point defined for the analyzed dataset. Similarly, the average order of recall is also classified; terms mentioned more readily—that is, with a lower average order—tend to have greater analytical relevance. In this sense, the combination of frequency and order of recall makes it possible to identify the degree of salience of the recalled elements, contributing to the characterization of the structure of the representation (Wachelke; Wolter, 2011).

The choice of prototypical analysis as a methodological strategy is justified, above all, by its ability to empirically operationalize abstract concepts—such as that of the central core—thereby making it possible to identify the organizing structure of Social Representations. Furthermore, this approach facilitates the systematization and comparability of data, making it particularly well-suited for studies involving larger samples or those seeking to establish relationships between different social groups or contexts. By combining quantitative and qualitative elements, prototypical analysis offers a middle ground that preserves the richness of symbolic content without sacrificing more objective analytical criteria.

Table 1 presents the results of the prototypical analysis, highlighting the main elements of Social Representations identified in the study. The terms "facilitating tool" "agility", "innovative technology", "distrust" and "practicality" are strong candidates for the central core, as they were the most frequently mentioned and had the lowest MOR values. These terms are fundamental to understanding Social Representations of generative AI for the production of instructional materials and may indicate that teachers view the tool as something that can facilitate their work, providing agility and representing a relevant technological innovation in the educational context. However, potential candidates for the central core included "concern" and "mistrust", suggesting that, despite the advantages, there is still uncertainty regarding the reliability and impacts of adopting this technology. "Practicality" appears to reinforce the perception that ChatGPT is easy to use and that this could contribute to its full adoption.

The term "learning content" appears in the first periphery, which may indicate that teachers also associate ChatGPT with the educational content it can generate. This peripheral position suggests that this aspect is not as central as ideas such as agility or innovation. Nevertheless, it provides support and may serve as a gateway to changes in Social Representations. In the second periphery, terms such as "updates", "futuristic", "access to information", "efficiency" and "organization" indicate a perception that ChatGPT can facilitate efficient access to information and contribute to the organization of content, reinforcing its usefulness as a tool capable of optimizing the teaching and learning process. On the other hand, terms such as "accuracy" and "depth", when appearing in peripheral positions, may suggest that concerns about the accuracy and depth of the content generated by ChatGPT are secondary.

In turn, in the region referred to as the "Contrast Zone" (Table 1), terms such as "knowledge", "research", "intellectual property", "dynamism" and "quality" point to possible tensions or divergences within the group. These elements suggest that a portion of the faculty members express greater concern about issues related to the quality of the content generated, respect for intellectual property, and the impacts that the use of generative AI may have on knowledge formation and the dynamism of teaching.

Table 1 - Results of the prototypical analysis

Central Unit			**1st Outskirts**		
Frequency ≥ 15 - MOR ≤ 2,76			Frequency ≥ 15 - MOR > 2,76		
	f	MOR		f	MOR
Facilitation_Tool	**56**	**2,3**	Content_for_knowledge	26	3,4
Agility	**49**	**2,5**			
Innovative Technology	**44**	**2,2**			
Distrust	**23**	**2,7**			
Practical	**22**	**2,7**			
Contrast Zone			**2nd Outskirts**		
Frequency < 15 - MOR ≤ 2,76			Frequency < 15 - MOR > 2,76		
	f	MOR		f	MOR
Knowledge	13	2,3	Futurist	12	3,2
Research	10	2,7	Update	12	3,3
Intelectual Property	7	2,0	Acess_to_Information	11	3,3
Dynamism	6	2,7	Contextualization	9	4,4
Quality	5	2,4	Accuracy	7	2,9
			Efficiency	7	3,4
			Organization	7	4,3
			Improvement	6	2,8
			Objetividade	6	2,8
			Optimization	6	3,5
			Intelligence	6	3,7
			Challenging	5	3,0
			Depth	5	3,2

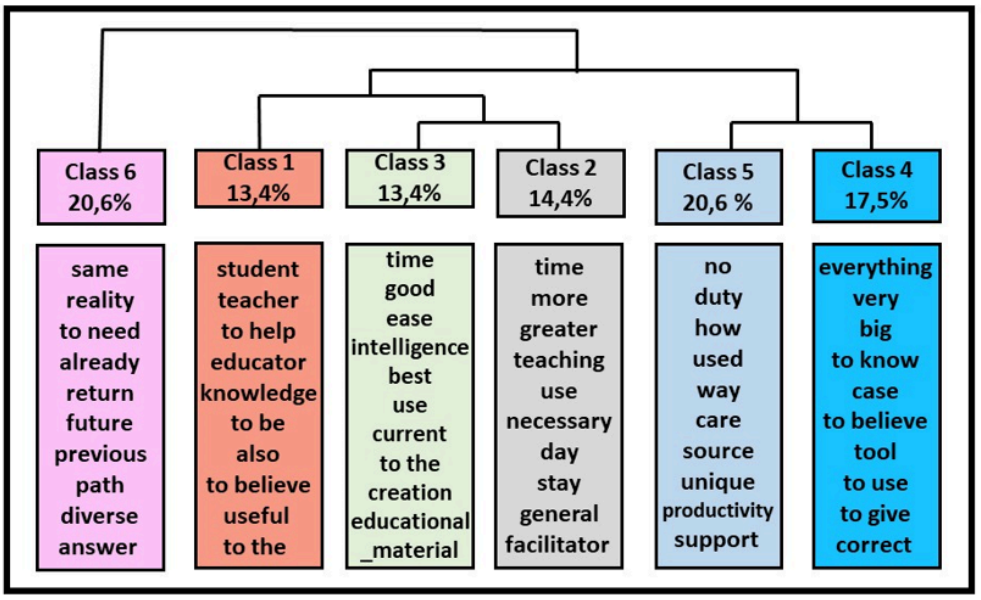
Source: Authors.

To increase the reliability of the analysis and facilitate data cross-referencing, we also chose to conduct a content analysis of the responses to the open-ended questions in the questionnaire, using the DHC method and the IRaMuTeQ software. The questions involved describing situations in which the ChatGPT tool was used to develop instructional materials. The faculty members' responses were grouped to form a textual corpus. Once again, the IRaMuTeQ software was used for analysis and to generate a dendrogram showing the classes, as illustrated in Figure 2. In addition to the percentage of each class and their relationships, the figure presents the top 10 words for each class.

This analysis considered 97 of the 122 elementary context units present in the textual corpus, covering 79.51% of them (values of 70% or higher are recommended). The process resulted in the identification of six classes of text segments, organized hierarchically. Class 6 stands out as independent and hierarchically superior, while Classes 1, 4, and 5 are at the same hierarchical level below it. Following this structure, Classes 2 and 3 appear even lower, related to each other and to Class 1, which occupies a hierarchically superior position.

Based on the terms found in the classes resulting from the DHC analysis, the respective nomenclatures were established. Thus, Class 1 was designated as the "Uncertainty and Lack of Knowledge" class, which ranks among the least frequent (13.4%), but its hierarchical position in the dendrogram reveals a considerable influence on other classes, suggesting that doubts about the tool's use permeate teachers' possible representations. This uncertainty was identified through a detailed analysis of the responses to the open-ended questions, as well as their relationship to the words and expressions listed in the category, highlighting a lack of familiarity with AI and the fear that its use might lead to unpredictable consequences for teaching practice.

Figure 2 - Excerpt from the dendrogram of the DHC analysis



Source: Authors.

Class 2, titled “Utility and Efficiency”, has a frequency of 14.4%. This class reflects a favorable view of ChatGPT, highlighting its importance as a useful tool in an educational context. Class 3, titled “Support Tool”, has a frequency of 13.4% and explores ChatGPT’s role as an aid in teaching activities, showing that its usefulness is directly linked to efficiency. These classes indicate that teachers also view AI as an ally in teaching. The efficiency gained by automating repetitive tasks, the ability to generate content quickly, and the possibility of using generative AI as a support resource are factors that reinforce the tool’s positive aspects. In this sense, ChatGPT is viewed as a facilitator that can free teachers to engage in more creative and strategic activities, in addition to reducing their administrative workload.

Classes 2 and 3 are hierarchically subordinate to Class 1 in the dendrogram, suggesting that, although they recognize the tool’s advantages, there is still an underlying sense of mistrust. This may indicate that, despite its potential applications, the full use of ChatGPT depends on overcoming these initial barriers. Classes 4 and 5, which were named “Moderate Optimism” and “Caution and Risks”, respectively, share the same hierarchical level and reflect the different attitudes of faculty members toward ChatGPT. Class 4 has 17.5% concordant terms and indicates a positive, yet restrained, view of the use of generative AI. On the other hand, Class 5, with a 20.6% agreement rate, shows greater concern about the risks and necessary precautions, which tempers optimism. These classes may indicate that there is a willingness to adopt the tool, but that this acceptance comes with reservations. The recurrence of terms such as “ease” and “better” in teachers’ responses may indicate recognition of the benefits associated with the use of the technology. However, these aspects are not sufficient to dispel existing uncertainties. It is, therefore, a conditional acceptance, in which teachers demand not only more evidence but, above all, greater assurance regarding the effective application of generative AI in the educational context.

Skepticism about the quality of content generated by generative AI, the fear that students might become dependent on these tools, and ethical questions regarding the authorship of the materials are factors that reinforce this cautious stance. The concern that the indiscriminate use of ChatGPT could compromise teachers’ autonomy and human interaction in the educational process is also a recurring theme. The term “caution” reflects a prudent perspective, in which the risks associated with the use of generative AI cannot be ignored.

Finally, Class 6, titled “Inevitability and the Future”, is the highest-ranking and most significant class, with 20.6% of concordant terms. It suggests that AI technology, represented by ChatGPT, is viewed as inevitable

and part of a future where its use will be indispensable, reflecting the idea that this technological innovation will transform education and will be difficult to ignore as time goes on. This is an interesting counterpoint, as it supports the idea that generative AI is the "future" and that its incorporation into education is only a matter of time, suggesting that, despite uncertainties and concerns, teachers recognize the disruptive role this technology will play.

An analysis of the six semantic classes generated by the IRaMuTeQ software reveals that teachers' Social Representations are, to a large extent, rooted in beliefs that range from innovation to caution. The dendrogram indicates that these representations are ambiguous and multifaceted: on the one hand, there is acceptance of ChatGPT as a potentially facilitative tool, capable of streamlining processes and contributing positively to teaching; on the other hand, concerns emerge regarding its reliability, accuracy, and the ethical implications of its use in educational contexts. These distinct perspectives reflect a scenario in which ChatGPT is perceived simultaneously as both an opportunity and a challenge, and its full integration into teaching practice still depends on more in-depth discussions regarding its effectiveness, safety, and impact on the teaching and learning process.

4. Final Considerations

The study conducted on teachers' Social Representations regarding the incorporation of generative AI (ChatGPT) into the process of developing instructional materials revealed a complex and multifaceted picture. By cross-referencing the results of the various analyses conducted with the data, it became apparent that, on the one hand, there is a clear recognition of the tool's potential, such as its ability to streamline processes, increase efficiency, and provide support in the creation of instructional content. On the other hand, there are a number of concerns ranging from mistrust regarding the reliability of content generated by generative AI to deeper ethical issues, such as intellectual property, teacher autonomy, and the risk of technological dependence. This may be linked to a lack of understanding of the technology the tool uses to generate text; as Hessel and Lemes (2024) point out, generative AI creates solutions by learning from existing online databases, building models that are constantly learning and improving.

The results highlight the importance of understanding the factors that influence teachers' Social Representations and their potential intentions regarding the adoption of technological tools to support teaching. However, it is plausible to consider that the findings may have been influenced by the intense media coverage the topic received, especially from the launch of ChatGPT in November 2022 through the data collection period in April 2024. This context suggests that certain Social Representations may have been assimilated without deeper reflection, indicating a possible process of consolidating new representations based on others already established in related topics— a process that Flament (2001) termed "non-autonomous representation." This non-autonomous representation may be associated with representations of analogous objects, such as those linked to technology-mediated education or, more broadly, to distance education.

From this perspective, teachers at different educational levels express skepticism regarding the use of digital pedagogical mediations, often linked to historically constructed representations of distance education. In a recent study, Viana *et al*. (2024), in investigating these representations from the perspectives of the ego (self) and the alter (other), highlight the predominance of negative representations when questions are directed at the alter, indicating an increase, between 2019 and 2023, in the number of subjects who attribute a lack of credibility to distance education or view it with suspicion. On the other hand, when questions are directed at the ego, these negative representations prove to be less pronounced, even though they reveal concerns related to insufficient technological resources and difficulties in the learning process, pointing to criticisms of the quality of distance education and doubts regarding its effectiveness as a teaching modality. These findings suggest a disconnect between socially widespread discourses and individual experiences, reinforcing the hypothesis that these perceptions are, to a large extent, influenced by previously established collective constructs. These perceptions, marked by doubts about the viability and legitimacy of this modality compared

to traditional face-to-face teaching methods, may, to some extent, influence how these teachers perceive the contemporary use of emerging technologies in the educational context.

From the perspective of the teaching and learning process, the incorporation of generative AI is not limited to an instrumental innovation but implies a broader reconfiguration of pedagogical practices, educational relationships, and the epistemological foundations that underpin teaching. In this sense, the Social Representations identified in the research not only express opinions about a tool but also reveal deeper tensions regarding the role of the teacher, the nature of knowledge, and forms of mediation in the contemporary educational context. The adoption of generative AI in the production of instructional materials[5] can facilitate the personalization of teaching, allowing content, language, and levels of complexity to be adapted to students' specific needs. This possibility aligns with approaches that value pedagogical differentiation and more student-centered teaching, expanding the potential for inclusion and addressing diversity. However, from an ethical standpoint, the teachers' concerns identified in the research take on special relevance when considering issues related to authorship and intellectual property. The use of AI-generated content challenges traditional notions of authorship by introducing a non-human element into the production of texts and instructional materials.

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[5] As a byproduct of this research, an educational resource was developed as part of the master's program, with the primary objective of presenting possibilities for teachers to use this technology, in order to inform their decision regarding its feasibility based on their own representations—which, in some way, may contribute to future transformations in the Social Representations of this social group. Available at: http://educapes.capes.gov.br/handle/capes/921076. Accessed on: Dec. 17, 2025.

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